

Draft Final

**Site Management Plan  
Fiscal Year 2008-2009**

**Former Naval Facilities  
Vieques, Puerto Rico**

**Contract Task Orders 007 and 039**

**October 2008**

Prepared for

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

Under the

**NAVFAC CLEAN III Program  
Contract N62470-02-D-3052**

Prepared by



**CH2MHILL**

**Virginia Beach, Virginia**

# Executive Summary

---

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

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

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

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

## Facility Description

Vieques Island has a land area of approximately 33,000 acres, and is located in the Caribbean Sea approximately 7 miles southeast of the eastern coast of the main island of Puerto Rico (Figure 1-1). The former Naval facilities are located on the eastern one-third (i.e., former VNTR) and western one-third (i.e., former NASD) of the island, with the communities of Isabel Segunda and Esperanza located in the center of the island. On September 7, 2007, Vieques was placed on the EPA.

### East Vieques (former VNTR)

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

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

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

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

### West Vieques (former NASD)

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

# Resumen Ejecutivo

---

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

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

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

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

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

## Descripción de la Instalación

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

### Este Vieques (antiguo VNTR)

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

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

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

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

### Oeste Vieques (antiguo NASD )

El 30 de abril del 2001, 8,114 acres del antiguo NASD ubicado en el lado oeste de Vieques fue repartido y transferido a DOI, al Municipio de Vieques (MOV), y al Fideicomiso de Conservación de Puerto Rico (PRCT) de acuerdo con la Ley Pública 106-398. Los sitios que son propiedad de estas agencias se describen en los anexos. La propiedad de DOI (aproximadamente 3,158 acres) está administrada por FWS como parte del Refugio Nacional

de Vida Silvestre de Vieques. La restauración del antiguo NASD se basará en los riesgos potenciales a la salud humana y al ambiente considerando el uso futuro de los terrenos.

# Contents

---

<b>Executive Summary</b> .....	<b>iii</b>
<b>Resumen Ejecutivo</b> .....	<b>v</b>
<b>Acronyms and Abbreviations</b> .....	<b>xi</b>
<b>1 Introduction</b> .....	<b>1-1</b>
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 SMP.....	1-1
1.1.3 SMP Updates .....	1-2
1.1.4 Facility Description.....	1-2
1.1.5 National Priorities List (NPL) Listing .....	1-3
1.2 Information Repositories .....	1-3
<b>2 Site Descriptions</b> .....	<b>2-1</b>
2.1 Eastern Vieques Sites.....	2-1
2.1.1 Environmental Sites.....	2-1
2.1.2 Photo-identified (PI) and Potential Area of Concern (PAOC) Sites .....	2-7
2.1.3 Munitions Response Sites (MRS).....	2-15
2.2 Western Vieques Sites .....	2-17
2.2.1 Environmental Sites.....	2-17
2.2.2 Munitions Response Site (SWMU 4 - Inactive OB/Waste Explosive Detonation Range) .....	2-22
<b>3 Schedules and Funding</b> .....	<b>3-1</b>
3.1 Document Review Schedule.....	3-1
3.2 Primary Documents.....	3-2
3.3 Secondary Documents.....	3-3
3.4 Projected ERP/MRP Funding .....	3-3
<b>4 References</b> .....	<b>4-1</b>

## Appendixes

AI	Status of Environmental Remedial Investigation/Feasibility Study Sites in Vieques, PR
AII	Status of Munitions Remedial Investigation /Feasibility Study Sites
BI	Site Screening Areas - Environmental Sites, Vieques, PR
BII	Site Screening Areas - Munitions Response Sites, Vieques, PR
C	Primary Documents Previously Provided to EPA, Interior, and Commonwealth for review and comment

## **Tables**

- 3-1 FY10 and Beyond Tentative Schedule
- 3-2 Vieques Funding, In Thousands

## **Figures**

- 1-1 Regional Location Map
- 1-2 Vieques Sites To Be Assessed Under CERCLA
  
- 2-1 East Vieques Sites to be Assessed Under CERCLA
- 2-2 West Vieques Sites to be Assessed Under CERCLA
  
- 3-1 Vieques Environmental Restoration Program Schedule
- 3-2 Vieques Munitions Response Program Schedule



# Acronyms and Abbreviations

---

AFWTA	Atlantic Fleet Weapons Training Area
AFWTF	Atlantic Fleet Weapons Training Facility
AOC	Area of Concern
AST	aboveground storage tank
ATG	air-to-ground
AVGAS	aviation gas
CCP	Comprehensive Conservation Plan
CCP/EIS	Comprehensive Conservation Plan/Environmental Impact Statement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
DoD	Department of Defense
DOI	Department of Interior
EBS	Environmental Baseline Survey
ECA	Eastern Conservation Area
EE/CA	Engineering Evaluation/Cost Estimate
EMA	Eastern Maneuver Area
ERA	Ecological Risk Assessment
ERM	Environmental Resource Management, Inc.
ERN	Environmental Restoration, Navy
ERP	Environmental Restoration Program
ESE	Environmental Science and Engineering
FFA	Federal Facility Agreement
FS	Feasibility Study
FWS	Fish and Wildlife Service
FY	fiscal year
HHRA	Human health risk assessment
IAS	Initial Assessment Study
IR	Installation Restoration (Program)
IRA	interim remedial action
JP	jet propellant
LIA	Live Impact Area
LUC	Land Use Control
MEC	munitions and explosives of concern
mg/kg	milligrams per kilogram
mm	millimeter
MOV	Municipality of Vieques
MPE	Multi-phase vacuum extraction
MRA	Munitions Response Area

MRA-ECA	Munitions Response Area – Eastern Conservation Area
MRA-EMA	Munitions Response Area – Eastern Maneuver Area
MRA-LIA	Munitions Response Area – Live Impact Area
MRA-SIA	Munitions Response Area – Surface Impact Area
MRP	Munitions Response Program
MRS	Munitions Response Sites
NA	not applicable
NACIP	Naval Assessment and Control of Installation Pollutants
NASD	Naval Ammunition Support Detachment
NAVFAC	Naval Facilities Engineering Command
NAVFACENGCOM	Naval Facilities Engineering Command
NFA	No Further Action
NPL	National Priorities List
NSRR	Naval Station Roosevelt Roads
OB/OD	open burn/open detonation
OE	ordnance and explosives
OP-1	Observation Post - 1
ORS	ordnance-related scrap
OU	Operable Units
PA	Preliminary Assessment
PAOC	Potential Area of Concern
PA/SI	Preliminary Assessment/Site Inspection
PCB	polychlorinated biphenyl
PI	Photo-identified
PR	Puerto Rico
PRCT	Puerto Rican Conservation Trust
PRE	Preliminary Risk Evaluation
PREQB	Puerto Rico Environmental Quality Board
RA	Remedial Action
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RD	remedial design
RD/RA	remedial design/remedial action
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SAR	Small Arms Range
SI	Site Inspection
SIA	Surface Impact Area
SMP	Site Management Plan
SSA	Site screening areas

SSP	Site screening process
SVOC	semi-volatile organic compound
SWMU	Solid Waste Management Unit
TAG	Technical Assistance Grant
TAPP	Technical Assistance for Public Participation Program
TCRA	Time Critical Removal Action
TPH	total petroleum hydrocarbon
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	underground storage tank
UXO	unexploded ordnance
VNTR	Vieques Naval Training Range
VOC	volatile organic compound
VSI	Visual Site Inspection

# Introduction

---

## 1.1 Overview of the Site Management Plan

### 1.1.1 Overview of this Document

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

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

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

### 1.1.2 Objectives of the SMP

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

- A description of actions necessary to mitigate any immediate threat to human health and the environment
- A description of all currently identified Site Screening Areas (SSA), Operable Units (OUs), interim remedial actions (IRAs), Supplemental Remedial Actions (RAs), Time Critical Removal Actions (TCRA)s and Non-Time Critical Removal Actions planned or being performed pursuant to the FFA
- Activities and schedules for response actions including at a minimum:
  - Identification of any Primary actions
  - All deadlines

- All Near Term Milestones
- All Out Year Milestones
- All Target dates
- Schedule for initiation of Remedial Designs (RD)s, RAs, including IRAs and Supplemental RAs, Emergency, Time- Critical, and Non-Time Critical Removal Actions and any initiation of other planned response actions covered by the FFA and all Project End Dates

### 1.1.3 SMP Updates

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

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

### 1.1.4 Facility Description

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

#### East Vieques (former VNTR)

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

On April 30, 2003, 14,573 acres of east Vieques (former VNTR) were transferred to the DOI to be operated and managed by the Fish and Wildlife Service (FWS) as a National Wildlife

Refuge and Wilderness Area pursuant to Section 1049 of the National Defense Authorization Act for Fiscal Year 2002 (Public Law 107-107). Approximately 900 acres of the former VNTR, consisting of the Live Impact Area (LIA) will be managed as a wilderness area and the public must be excluded from these areas in accordance with Public Law 106-398 and Public Law 107-107.

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

### **West Vieques (former NASD)**

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

### **1.1.5 National Priorities List (NPL) Listing**

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

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

## **1.2 Information Repositories**

Public Information Repositories have been established to provide convenient public access to site-related information for interested parties. Technical assistance in the review of these documents is provided by the Navy to the community through the Technical Assistance for Public Participation (TAPP) program. A solicitation for a TAPP consultant was posted in 2008 and responses to the solicitation were received. The responses will be reviewed by the

RAB and recommendations from the RAB will be considered as part of the TAPP consultant selection. In addition, technical assistance is also available to the community from the EPA through a Technical Assistance Grant (TAG). A TAG allows community groups(s) to procure independent technical advisors to help interpret and comment on site-related information and decisions. Examples of how a technical advisor can help community group(s) include, but are not limited to: (a) Reviewing preliminary site assessment/site investigation data, (b) Participating in public meetings to help interpret information about site conditions, proposed remedies, and the implementation of a remedy; and (c) Visiting the site vicinity periodically during cleanup, if possible, to observe progress and provide technical updates to the group. Technical documents and other information related to the investigation can be found in:

<http://public.lantops-ir.org/sites/public/vieques>.

The local repositories are:

**Biblioteca Electrónica**

Calle Carlos LeBrum #449 Isabel Segunda  
Vieques, PR 00765  
Phone/Teléfono: (787) 741-2114

**EPA Repository**

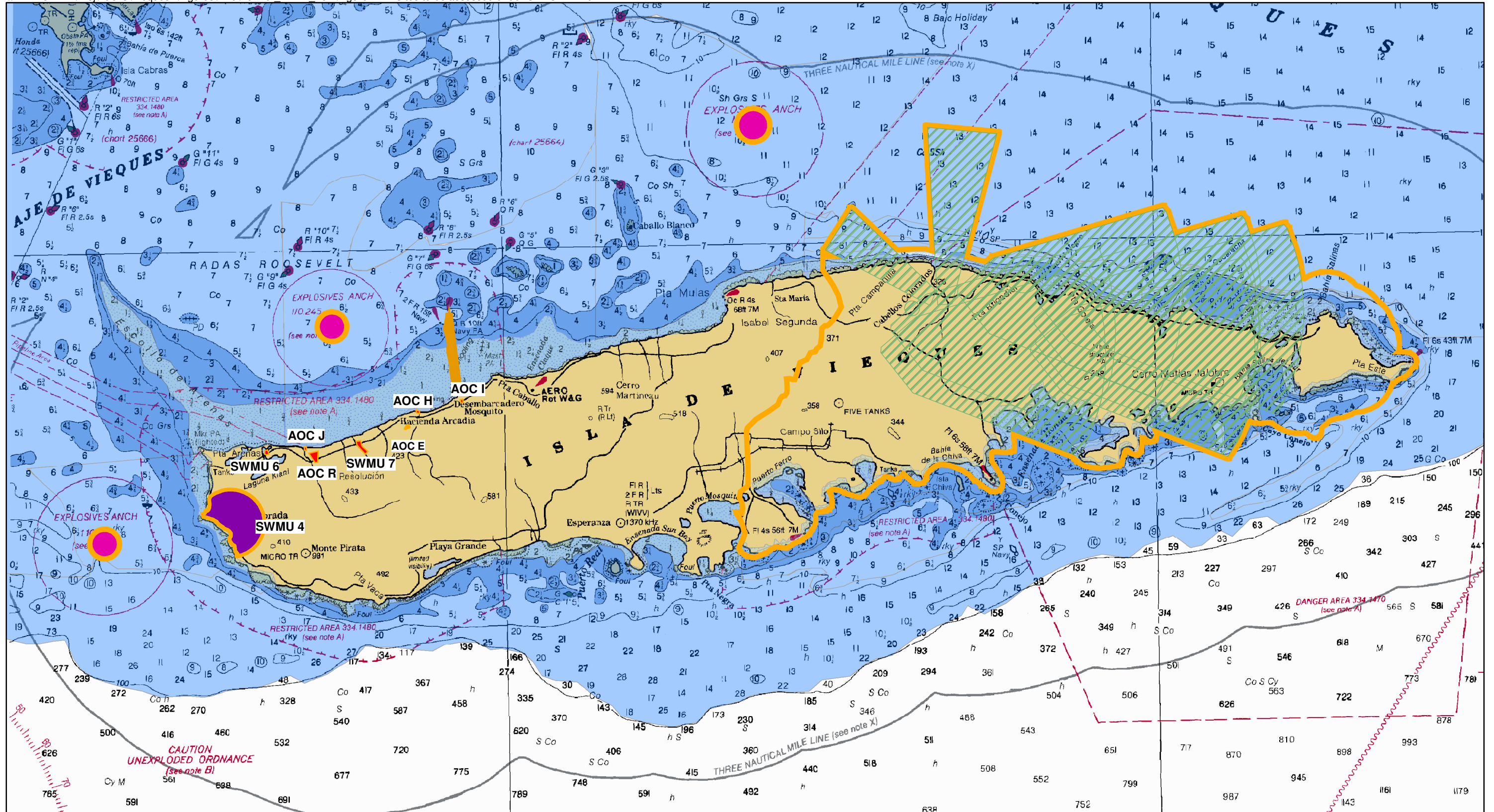
Vieques Office Park  
Road 200, Km. 04  
Vieques, PR 00765



Scale in Miles

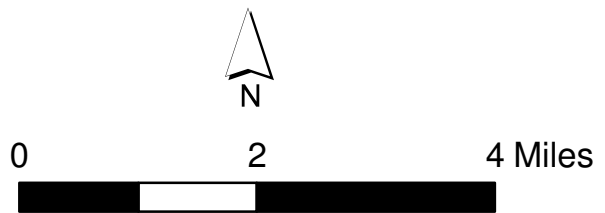






**Legend**

- Agreed Areas of Proposed NPL Site
- Anchorage Location Boundary
- Western Vieques Environmental Sites
- SWMU 4 (Former OB/OD Site)
- Artillery Safety Fan
- Water Depth**
- 0-10 Feet
- 10 - 150 Feet
- Greater Than 150 Feet



**Figure 1-2**  
Vieques Sites to be Assessed Under CERCLA  
Vieques, Puerto Rico

# Site Descriptions

---

This section presents a description of the sites and the current status for the CERCLA response actions that have been completed at the Vieques Facility. The sites are categorized in the appendices to this SMP and the FFA as follows: Remedial Investigation/Feasibility Study sites for the Environmental Restoration Program (ERP) (Appendix AI); the Munitions Response Program (MRP) (Appendix AII); and Site Screening Area sites for the ERP (Appendix B I) and MRP Site Screening area sites (Appendix BII). Figures showing the locations of the sites on East Vieques and West Vieques are provided as Figures 2-1 and 2-2, respectively.

## 2.1 Eastern Vieques Sites

### 2.1.1 Environmental Sites

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

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 Preliminary Assessment/Site Inspection [PA/SI] conducted under CERCLA) was conducted for the 12 Consent Order SWMUs and AOCs and the Draft Phase I RFI Report was prepared (CH2M HILL, 2004a). Because several of the potential inorganic constituents (also referred to as metals) detected in site-specific soil samples are also commonly occurring in nature or otherwise ubiquitous, a background investigation of soil inorganics was conducted and a Final Background Soil Inorganics Report was submitted in October 2007 (CH2M HILL, 2007g). These background soil results are used to assess if the inorganic constituent levels detected in site-specific soils are consistent with background conditions or indicative of releases from historical waste management activities. Once the Background Soil Inorganics Report was finalized, the Draft Phase I RFI Report was revised with this information and re-submitted as the Draft PA/SI Report (to be consistent with the CERCLA terminology) for regulatory review, and subsequently the Final PA/SI Report (CH2M HILL, 2008d).

The locations of the sites investigated during the Phase I RFI are shown in Figure 2-1. Descriptions of the 12 Consent Order Sites are provided below. Descriptions of sites that were identified as potential sites (i.e., PIs and PAOCs), based on analysis of facility records and aerial photo analysis during the Phase I RFI Work Plan development and the Environmental Baseline Survey (EBS) (NAVFACENGCOM, 2003a), are provided in Appendix B.1. Eight of these PI/PAOC sites were investigated as part of a PA/SI conducted

in 2006. The findings and evaluation of the PA/SI for these eight PI/PAOC sites were included with those for the 12 Consent Order sites in the PA/SI Report (CH2M HILL, 2008d).

### **SWMU 1 – Camp Garcia Landfill**

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

During operation of the landfill, the trench method of disposal was employed and land clearing was kept to a minimum to avoid erosion problems 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 photo analysis of the landfill indicated that the fill area extended over an area of approximately 50 acres (Lockheed Martin, 1999). The landfill is currently vegetated with dense grasses and trees. A gravel road was constructed down the center of the landfill in the mid-1980s. During the visual site inspection (VSI), no signs of erosion or stresses on vegetation were observed (PREQB-Vargas, 1995). No documentation was found regarding releases of hazardous constituents from the landfill. Several areas of debris (fill material) were observed in 2004 during the clearing of transects for the Phase I RFI. Debris observed included galley (kitchen) waste (cans, bottles, forks, and knives), metal pipes, and a small metal tank.

Evaluation of historical data collected at SWMU 1 is presented in the Final PA/SI Report (CH2M HILL, 2008d). Although the data collected during the Phase I RFI suggest there has not been a release from the landfill that poses a potential risk, only surface soil and groundwater data were collected (i.e., no soil samples within and beneath debris nor ephemeral stream samples were collected). Based on this information, SWMU 1 is part of an SI/Expanded SI work plan planned for submittal for regulatory review in July, 2008. During the Expanded SI, geophysical surveying, test pitting, waste characterization, soil sampling, ephemeral stream sampling, monitoring well installation, and groundwater sampling will be performed.

### **SWMU 2 – Fuels Off-Loading Site**

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



(AVGAS), and jet propellant (JP)-5 fuel. The sludge that developed in these tanks was removed by a private contractor to be disposed of on the main island.

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

Evaluation of historical data collected at SWMU 2 is presented in the Final PA/SI Report (CH2M HILL, 2008d). Although the data collected during the Phase I RFI suggest there has not been a release that poses a potential risk, the spatial distribution of soil samples was not adequate to sufficiently characterize the potential source areas at the site. Based on the findings of the Phase I RFI, SWMU 2 is part of an SI/Expanded SI work plan planned for submittal for regulatory review in July, -2008. During the Expanded SI, soil sampling (and potentially groundwater sampling) will be performed.

#### **SWMU 4 – Waste Areas of Building 303**

Building 303 was established as a storage area at Camp Garcia for batteries when it was erected in the 1960s. The SWMU 4 waste areas located in Building 303 comprised a spent battery accumulation area; a catch basin for hydraulic oil; a cleaning/decreasing basin; and a rags, absorbent, and grease storage area, which were designated as AOCs C, D, and E, respectively, per the classifications in the 1988 RCRA Facility Assessment (RFA) (A.T. Kearney, 1988) and the 1995 Revised RFA (PREQB-Vargas, 1995) reports. The 1988 RFA Report and the PREQB revised RFA Report both recommended no further action for all four sites included as SWMU 4.

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

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

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

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

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

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

Evaluation of historical data collected at SWMU 4 is presented in the Final PA/SI Report (CH2M HILL, 2008d). Based on the findings in the PA/SI Report, no further action is likely necessary for SWMU 4. However, to help confirm these findings, evaluation of regional groundwater quality is planned as part of the Expanded SI. If the regional groundwater quality evaluation confirms a release from SWMU 4 has not occurred that poses a potential risk, no further action will be necessary for SWMU 4.

#### **SWMU 5 – Spent Battery Accumulation Area**

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

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

Evaluation of historical data collected at SWMU 5 is presented in the Final PA/SI Report (CH2M HILL, 2008d). Based on the findings in the PA/SI Report, no further action is necessary for SWMU 5.

#### **SWMU 6/7 – Waste Oil and Paint Accumulation Area**

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

According to the 1988 and 1995 RFA Reports, SWMU 7 was another waste oil accumulation area outside Building 303 (A.T. Kearney, 1988; PREQB-Vargas, 1995). However, after interviewing onsite Navy personnel, it was determined that there was only one waste oil area; therefore, the combined area is hereafter referred to as SWMU 6/7.

Evaluation of historical data collected at SWMUs 6/7 is presented in the Final PA/SI Report (CH2M HILL, 2008d). The evaluation suggests a release likely occurred. However, the spatial distribution of samples was not adequate to sufficiently characterize the potential source area (i.e., no subsurface soil samples were collected). Based on the findings of the Phase I RFI, SWMUs 6/7 are part of an SI/Expanded SI work plan planned for submittal for regulatory review in July, 2008. During the Expanded SI, additional soil sampling will be performed.

### **SWMU 8 – Waste Oil Accumulation Area**

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

Evaluation of historical data collected at SWMU 8 is presented in the Final PA/SI Report (CH2M HILL, 2008d). Based on the findings in the PA/SI Report, no further action is necessary for SWMU 8.

### **SWMU 10 – Sewage Treatment Lagoons**

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

Evaluation of historical data collected at SWMU 10 is presented in the Final PA/SI Report (CH2M HILL, 2008d). Historical data suggest there has not been a release that poses a potential risk, but there is uncertainty in the thallium data due to the tendency of the analytical method used to provide falsely elevated results. Based on the findings in the PA/SI Report, SWMU 10 is part of an SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. During the Expanded SI, environmental media at the site will be re-sampled for thallium analysis.

### **SWMU 12 – Solid Waste Collection Unit Area (formerly AOC B)**

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

Evaluation of historical data collected at SWMU 12 is presented in the Final PA/SI Report (CH2M HILL, 2008d). Based on the findings in the PA/SI Report, no further action is necessary for SWMU 12.

### **AOC A – Diesel Fuel Fill Pipe Area**

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

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

Evaluation of historical data collected at AOC A is presented in the Final PA/SI Report (CH2M HILL, 2008d). Historical confirmatory soil samples collected following the UST (and some associated soil) removal suggest there was sufficient contaminated soil removed beneath the UST, but not beneath a portion of the fuel fill pipe (i.e., some confirmatory soil sample total petroleum hydrocarbons-diesel range organics [TPH-DRO] concentrations exceeded the PREQB corrective action criterion). Based on the findings in the PA/SI Report, AOC A is part of an SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. Removal of soil contaminated with TPH-DRO above the PREQB corrective action criterion is planned as part of the Expanded SI.

### **AOC F – Rock Quarry**

According to the 1988 RFA and the 1995 PREQB revised RFA reports, this site is located southwest of the former Camp Garcia landfill, where the gravel that the Navy used for roads and other construction purposes was quarried. However, during the VSI, used tires and some paper waste were visible at this location (PREQB-Vargas, 1995). During the site

visit conducted on February 2, 2000, no signs of tires or paper waste were observed. The quarry did not appear to be active.

Evaluation of historical data collected at AOC F is presented in the Final PA/SI Report (CH2M HILL, 2008d). Based on the findings in the PA/SI Report, no further action is necessary for AOC F.

### **AOC G – Pump Station and Chlorination Building at Sewage Lagoons**

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

Evaluation of historical data collected at AOC G and SWMU 10 is presented in the Final PA/SI Report (CH2M HILL, 2008d), which suggest there has not been a release at AOC G that poses a potential risk. However, there is some uncertainty associated with potential discharge of pump maintenance fluids. Therefore, AOC G is part of an SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. During the Expanded SI, additional soil sampling will be performed.

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

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

There were 23 PI and 24 PAOC sites identified in the EBS. PI/PAOC sites are described in Appendix B-1. A Draft Phase I RFI Report (CH2M HILL, 2004a) was developed that further described the 47 PI/PAOC sites; however, none of the sites were investigated during the Phase I RFI. The Draft Phase I RFI Report proposed eight of the PI/PAOC sites (PI 4, 7, PAOC J, K, L, N, S, and U) for a Phase I RFI, which was implemented as a PA/SI under CERCLA due to the subsequent listing of Vieques on the NPL. The PA/SI field work for the eight PI/PAOC sites was completed in April 2006 in accordance with the PA/SI Work Plan (CH2M HILL, 2006a). The Final PA/SI Report discusses the findings and recommendations for each of the eight PI/PAOC sites (CH2M HILL, 2008d). Five of the eight PI/PAOC sites were recommended for further investigation as part of an Expanded SI: PI 4 and 7, and PAOC L, N, and S. These five sites are included in the SI/Expanded SI work plan planned for submittal for regulatory agency review in mid-2008.

The path forward for the remaining 39 PI/PAOC sites has been discussed by the Environmental Technical Subcommittee, which comprises representatives from the Navy, EPA, PREQB, and FWS, and their contractors. Any of the PI/PAOC sites located in munition site areas will be investigated under the ERP after the appropriate munitions



actions have been completed under the MRP. Based on this protocol, there are 23 PI/PAOC sites currently in the MRP. That leaves 16 PI/PAOC sites (in addition to the 8 discussed in the preceding paragraph) currently in the ERP: PI 5, 6, 8, 10, 11, 20, PAOC I, M, O, P, Q, R, T, V, W, and X. A site visit by the Environmental Technical Subcommittee to the 16 sites on October 17, 2007, determined that 6 of the 16 sites required no further action: PI 11 and 20, and PAOC R, T, V, and W. The remaining 10 PI/PAOC sites are included in the SI/Expanded work plan planned for submittal for regulatory agency review in mid-2008.

Each of the 15 PI/PAOC sites to be included in the SI/Expanded SI work plan is described briefly below.

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

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

During the 2001 site inspection of PI sites and the 2002 EBS site inspection, 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: (1) former trenches, (2) area of disturbed ground south of the helicopter maintenance area, (3) bermed fuel bladder storage area, (4) former helicopter maintenance area, and (5) disturbed area in the southeast part of the trenched area. Evaluation of historical data collected at PI 4 is presented in the Final PA/SI Report (CH2M HILL, 2008d), which suggests there has been a release of VOCs to groundwater, but the spatial coverage of monitoring wells is not adequate to sufficiently characterize the potential source area. Therefore, PI 4 is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. During the Expanded SI, additional monitoring well installation and groundwater sampling will be performed.

#### **PI 5 (Former Airfield and Associated Ditches)**

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

- Aerial photographic analysis
- Site visits during the RFI, EBS, and SI scoping
- Personnel interviews and historical records review during the EBS
- Sampling of beach matting observed during the EBS
- Sampling of tissue residues in land crabs and fiddler crabs during the 2005 NOAA crab study

PI 5 is shown in a series of aerial photographs taken in 1959, 1962, 1964, and 2005, including identification of features observed in aerial photographs or during site visits. Analysis of the historical aerial photographs was conducted by ERI in 2000 (ERI, 2000). The general

observation made by ERI for PI 5 was that the site comprised ditches from the airfield that led to cleared areas and a possible fill area near and into Puerto Ferro. To determine whether a CERCLA-related release has occurred, PI 5 is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. In October 2007, the Environmental Technical Subcommittee performed a site visit to PI 5 to observe site conditions and select locations for soil sampling, which will be conducted during the SI.

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

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

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

Analysis of the historical aerial photographs was conducted by ERI in 2000 (ERI, 2000). The general observation made by ERI for PI 6 was that the site comprised vertical tanks, a large surface impoundment, and a pump house at a probable water treatment plant. To determine whether a CERCLA-related release has occurred, PI 6 is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. In October 2007, the Environmental Technical Subcommittee performed a site visit to PI 6 to observe site conditions and select locations for soil sampling, which will be conducted during the SI.

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

Historical information suggests the site was a former radar communication area, former quarry, and former tar drum disposal area. A site reconnaissance of the area encompassing the former quarry and drum disposal area was conducted to confirm the areas where drums are located. Two empty 55-gallon drums were found at one location within the boundaries of the former quarry. Several areas of empty, tar-stained 55-gallon drums were identified in the former drum disposal area. Other than the presence of the 55-gallon drums, there is no historical information, observations, or analytical data that suggest a CERCLA-related release likely occurred at PI 7 (CH2M HILL, 2008d). However, PI 7 is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. During the Expanded SI, the drums will be removed in order to collect soil samples to confirm whether historical releases occurred and to prevent potential future releases.

#### **PI 8 (Former Motor Pool Maintenance Area)**

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

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

Analysis of the historical aerial photographs was conducted by ERI in 2000 (ERI, 2000). The general observation made by ERI for PI 8 was that the site was used for vehicle and equipment maintenance and open storage. To determine whether a CERCLA-related release has occurred, PI 8 is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. In October 2007, the Environmental Technical Subcommittee performed a site visit to PI 8 to observe site conditions and select locations for soil sampling, which will be conducted during the SI.

#### **PI 10 (Former Wastewater Leach Field)**

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

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

Analysis of the historical aerial photographs was conducted by ERI in 2000 (ERI, 2000). The general observation made by ERI for PI 10 was that the site was a series of four impoundments with liquid. This is assumed to be a misprint because six impoundments are visible in the 1962 aerial photograph. To determine whether a CERCLA-related release has occurred, PI 10 is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. In October 2007, the Environmental Technical Subcommittee concurred upon the locations for soil sampling, which will be conducted during the SI.

#### **PAOC L (Former Paint and Transformer Storage Area)**

Historical information suggests the site was used to store paint and transformers. While the building is no longer in use, the structure still exists; it is a small (approximately 15 feet x 15 feet), single room, concrete block building. Based on aerial photographs, the structure was built sometime after 1985. No evidence of storage or releases was observed during site visits performed in 2000, 2002, and 2006 (CH2M HILL, 2008d). Evaluation of historical data collected at PAOC L is presented in the Final PA/SI Report (CH2M HILL, 2008d), which suggests there has been a release of pesticides to soil, but the spatial coverage of surface soil samples is not adequate to sufficiently characterize the potential source area. Therefore, PAOC L is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. During the Expanded SI, additional soil sampling will be performed.

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

Historical information suggests PAOC N was an above-ground storage tank (AST) fuel farm and filling station within Camp Garcia. The location of the former power plant portion of PAOC S is approximately 50 feet from the fuel farm part of PAOC N. The fuel farm was

built in 1985 and demolished in 1992. The area later became the Camp Garcia Refueling Station where a two-compartment diesel/gasoline AST was constructed. Although there are no known records regarding the fuel type used by the generator(s) at the power plant portion of PAOC S, it is likely they used diesel fuel. According to Camp Garcia personnel, there are no records of USTs at Camp Garcia and that all fuel tanks were ASTs. Evaluation of historical data collected at PAOCs N and S is presented in the Final PA/SI Report (CH2M HILL, 2008d). Although the data evaluation presented in the PA/SI Report suggests there has not been a release that poses a potential risk at either site, as a conservative measure, PAOC N and PAOC S are part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. During the Expanded SI, a geophysical survey of the area between PAOC N and PAOC S will be performed to determine whether any subsurface fuel pipeline is present.

### PAOC I (Former Power Plant and Mechanics Shop)

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

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

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

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

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

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

Based on the above information, the potential sources of a CERCLA-related release are the historic boiler- and mechanics-related activities that took place within Building 401. Conceptually, releases from these activities would have taken place via discharge through pipe penetrations and/or building egress points. To determine whether a CERCLA-related release has occurred, PAOC I is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. In October 2007, the Environmental Technical Subcommittee performed a site visit to PAOC I to observe site conditions and select locations for soil sampling, which will be conducted during the SI.

### PAOC M (Former Fuel Facility)

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

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

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

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

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

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

Based on the above information, the potential source of a CERCLA-related release is the historic fuel facility, if it housed fuel-related materials. To determine whether a CERCLA-related release has occurred, PAOC M is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. In October 2007, the Environmental Technical Subcommittee performed a site visit to PAOC M to observe site conditions and select locations for soil sampling, which will be conducted during the SI.

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

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

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

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

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

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

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

Based on the above information, the potential sources of a CERCLA-related release are the former boiler and boiler-related activities. To determine whether a CERCLA-related release has occurred, PAOC O is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. In October 2007, the Environmental Technical Subcommittee performed a site visit to PAOC O to observe site conditions and select locations for soil sampling, which will be conducted during the SI.

#### PAOC P (Former Water Treatment Pumphouse)

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

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

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

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

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

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

Based on the above information, the potential source of a CERCLA-related release is the mobile generator. To determine whether a CERCLA-related release has occurred, PAOC P is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. In October 2007, the Environmental Technical Subcommittee performed a site visit to PAOC P to observe site conditions and select locations for soil sampling, which will be conducted during the SI.

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

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

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

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

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

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

- Site comprises former Building 607, a former boiler house in a heat plant building at Camp Garcia.
- Facility was constructed in 1963 and demolished in 1984.
- In the 1983 aerial photograph that shows the former PAOC Q boiler house location (Building 607), there is another former building to the north that looks very similar to Building 607. It is possible that this other building is PAOC R (former boiler house Building 617), although historical maps do not label this building as Building 617. It is also possible, based on the configurations observed in the 1983 aerial photograph, that even if this other building is not PAOC R, that it is a former boiler house.

Based on the above information, the potential sources of a CERCLA-related release are the former boiler(s) and boiler-related activities. To determine whether a CERCLA-related release has occurred, PAOC Q is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. In October 2007, the Environmental Technical Subcommittee performed a site visit to PAOC Q to observe site conditions and select locations for soil sampling, which will be conducted during the SI.

### PAOC X (Debris Area in Ephemeral Stream)

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

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

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

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

Based on the above information, the potential source of a CERCLA-related release is the debris in the ephemeral stream. To determine whether a CERCLA-related release has occurred, PAOC X is part of the SI/Expanded SI work plan planned for submittal for regulatory review in mid-2008. During the SI, the debris will be removed in order to permit collection of soil samples for the release assessment.

### 2.1.3 Munitions Response Sites (MRS)

The former VNTR consists of approximately 14,600 acres and is divided operationally into four Munitions Response Areas (MRA)s that from west to east comprise: the EMA, an area approximately 10,673 acres; the SIA, approximately 2,500 acres; the 900-acre LIA, and the 200-acre ECA on the easternmost tip of Vieques. The Preliminary Range Assessment (NAVFACENCOM, 2003b) identified 62 potential MRSs within these areas. A brief description of the sites and the types of munitions and explosives of concern (MEC) anticipated at each of the sites are summarized in Appendices A-II and B-II. The four MRAs are further described below.

#### Live Impact Area (MRA-LIA)

In 1965, air-to-ground (ATG) training activity began in the MRA-LIA where several mock-ups, such as old tanks and vehicles, were used as targets for aerial bombing. Beginning in the mid-1970s, naval gunfire was practiced at the MRA-LIA, where several point and area targets for ships were constructed. Based on the naval gunfire and ATG gunfire that occurred from the 1970s through 2003, the entire 900 acres of the LIA potentially contains MEC.

The MRA-LIA is currently undergoing a time-critical removal action (TCRA) to remove munitions from the surface (CH2M HILL, 2005a). As part of the TCRA, a work plan has been prepared to address the processing of the munitions debris (MD) and range related debris from the munitions removal program. Through May 2008 over 700 acres of munitions have been surface cleared of munitions. To further reduce the immediate explosive safety risk in this area, the Navy has implemented several mitigative measures including: the installation of gates and signage around the perimeter of the munitions impacted area, the installation of warning buoys, the distribution of flyers warning the community to stay away from the area, and the participation in public meetings and workshops to advise the community of the munitions hazards. In February 2008 an Engineering Evaluation and Cost Analysis (EE/CA) for the Subsurface Removal of MEC from the Roads and Beaches was finalized (CH2M HILL, 2008h). A draft work plan for actions identified in the EE/CA was submitted to the regulatory agencies in February 2008 (CH2M HILL, 2008i). Responses to regulatory comments received on the work plan were submitted by the Navy June 2008.



### Surface Impact Area (MRA-SIA)

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

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

In February 2008 an Engineering Evaluation and Cost Analysis (EE/CA) for the Subsurface Removal of MEC from the Roads and Beaches was finalized (CH2M HILL, 2008h). The draft final work plan to conduct the chosen alternative in the final EE/CA was distributed in July 2008 and the final work plan was distributed in August 2008.

In June 2008 a draft EE/CA to address MEC in the MRA-SIA was developed based on the findings from the initial Phase II Site Inspection efforts. Comments on the EE/CA were received from the regulatory agencies and a Draft Final document will be distributed for public review August 2008. In July 2008, the Draft Non-time critical Removal Action Work Plan for Surface Munitions and Explosives of Concern in the MRA-SIA was submitted to the regulatory agencies. This work plan addresses the approach for the areas identified in the June 2008 Draft EE/CA.

### Eastern Maneuver Area (MRA-EMA)

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

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

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

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

In February 2008 an Engineering Evaluation and Cost Analysis (EE/CA) for the Subsurface Removal of MEC from the Roads and Beaches was finalized. A draft work plan for actions identified in the EE/CA was submitted to the regulatory agencies in February 2008. Responses to regulatory comments received on the work plan were submitted by the Navy June 2008.

### Eastern Conservation Area (MRA-ECA)

The MRA-ECA was not an operational area for munitions use. However, its close proximity to the MRA-LIA, where extensive naval gunfire and ATG bombing took place, resulted in the MRA-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 MRA-ECA. The MRA-ECA, is part of an on-going time-critical removal action to remove munitions from the surface. The surface removal activities for the ECA are anticipated to be initiated in the fall of 2007.

In February 2008 an Engineering Evaluation and Cost Analysis (EE/CA) for the Subsurface Removal of MEC from the Roads and Beaches was finalized. A draft work plan for actions identified in the EE/CA was submitted to the regulatory agencies in February 2008. Responses to regulatory comments received on the work plan were submitted by the Navy June 2008.

## 2.2 Western Vieques Sites

### 2.2.1 Environmental Sites

This subsection provides a description of the ERP and MRP sites currently under investigation on western Vieques. Sites that were investigated under the PA/SI and recommended for NFA are not discussed in this section. However, descriptions and status of these sites, as well as sites for which remedial investigations (RIs) are being conducted, are provided in Appendix A.1, and their locations are shown in Figure 2-2. The anticipated

schedule for deliverable submittal for the following sites, as applicable, is provided in Figure 3-1.

### **SWMU 6 – Former Mangrove Disposal Site**

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

The site is adjacent to an access road for public beaches farther west in this part of the island. A fence separates the site from Highway 200, thereby limiting access. While the physical appearance of the waste items may diminish the aesthetic appeal of the site, the historical data collected suggest the waste does not pose an unacceptable risk to human health or ecological receptors (CH2M HILL, 2007b). However, the Navy and regulatory agencies concurred that there is uncertainty associated with this conclusion because soil samples were collected adjacent to the waste rather than directly through the waste due to safety concerns. The agencies also concurred that the waste at SWMU 6 poses an unacceptable uncertainty regarding a potential future source of contamination and, therefore, will be removed. An Engineering Evaluation/Cost Analysis (EE/CA) was prepared for public comment (CH2M HILL, 2005e). No public comments were submitted. A Final Removal Action Work Plan was submitted in February 2008 (Field Support Services, Inc., 2008). The waste characterization sampling was completed in February 2008. It is anticipated that the removal action will commence in late 2008, pending completion of the waste characterization risk assessment, which is in progress. Information regarding the nature and extent of contamination and the risk assessment conclusions for SWMU 6 can be found in the Final RI Report (CH2M HILL, 2007b).

### **SWMU 7 – Former Quebrada Disposal Site**

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

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

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

A visual site survey was conducted by a unexploded ordnance (UXO) avoidance team, and a magnetometer survey was conducted within the proposed sampling area as part of the UXO avoidance survey that was conducted as a safety measure prior to intrusive sampling during the expanded PA/SI (CH2M HILL, 2000a). No live ordnance and explosives (OE) were identified at SWMU 7. The site is currently covered by dense vegetation. Information regarding the nature and extent of potential contamination at SWMU 7 can be found in the Final RI Report (CH2M HILL, 2008b).

The risk assessment for the RI concluded that the site-related constituent levels do not pose an unacceptable risk to human health or to ecological receptors, based on existing and future land use. However, it was concurred upon by the Navy and the regulatory agencies that there is uncertainty associated with this conclusion because soil samples were collected adjacent to the waste rather than directly through the waste due to safety concerns. The agencies also concurred that the waste at SWMU 7 poses an unacceptable uncertainty regarding a potential future source of contamination and, therefore, will be removed. An EE/CA was prepared for public comment (CH2M HILL, 2005e). No public comments were submitted. A Final Removal Action Work Plan was submitted in February 2008 (Field Support Services, Inc., 2008). The waste characterization sampling was completed in February 2008. It is anticipated that the removal action will commence in late 2008, pending completion of the waste characterization risk assessment, which is in progress.

### **AOC E – Former Underground Storage (UST) Tank Site 2016**

AOC E is located within the public works area of the former NASD at the former location of a UST near the northwest corner of Building 2016. The former UST was a 550-gallon, single-wall, steel waste oil tank. The piping system associated with the UST consisted of single-wall steel pipes. The UST was installed in 1970 to store waste oil generated from vehicle maintenance activities that take place in Building 2016. As part of UST removal activities, the former UST and associated piping were removed in November 1996. In addition, soil samples were collected and submitted for laboratory analysis; the soil samples contained total petroleum hydrocarbons (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 Draft Final Remedial Investigation Report for AOC E (CH2M HILL, 2008e). The risk assessment concluded that the site soils and groundwater do not pose an unacceptable risk for industrial use. The site groundwater, if extracted for consumptive use, would pose an unacceptable risk. However, the groundwater aquifer is unsuitable for use as a source of drinking water without desalinization due to high concentrations of sodium and chloride ions (USGS, 1989). A multi-phase vacuum extraction (MPE) pilot study was performed at AOC E in June, July, and August 2002 to evaluate the effectiveness of this technology in mitigating the free phase hydrocarbon product accumulation. The pilot study showed the

technology to be partly successful, but a small amount of free phase product (i.e., a sheen) remains.

Based on agency review of the draft version of the RI, additional sampling of groundwater and soils was requested by USEPA. A sampling and analysis plan was submitted to the regulatory agencies on August 23, 2004. Additional groundwater sampling was accomplished in August 2004 but the proposed soil sampling was postponed until further regulatory review of the proposed sampling approach could be completed. A Supplemental RI Work Plan was submitted in November 2005 (CH2M HILL, 2005b) which included soil sampling and additional groundwater sampling. The field work was completed in December 2005. Based on a newly defined human health risk assessment protocol (CH2M HILL, 2007c), the draft document was revised and resubmitted as a revised Draft RI Report in December 2007 and included the data collected since the original RI fieldwork. The Draft Final RI Report was submitted to the RAB in June 2008 (CH2M HILL, 2008e). A Feasibility Study (FS) is planned for mid-2008 that will include collection of additional soil and groundwater data to assist in remedy evaluation.

#### **AOC H – Abandoned Former Power Plant**

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

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

#### **AOC I – Asphalt Plant**

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

The EBS, the Expanded PA/SI Phase II, and the August/September 2004 RI produced 47 surface soil samples, 33 subsurface soil samples, and 7 groundwater samples. Information regarding the nature and extent of contamination at AOC I can be found in the Final Remedial Investigation Report, Area of Concern (AOC) I (CH2M HILL, 2008f). Based on the information provided in the Interim RI Report, two additional monitoring wells were proposed in the Supplemental RI Work Plan (CH2M HILL, 2005c). The supplemental field work was completed in December 2005. Based on a newly defined human health risk assessment protocol (CH2M HILL, 2007c), the Draft RI Report was prepared and submitted in November 2007. The Final RI Report (CH2M HILL, 2008f) was submitted in June 2008.

The Final RI Report was submitted in June 2008. An FS is planned for mid-2008 that will include collection of additional groundwater data to assist in remedy evaluation.

### **AOC J – Former Operations/Staging Area Disposal Site**

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

Information on the nature and extent of potential contamination and the risk assessment conclusions for AOC J can be found in the Final RI Report (CH2M HILL, 2007d). The risk assessment for the RI concluded that the site-related constituent levels do not pose an unacceptable risk to human health or to ecological receptors, based on existing and future land use. However, it was concurred upon by the Navy and the regulatory agencies that there is uncertainty associated with this conclusion because soil samples were collected adjacent to the waste rather than directly through the waste due to safety concerns. The agencies also concurred that the waste at AOC J poses an unacceptable uncertainty regarding a potential future source of contamination and, therefore, will be removed. An EE/CA was prepared for public comment (CH2M HILL, 2005e). No public comments were submitted. A Final Removal Action Work Plan was submitted in February 2008 (Field Support Services, Inc., 2008). The waste characterization sampling was completed in February 2008. It is anticipated that the removal action will commence in late 2008, pending completion of the waste characterization risk assessment, which is in progress.

### **AOC R – Former Operations/Staging Area**

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

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

human health and ecological risks. The Navy and regulatory agencies concurred that debris identified at the site will be removed as a potential source of contamination. An EE/CA was prepared for public comment (CH2M HILL, 2005e). No public comments were submitted. A Final Removal Action Work Plan was submitted in February 2008 (Field Support Services, Inc., 2008). The waste characterization sampling was completed in February 2008. It is anticipated that the removal action will commence in late 2008, pending completion of the waste characterization risk assessment, which is in progress. The additional RI data will be collected following the removal action.

### **Environmental Sites Recommended For No further Action**

Based on the results of Expanded PA/SIs for the Former NASD, nine sites were recommended for NFA in the No Further Action Report for Nine Sites (CH2M HILL, 2006b). The NFA recommendation was based on several data sources including: review of historical aerial photos, interviews with former employees, review of archived records, and site inspections. In addition, samples were collected at the sites and analyzed for: inorganics, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOC)s, polychlorinated biphenyls (PCB)s, and pesticides. Further, a quantitative human health risk assessment and a qualitative ecological survey were completed for each site. The human health risk assessment concluded the sites did not pose an unacceptable risk to human health. PREQB concurred with the NFA determination for the nine sites in its Resolution and Notification issued in February 2007 (PREQB, 2007).

### **2.2.2 Munitions Response Site (SWMU 4 - Inactive OB/Waste Explosive Detonation Range)**

SWMU 4 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 and primers), ordnance items from the torpedo shop at 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: 1) identify the specific location of the former OB/OD pits that were not previously documented, 2) 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, 3) evaluate the explosives safety risk of the MEC items identified on-site, and 4) develop an MEC RI Report for the site. A digital geophysical survey was conducted over an 87-acre area that identified approximately 23,700 buried metallic anomalies (CH2M HILL, 2004b). The survey identified 16 potential OB/OD pits that were later confirmed by the MEC RI. Based on the findings of the MEC investigation, the potential aerial extent of the MEC at SWMU 4 is approximately 180 acres. A total of 11,211 metallic items were removed from the surface or subsurface and inspected during the MEC RI. Approximately 16 percent, or 1,792, of the items removed were found to contain high explosives.

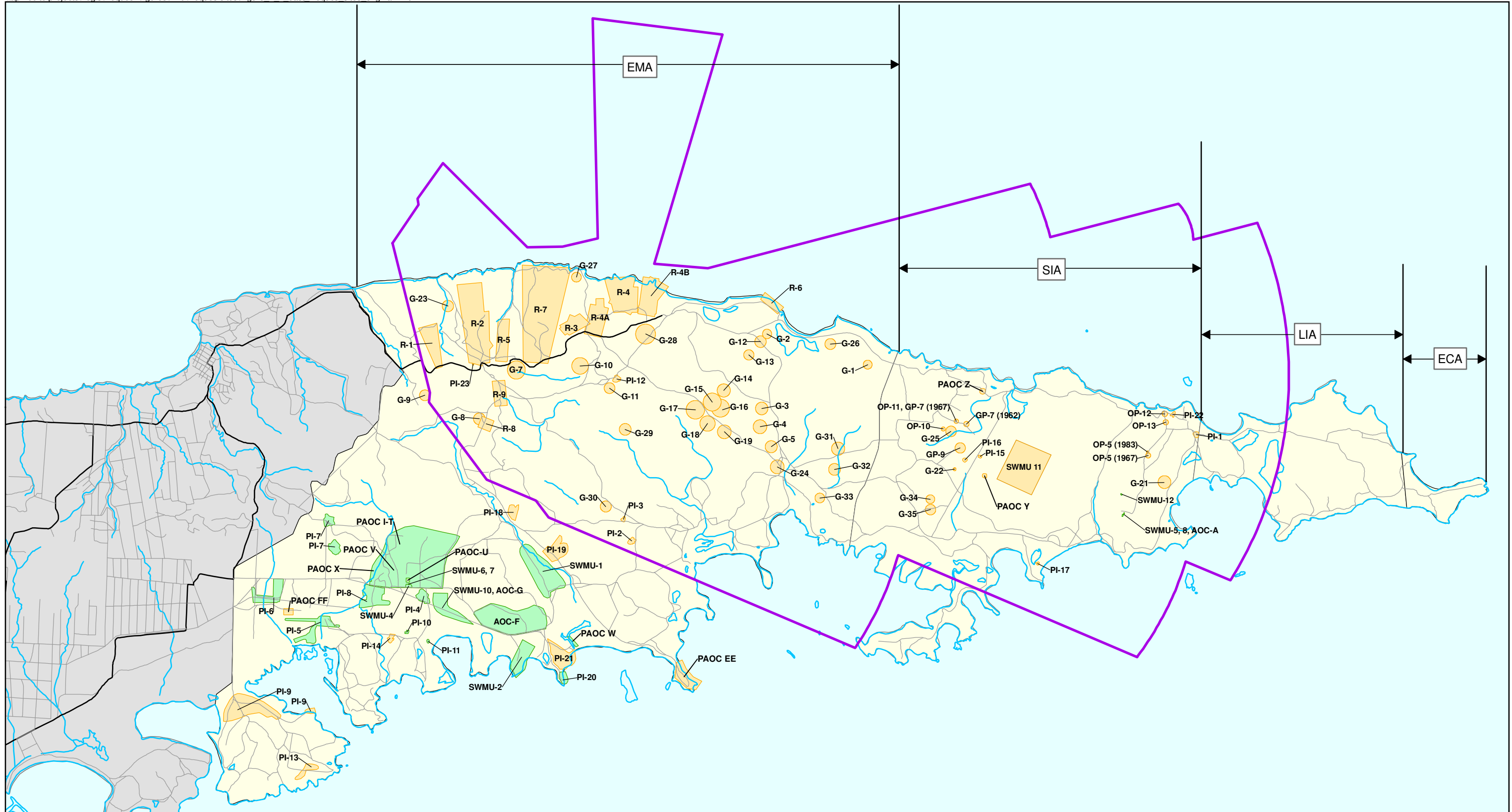
The Expanded PA/SI identified constituents in soil above regulatory screening criteria (CH2M HILL, 2000a). The RI Work Plan was finalized in January 2007 (CH2M HILL, 2007a) and the RI field work was completed in March 2007. The data indicated that additional data collection was necessary to sufficiently characterize the nature and extent of contamination

and assess potential human health and ecological risks, and the Final Addendum 1 was submitted outlining the additional data collection protocol (CH2M HILL, 2008c). The field work to collect the additional data was completed in April 2008; the data are currently being evaluated to determine if they are sufficient to proceed with the risk assessments and preparation of the RI Report.

A MEC Remedial Investigation Report was submitted that assessed the impacts from MEC (CH2M HILL, 2004b). A Draft Engineering Evaluation/Cost Analysis Report (CH2M HILL, 2007e), which evaluates the removal of subsurface MEC from the roads and beaches in the vicinity of SWMU 4 was submitted to the regulators. The timing for implementing the additional munitions removal activities at the site will be based on a prioritization of the site.

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





- Legend**
- Site Screening Areas - Environmental Sites
  - Site Screening Areas - Munitions Response Sites
  - Artillery Safety Fan
  - Major Roads
  - Minor Roads

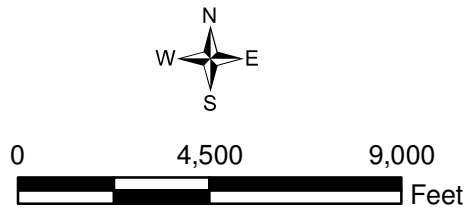
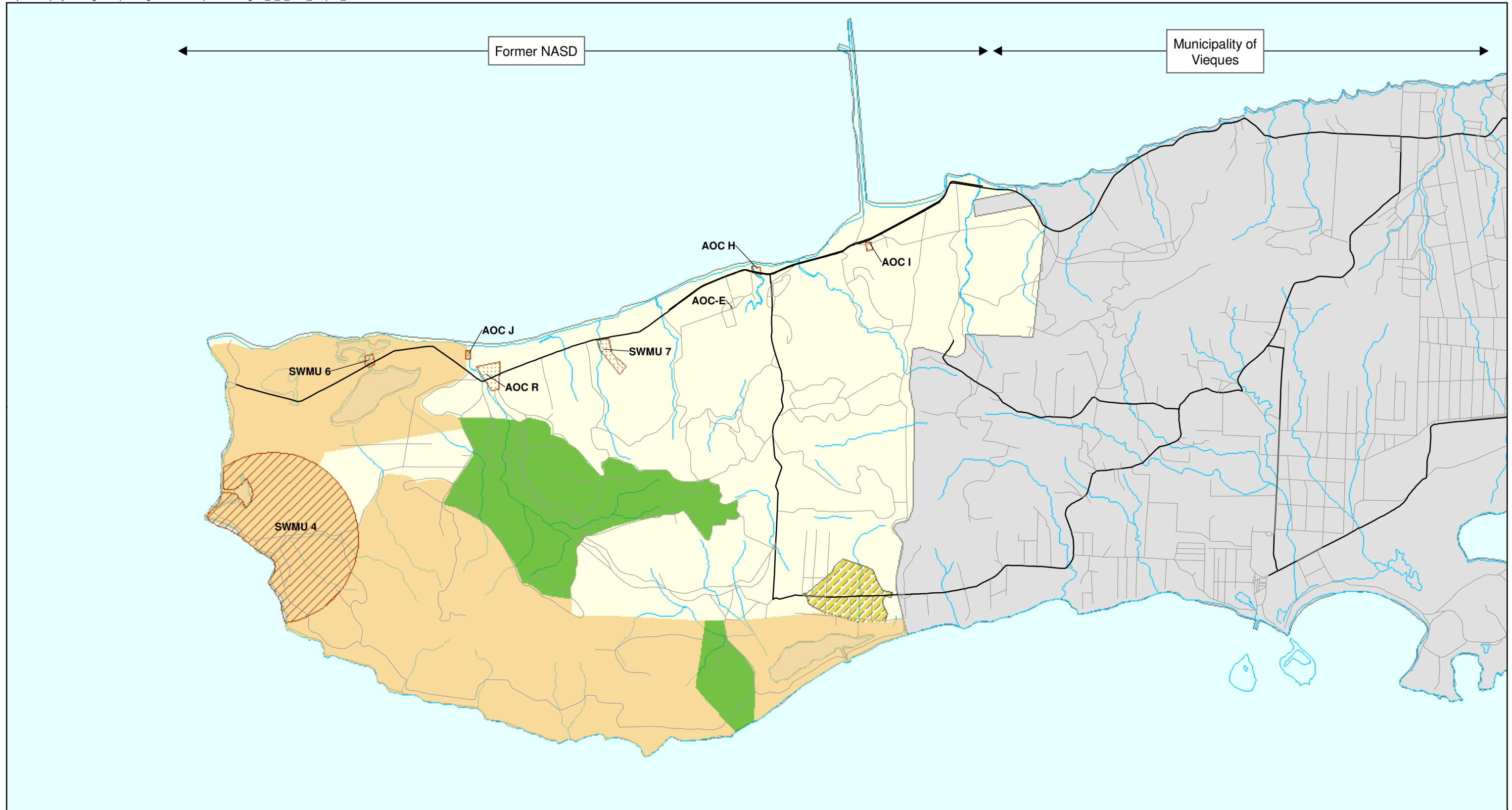


Figure 2-1  
East Vieques Sites To Be Assessed under CERCLA  
Draft Site Management Plan  
Vieques, Puerto Rico



- Legend**
- Major Roads
  - Minor Roads
  - ▤ Environmental Remedial Investigation / Feasibility Study Sites
  - ▨ Munitions Response Site
  - PR Conservation Trust
  - ▨ Navy Property - ROTHM Site
  - Dept. of Interior

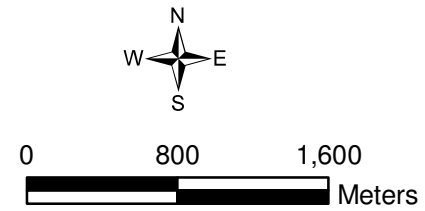


Figure 2-2  
West Vieques Sites To Be Assessed under CERCLA  
Draft Site Management Plan  
Vieques, Puerto Rico

## Schedules and Funding

---

This section presents the SMP schedule requirements outlined in the FFA. In addition the projected funding for the CERCLA Responsive Actions at the Vieques Site is provided. Milestones established in this SMP are subject to the requirements of the FFA, unless otherwise agreed to by the Parties, or unless directed to be changed pursuant to the agreed Dispute Resolution or Extensions process set out in the FFA. The Fiscal Year 2009 schedules for field activities and major project deliverables, including both Primary and Secondary documents, are presented in Figures 3-1 and 3-2. The tentative schedules for FY10 and beyond are summarized in Table 3-1. The schedules will be re-evaluated and updated for the SMP as mutually agreed to by the agencies.

### 3.1 Document Review Schedule

In accordance with the FFA, this SMP presents the proposed schedules for the CERCLA response actions and associated documentation to be undertaken at the Site. The SMP incorporates existing Milestones contained in approved Work Plans. Milestones approved in future Work Plans will become enforceable to the extent allowed under the FFA and shall be included in the next annual amendment to the SMP. The SMP is to be updated annually and a draft of the SMP Amendment submitted to all parties by June 15<sup>th</sup>.

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: (i) the DoD relative risk rankings for the Site; (ii) current, planned, or potential uses of the Site; (iii) ecological impacts; (iv) impacts on human health; (v) intrinsic and future value of affected resources; (vi) cost effectiveness of the proposed activities; (vii) environmental justice considerations; (viii) regulatory requirements; and (ix) actual and anticipated funding levels.

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

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

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

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

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

## 3.2 Primary Documents

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

- RI/FS Workplans, including Sampling and Analysis Plan and QAPP
- Risk Assessment Work Plans and Reports
- RI Reports
- Initial Screening of Alternatives
- FS Reports
- FFS Reports
- Proposed Plans
- Records of Decision
- Final Remedial Designs (including a land use control (LUC) component where such controls are employed as part of the remedy)
- Remedial Action Work Plans (including a LUC component where such controls are employed as part of the remedy)
- Site Management Plan
- 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, Interior, 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
- Time Critical Removal Action Work Plans
- Site Screening Process (SSP) Work Plans and Reports
- Non-Time Critical Removal Action Work Plans
- Pilot/Treatability Study Work Plans
- Pilot/Treatability Study Reports
- Engineering Evaluation/Cost Analysis Report
- Well Closure Methods and Procedures
- Sampling and Data Results
- Preliminary/Conceptual Designs, or Equivalents
- Prefinal Remedial Designs
- All Removal Action Memoranda/Closeout Reports
- Periodic Five Year Review Assessment Report

For documents pertaining to non-time critical removal actions, Navy will coordinate and consult with Interior pursuant to the MOAs, and EPA.

### 3.4 Projected ERP/MRP Funding

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

After authorization and appropriation of funds by Congress and within 21 days after Navy has received official notification of Navy's allocation based on the current year's Environmental Restoration, Navy ("ER,N") Account, Navy shall determine if the schedules in the SMP can be accomplished with the allocated funds. If Navy determines within the 21-day period specified above that the allocated funds are not sufficient to accomplish the planned Work for the Site (an appropriations shortfall), Navy shall immediately notify the Parties and a re-scoping or rescheduling of activities may be required.

The projected ERN funding for Vieques from FY09 through FY12 and beyond is summarized in Table 3-2.

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

Site	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
<b>Installation Restoration Program</b>											
<b>West Vieques</b>											
AOC E	Proposed Plan, ROD	RA									
AOC I	Proposed Plan, ROD	RA									
AOC J	RA Report	Proposed Plan, ROD									
AOC R	RA Report, RI Report	FS, Proposed Plan	ROD, RA								
SWMU 4*											
SWMU 6	RA Report	Proposed Plan, ROD									
SWMU 7	RA Report	Proposed Plan, ROD									
<b>East Vieques</b>											
22 Consent Order/PI/PAOC sites	SI/Expanded SI Report										
18 of these sites**	NFA Decision Document										
4 of these sites**	RI Work Plan	RI	RI Report, FS Report	Proposed Plan, ROD	RA						
<b>Munitions Response Program</b>											
<b>West Vieques</b>											
SWMU 4*		RA			Roads and Beaches MEC Removal Action Report						
<b>East Vieques</b>											
EMA, SIA, LIA, ECA Subsurface Removal - Roads Beaches	RA	RA	RA		Roads and Beaches MEC Removal Action Report						
EMA (select sites based on ERA/SI) -PI/PAOC/AOI sites	MEC SI Report	MEC RI	MC RI	RI/FS Report	PRAP/ROD	PRAP/ROD					
LIA	RI	RI	RI	RI	RI/FS Report	PRAP/ROD					
SIA MEC Surface Clearance	RA	RA	RA	RA	SIA MEC Removal Action Report	RI	RI	RI/FS	PRAP/ROD		
Underwater Assessment	MEC SI	MEC SI	MEC SI	MEC SI	MEC SI	MEC SI	MEC SI	RI/FS	RI/FS	RI/FS	RI/FS
										PRAP/ROD	

\* Pending prioritization of MR sites

\*\* Assumes 18 of the 22 sites will require NFA after the SI/Expanded SI; assumes 4 sites will require RI/FS/PP/ROD

TABLE 3-2  
 Vieques Funding, In Thousands  
*Former Naval Facilities, Vieques, Puerto Rico*

<b>Fiscal Year</b>	<b>Eastern Environmental</b>	<b>Western Environmental</b>	<b>Eastern Munitions</b>	<b>Western Munitions</b>	<b>Totals</b>
FY09	1,192	710	18,059	1,941	21,902
FY10	,1480	281	18,626	1,374	21,761
FY11	1,529	272	18,626	1,374	21,801
FY12	716	272	18,626	1,374	20,988
FY13 & beyond	7,981	179	154,280	2,748	165,188
<b>Totals</b>	<b>12,898</b>	<b>1714</b>	<b>228,217</b>	<b>8,811</b>	<b>251,640</b>

**FIGURE 3-1**  
**Vieques Environmental Restoration Program Schedule**  
**Site Management Plan**  
**Former Naval Facility Vieques, Puerto Rico**  
**October 2008**

Month-Year:	September-08				October-08					November-08				December-08				January-09				February-09				March-09				April-09					
Week Ending:	9/5	9/12	9/19	9/26	10/3	10/10	10/17	10/24	10/31	11/7	11/14	11/21	11/28	12/5	12/12	12/19	12/26	1/2	1/9	1/16	1/23	1/30	2/6	2/13	2/20	2/27	3/6	3/13	3/20	3/27	4/3	4/10	4/17		
<b>ERP DELIVERABLES</b>																																			
<b>West Vieques</b>																																			
AOC E FS Report					FS data collection																														
AOC E Proposed Plan																																			
AOC E Record of Decision																																			
AOC H No Action Record of Decision																																			
AOC I FS Report					FS data collection																														
AOC I Proposed Plan																																			
AOC I Record of Decision																																			
AOC R RI Report																																			
SWMU 4 RI Report					Interim Deliverable																														
SWMU 4 FS Report (if necessary)																																			
Removal Action Work Plan, AOCs J/R SWMUs 6/7					4 HHRAs and 4 ERAs																														
Removal Action Report, AOCs J/R SWMUs 6/7																																			
<b>East Vieques</b>																																			
SI/Expanded SI Work Plan for 7 Consent Order Sites and 15 PI/PAOCs					EPA																														
SI/Expanded SI Report																																			
No Action Decision Document for 4 Consent Order Sites and 7 PI/PAOCs																																			

**LEGEND**

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

Notes:  
Draft Final submittals are prepared only after resolution of regulatory agency comments  
Final submittals are prepared only after receipt of EPA approval of Draft Final submittals



**FIGURE 3-1**  
**Vieques Environmental Restoration Program Schedule**  
**Site Management Plan**  
**Former Naval Facility Vieques, Puerto Rico**  
**October 2008**

Month-Year:	May-09						June-09				July-09				August-09				September-09					
Week Ending:	4/24	5/1	5/8	5/15	5/22	5/29	6/5	6/12	6/19	6/26	7/3	7/10	7/17	7/24	7/31	8/7	8/14	8/21	8/28	9/4	9/11	9/18	9/25	
<b>ERP DELIVERABLES</b>																								
<b>West Vieques</b>																								
AOC E FS Report																								
AOC E Proposed Plan																								
AOC E Record of Decision																								
AOC H No Action Record of Decision																								
AOC I FS Report																								
AOC I Proposed Plan																								
AOC I Record of Decision																								
AOC R RI Report																								
SWMU 4 RI Report																								
SWMU 4 FS Report (if necessary)																								
Removal Action Work Plan, AOCs J/R SWMUs 6/7																								
Removal Action Report, AOCs J/R SWMUs 6/7																								
<b>East Vieques</b>																								
SI/Expanded SI Work Plan for 7 Consent Order Sites and 15 PI/PAOCs																								
SI/Expanded SI Report																								
No Action Decision Document for 4 Consent Order Sites and 7 PI/PAOCs																								

**LEGEND**

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

Notes:  
Draft Final submittals are prepared only after resolution  
Final submittals are prepared only after receipt of EPA a

**FIGURE 3-2**  
**Vieques Munitions Response Schedules**  
**Site Management Plan**  
**Former Naval Facility Vieques, Puerto Rico**  
**October 2008**

Month:	September-08				October-08					November-08				December-08				January-09					February-09			
Week Ending:	9/5	9/12	9/19	9/26	10/3	10/10	10/17	10/24	10/31	11/7	11/14	11/21	11/28	12/5	12/12	12/19	12/26	1/2	1/9	1/16	1/23	1/30	2/6	2/13	2/20	2/27
<b>Site Management Plan</b>																										
<b>MUNITIONS REPORTS</b>																										
<b>East Vieques</b>																										
Prescribed Burn Plan/Air Monitoring Plan																										
Subsurface MEC Removal Action Work Plan																										
ERA/Phase II SI Field Work																										
ERA/Phase II SI WP Amendment (including aerial magnetometry)																										
ERA/Phase II SI Amendment Field Work																										
Aerial Magnetometer Field Survey and Data Deliv																										
ERA/SI Comprehensive Report																										
ESS Amendment for SIA																										
SIA EE/CA																										
SIA Surface Clearance Work Plan																										
SIA NTCRA Field effort																										
LIA/ECA TCRA Field Effort																										
TCRA Construction Completion Report																										

**LEGEND**

**Current Schedule**

Navy Preparation of Draft Document
Regulator Review
Preliminary Responses to Comments
Comment Resolution (telecon if needed)
Draft Final Document Production
RAB Review
Public Comment
Final Document
Field Work

**FIGURE 3-2**  
**Vieques Munitions Response Schedules**  
**Site Management Plan**  
**Former Naval Facility Vieques, Puerto Rico**  
**October 2008**

Month:	March-09				April-09				May-09					June-09				July-09					August-09				September-09			
Week Ending:	3/6	3/13	3/20	3/27	4/3	4/10	4/17	4/24	5/1	5/8	5/15	5/22	5/29	6/5	6/12	6/19	6/26	7/3	7/10	7/17	7/24	7/31	8/7	8/14	8/21	8/28	9/4	9/11	9/18	9/25
<b>Site Management Plan</b>																														
<b>MUNITIONS REPORTS</b>																														
<b>East Vieques</b>																														
Prescribed Burn Plan/Air Monitoring Plan																														
Subsurface MEC Removal Action Work Plan																														
ERA/Phase II SI Field Work																														
ERA/Phase II SI WP Amendment (including aerial magnetometry)																														
ERA/Phase II SI Amendment Field Work																														
Aerial Magnetometer Field Survey and Data Deliv																														
ERA/SI Comprehensive Report																														
ESS Amendment for SIA																														
SIA EE/CA																														
SIA Surface Clearance Work Plan																														
SIA NTCRA Field effort																														
LIA/ECA TCRA Field Effort																														
TCRA Construction Completion Report																														

**LEGEND**

**Current Schedule**

Navy Preparation of Draft Document
Regulator Review
Preliminary Responses to Comments
Comment Resolution (telecon if needed)
Draft Final Document Production
RAB Review
Public Comment
Final Document
Field Work

**FIGURE 3-2**  
**Vieques Munitions Response Schedules**  
**Site Management Plan**  
*Former Naval Facility Vieques, Puerto Rico*  
*October 2008*

Month:	October-09					November-09				December-09			
Week Ending:	10/2	10/9	10/16	10/23	10/30	11/6	11/13	11/20	11/27	12/4	12/11	12/18	12/25
<b>Site Management Plan</b>													
<b>MUNITIONS REPORTS</b>													
<b>East Vieques</b>													
Prescribed Burn Plan/Air Monitoring Plan													
Subsurface MEC Removal Action Work Plan													
ERA/Phase II SI Field Work													
ERA/Phase II SI WP Amendment (including aerial magnetometry)													
ERA/Phase II SI Amendment Field Work													
Aerial Magnetometer Field Survey and Data Deliv													
ERA/SI Comprehensive Report													
ESS Amendment for SIA													
SIA EE/CA													
SIA Surface Clearance Work Plan													
SIA NTCRA Field effort													
LIA/ECA TCRA Field Effort													
TCRA Construction Completion Report													

**LEGEND**

**Current Schedule**

Navy Preparation of Draft Document
Regulator Review
Preliminary Responses to Comments
Comment Resolution (telecon if needed)
Draft Final Document Production
RAB Review
Public Comment
Final Document
Field Work

## SECTION 4

# References

---

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

Baker Environmental, Inc., 1992. Final Preliminary Assessment Narrative Report Site Inspection Forms and Pascore, Sites 1, 2, and 3 Naval Ammunition Facility Vieques Island. October.

\*Baker Environmental, Inc., 1999. Final Results of the Hydrogeologic Investigation, Vieques Island, Puerto Rico. November.

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

\*CH2M HILL. 2000. Site Specific Work Plan Expanded Preliminary Assessment/ Site Investigation, U.S. Naval Ammunition Support Detachment, Vieques, Puerto Rico. March.

\*CH2M HILL. 2000. Draft Addendum to the Site Specific Work Plan Expanded Preliminary Assessment/Site Investigation, U.S. Naval Ammunition Support Detachment, Vieques, Puerto Rico. May.

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

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

\*CH2M HILL. 2000. Final Phase II Site Specific Work Plan Expanded Preliminary Assessment/Site Investigation for U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. December.

\*CH2M HILL. 2000. Workplan 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 HILL. 2001. Final Master Work Plan, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. January.

CH2M HILL. 2001a. Final Description of Current Conditions Report, Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico. February.

\*CH2M HILL. 2001. Final Initial Ordnance and Explosives Site Assessment Workplan for the Green Beach Area, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. March.

\*CH2M HILL. 2001. 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 HILL. 2001. Draft Final Community Relations Plan, Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. May.
- \*CH2M HILL. 2001. Preliminary OE Site Assessment Report for the Green Beach Area of Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. July.
- \*CH2M HILL. 2001. Final Work Plan For Community Relations RCRA Facility Investigation, Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico. September.
- \*CH2M HILL, 2001. Final Work Plan for Groundwater Baseline Investigation at U.S. Navy's Eastern Maneuver Area, Vieques Island, Puerto Rico. September 6.
- \*CH2M HILL, 2001. Final Ordnance and Explosives Master Workplan for the Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. October.
- \*CH2M HILL, 2001. Final Ordnance and Explosives (OE) Site-Specific Work Plan for Solid Waste Management Unit 4. November 9.
- \*CH2M HILL. 2002. Final Site Management Plan FY 2001-2002, Former NASD Facility, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. May.
- \*CH2M HILL. 2002. Final Remedial Investigation/Feasibility Study Work Plan for Area of Concern (AOC) E, Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. May.
- \*CH2M HILL. 2002. Final Soil, Surface Water, and Sediment Background Investigation Report, U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. October 16.
- CH2M HILL, 2002a. Final Expanded Preliminary Assessment/Site Investigation, Phase II Seven Sites, Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. November 18.
- \*CH2M HILL. 2002. Final Preliminary OE/MEC Site Investigation Work Plan for Blue Beach and Red Beach, Eastern Maneuver Area, Vieques Island, Puerto Rico. November.
- \*CH2M HILL., 2003. Final Master Work Plan, Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico. June.
- \*CH2M HILL, 2003. Final Site Specific Work Plan Phase I RCRA Facility Investigation, Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico. June 12.
- \*CH2M HILL, 2003. Site Management Plan FY 2002-2003, Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. August.
- \*CH2M HILL, 2003. Final Remedial Investigation/Feasibility Study Work Plan for Solid Waste Management Unit (SWMU) 6, SWMU 7, Area of Concern (AOC) H, and AOC J, Former U.S. Naval Ammunition Support Detachment, Vieques Island, Puerto Rico. July.
- CH2M HILL. 2004a. Draft Phase I RCRA Facility Investigation Report, Former Atlantic Weapons Training Facility, Vieques Island, Puerto Rico. June.
- \*CH2M HILL. 2004. Draft Final Closure Plan, Open Burn/Open Detonation Site, Former Atlantic Fleet Weapons Training Facility, Vieques, Puerto Rico. July.

- \*CH2M HILL. 2004. Final Remedial Investigation/Feasibility Study Work Plan for AOC I and AOC R at the Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico. August.
- CH2M HILL. 2004b. Final SWMU 4 MEC Remedial Investigation Report, Former U.S. Naval Ammunition Support Detachment, Vieques, Puerto Rico. September.
- \*CH2M HILL, 2004. Final Expanded Range Assessment and Phase I Site Inspection Work Plan for Former Vieques Naval Training Range (VNTR), Vieques Island, Puerto Rico. November.
- \*CH2M HILL. 2005. Final Remedial Investigation/Feasibility Study Work Plan for AOC R at the Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico. January.
- CH2M HILL. 2005a. Draft Time Critical Removal Action/Interim Measures Work Plan, Surface Munitions of Explosives Concern at Munitions Response Area-Live Impact Area, Munitions Response Sites 1 through 4, 6, 16, 17, and 30, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico. January.
- \*CH2M HILL. 2005. 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 HILL. 2005. Draft Final Groundwater Baseline Investigation at the U.S. Navy's Eastern Maneuver Area, Former Atlantic Fleet Weapons Training Facility, Vieques Island, Puerto Rico. May.
- CH2M HILL, 2005b. Final Supplemental Remedial Investigation Work Plan for Area of Concern (AOC) E, The Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico. November.
- CH2M HILL, 2005c. Final Supplemental Remedial Investigation Work Plan for Area of Concern (AOC) I, The Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico. November.
- CH2M HILL, 2005d. Final Remedial Investigation Work Plan for Area of Concern (AOC) R at the Former U.S. Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico. November.
- CH2M HILL, 2005e. Draft Final 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. December.
- CH2M HILL, 2006a. Final Preliminary Assessment/Site Inspection Work Plan for Eight PI/PAOC Sites, Former Vieques Naval Training Range (VNTR), Vieques Island, Puerto Rico. January.
- CH2M HILL, 2006b. Final No Further Action Report for Nine Sites, Former U.S. Naval Ammunition Support Detachment, Vieques, Puerto Rico. October.

CH2M HILL, 2006c. Final Expanded Range Assessment and Phase II Site Inspection Work Plan, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico. November.

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

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

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

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

CH2M HILL, 2007e. Draft Engineering Evaluation/Cost Analysis Report, Munitions Response Program, Vieques, Puerto Rico. May.

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

CH2M HILL, 2007g. Final East Vieques Background Soil Inorganics Investigation Report, Former Vieques Naval Training Range, Vieques, Puerto Rico. October.

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

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

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

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

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

CH2M HILL, 2008g. Final Amendment 1, Expanded Range Assessment and Phase II Site Inspection Work Plan, Former Vieques Naval Training Range, Vieques Puerto Rico. July.

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



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

\*Department of Defense (DoD), 2004. Sampling and testing of perchlorate at DoD installations. Interim guidance. January.

ERI, 2000. Addendum to Draft Air Photo Analysis of EMA and AFWTF. December.

Environmental Resource Management, Inc. (ERM), 2000. Environmental Baseline Survey; Final. October.

\*Environmental Science and Engineering, Inc. (ESE), 1986. 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.

\*Environmental Science and Engineering (ESE), 1988. Preliminary Assessment/Site Investigation for SWMU 5, SWMU 6, and SWMU 7.

Field Support Services, Inc. (Division of Shaw Environmental & Infrastructure, Inc.), 2008. Final Work Plan Removal Actions SWMU 6, SWMU 7, AOC J, and AOC R, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico. February.

\*Geo-Marine, Inc., 2003. Draft Final Integrated Natural Resources Management Plan, Plan Years 2003-2012, Navy Lands on Vieques, Vieques Island, Puerto Rico.

Greenleaf/Telesca Planners, Engineers, Architects, Inc. and Ecology and Environment, Inc. (Greenleaf), 1984. Initial Assessment Study, Naval Station Roosevelt Roads, Puerto Rico. September.

A.T. Kearney, Inc. and 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.

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.

\*Municipality of Vieques, 2001. Memorial General Plan de Ordenación Terretorial de Vieques.

Naval Facilities Engineering Command, 2003a. Draft Final Environmental Baseline Survey, Vieques Naval Training Range, Vieques Island, Puerto Rico. April 1.

Naval Facilities Engineering Command, 2003b. Final Draft Preliminary Range Assessment Report, Vieques Naval Training Range, Vieques Island, Puerto Rico. April.

\*PIKA International, 2005. Final Work Plan for CPC Operations and MEC Support Activities at Former Vieques Naval Training Range (VNTR)

Puerto Rico Environmental Quality Board (Herminio Concepcion Vargas), 1995. Revised RCRA Facility Assessment Report, Atlantic Fleet Weapons Training Facility, Vieques, Puerto Rico. September.

Puerto Rico Environmental Quality Board, 2007. Commonwealth of Puerto Rico, Office of the Governor, Item No. R-07-2-9, Reference to: Public Hearing on No Further Action Report for Nine Sites at Former U.S. Naval Ammunition Support Detachment, Resolution and Notification, February 28.

\*Shaw Inc., 2007 Final Work Plan Removal Actions For Solid Waste Management Units 6 and 7 (SWMU 6 and 7) and Areas of Concern J and R (AOC J and R) Former Naval Ammunitions Support Detachment Vieques Puerto Rico.

U.S. Department of the Interior, 2007. Final Comprehensive Conservation Plan/Environmental Impact Statement for Vieques National Wildlife Refuge, Vieques, Puerto Rico. August.

\*U.S. Environmental Protection Agency (USEPA), 1989. Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual.

\*U.S. Environmental Protection Agency (USEPA), 1994. Amended Guidance on Preliminary Risk Evaluations (PREs) for the Purpose of Reaching a Finding of Suitability to Lease.

\*United States Environmental Protection Agency, Region II, 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. January 10.

U.S. Geological Survey (USGS), 1989. Reconnaissance of the Ground-Water Resources of Vieques Island, Puerto Rico. By Sigfredo Torres-Gonzalez. Report 86-4100.

## Appendixes

---

**APPENDIX A**  
**Status of RI / FS sites in Vieques, PR**

**I. Status of Environmental Remedial Investigation / Feasibility Study Sites**

<b>Site Designation</b>	<b>Description of Site</b>	<b>Status</b>
SWMU 4 Inactive OB/Waste Explosive Detonation Range (West Vieques-DOI)	An open burn/open detonation area where there was thermal destruction of unserviceable munitions from approximately 1965-1980.	Final RI Work Plan submitted (CH2M HILL, January 2007). RI field investigation implemented in 2 <sup>nd</sup> fiscal quarter 2007. Final Addendum 1 to the 2007 Work Plan submitted (April 2008). Supplemental RI field investigation implemented in 3 <sup>rd</sup> fiscal quarter 2008. Data currently being evaluated to determine if they are sufficient for delineating nature and extent of contamination and assessing potential risks.
SWMU 6 Mangrove Disposal Site (West Vieques-DOI)	Disposal of trash (lubricants, oils, solvents, and paint) ~1965-1980	Final RI Report submitted in February 2007. Final Removal Action Work Plan submitted February 2008. Waste characterization sampling performed in February 2008. Waste characterization risk assessments in progress.
SWMU 7 Quebrada Disposal Site (West Vieques-MOV)	Disposal of trash (lubricants, oils, solvents, and paint) ~1965-1980	Final RI Report submitted in March 2008. Final Removal Action Work Plan submitted February 2008. Waste characterization sampling performed in February 2008. Waste characterization risk assessments in progress.
AOC E Former Waste Oil UST at Bldg. 2016 (West Vieques-MOV)	Waste oil UST - contaminated soil found during removal of UST	Draft Final RI Report submitted to RAB in June 2008. FS to commence in mid-2008 with additional sampling.

**APPENDIX A**  
**Status of RI / FS sites in Vieques, PR**

**I. Status of Environmental Remedial Investigation / Feasibility Study Sites**

<b>Site Designation</b>	<b>Description of Site</b>	<b>Status</b>
AOC H Abandoned Power Plant (West Vieques-MOV property)	Operated 1941-1943; AST; used for Fire Fighter training ~1960s-1980s	Final RI Report submitted July 2007. Proposed Plan for NFA submitted January 2008. Draft NFA ROD submitted in May 2008.
AOC I Asphalt Plant (West Vieques-MOV)	Former AST storage area stained with asphalt emulsion.	Final RI Report submitted in June 2008. FS to commence in mid-2008 with additional sampling.
AOC J Former Operations/Staging Area Disposal Site (West Vieques-DOI)	Solid and potentially hazardous waste disposal site ~1965-1973	Final RI Report submitted in May 2007. Final Removal Action Work Plan submitted February 2008. Waste characterization sampling performed in February 2008. Waste characterization risk assessments in progress.
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 in progress. Supplemental RI to be conducted following debris removal.

**APPENDIX A**  
**Status of RI / FS sites in Vieques, PR**

**II. Status of Munitions Remedial Investigation Sites, Vieques, PR**

Site Designation	MRA	Parcel	MRS	MEC Area Type	Description of Site	Status
SWMU 9 Explosive Ordnance Firing Range (LIA Bombing Range)	LIA	C-1, 2, 3, 4, 5, 6	1 - 31	Bombing Range	Established in 1964; since 1974 over 150,000 rounds and 4,700 tons of Naval gunfire; over 40,000 rounds (10,000 tons) of ATG bombing.	A TCRA is underway to remove surface munitions from the site
SWMU 3 Waste Explosive Ordnance Detonation Area (LIA OB/OD)	LIA	C-4	29	OB/OD	Area is a former open burn/open detonation area located within LIA.	A TCRA is underway to remove surface munitions from the site
SWMU 4 Inactive OB/Waste Explosive Detonation Range (West Vieques- DOI Property)	West Vieques	NA	NA	OB/OD	An open burn/open detonation area where there was thermal destruction of unserviceable munitions from approximately 1965-1980.	Draft EE/CA for subsurface removal of roads and beaches is underway.

**APPENDIX B**  
**SITE SCREENING AREAS**

**I. SITE SCREENING AREAS - ENVIRONMENTAL SITES, EAST VIEQUES, PR**

<b>Site Designation</b>	<b>Description of Site</b>	<b>Status</b>
SWMU 1	Camp Garcia Landfill (EMA)	SMWU 1 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for Expanded SI activities. Sampling and Analysis Plan is being developed.
SWMU 2	Fuels Off-Loading Site	SMWU 2 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for Expanded SI activities. Sampling and Analysis Plan is being developed.
SWMU 4	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>	SMWU 4 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for NFA, pending a regional groundwater evaluation at Camp Garcia. Sampling and Analysis Plan is being developed.
SWMU 5	Spent Battery Accumulation Area located at Observation Post 1 (OP-1)	SMWU 5 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for NFA.
SWMU 6	Waste Oil and Paint Accumulation Area (Seabees Area at Camp Garcia). To include any releases from the adjacent Lubricating Oil Storage Area	SMWU 6 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for Expanded SI activities. Sampling and Analysis Plan is being developed.
SWMU 7	Waste Oil Accumulation Area (outside Building 303 at Camp Garcia)	SMWU 7 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for Expanded SI activities. Sampling and Analysis Plan is being developed.
SWMU 8	Waste Oil Accumulation Area (Inner Range at OP-1)	SMWU 8 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for NFA.
SWMU 10	Sewage Treatment Lagoons (Camp Garcia)	SMWU 10 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for Expanded SI activities. Sampling and Analysis Plan is being developed.

SWMU 12	Solid Waste Collection Unit Area (OP-1)	SMWU 12 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for NFA.
AOC A	Diesel Fuel Fill Pipe Area (OP-1)	AOC A is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for Expanded SI activities, including removal of an isolated area of TPH-contaminated soil. Sampling and Analysis Plan is being developed.
AOC F	Rock Quarry (Camp Garcia)	AOC F is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for NFA.
AOC G	Pump Station and Chlorination Building at Sewage Lagoons (Camp Garcia)	AOC G is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for Expanded SI activities. Sampling and Analysis Plan is being developed.
PAOC I	Building 401, interviews and records indicate former power plant and mechanics shop northeast of Bldg. 303 at Camp Garcia (structure still exists). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOC, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site will undergo an SI. Sampling and Analysis Plan is being developed.
PAOC J	Interviews and records indicate former vehicle maintenance area at Camp Garcia immediately north of the main road (all structures were demolished prior to 1980). Interviewees not aware of any hazardous waste or hazardous material releases at site; no evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed during site inspection (NAVFACENGCOC, 2003).	PAOC J is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for NFA, pending a regional groundwater evaluation at Camp Garcia. Sampling and Analysis Plan is being developed.
PAOC K	Interviews and records indicate former wash rack area north of main road (structure demolished prior to 1980). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOC, 2003).	PAOC K is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for NFA, pending a regional groundwater evaluation at Camp Garcia. Sampling and Analysis Plan is being developed.



PAOC L	Interviews and records indicate former paint and transformer storage area (structure still exists). Interviewees not aware of any hazardous waste or hazardous material releases at site; no evidence of PCB, hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed during site inspection (NAVFACENGCOM, 2003).	PAOC L is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for Expanded SI activities. Sampling and Analysis Plan is being developed.
PAOC M	Interviews and records indicate former dispatch office, fuel facility, and sleeping quarters (Building 4503, demolished 1991). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site will undergo an SI. Sampling and Analysis Plan is being developed.
PAOC N	Records indicate former fuel farm and filling station (demolished 1992). Interviews indicate that this area is the current location of the Camp Garcia refueling station. Interviews also indicate no releases occurred at this facility. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed during the site inspection (NAVFACENGCOM, 2003).	PAOC N is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for NFA, pending a geophysical survey to confirm no underground fuel pipeline is present. Sampling and Analysis Plan is being developed.
PAOC O	Interviews and records indicate former boiler room in the heat plant building (Building 238 Camp Garcia (CG), demolished 1989). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site will undergo an SI. Sampling and Analysis Plan is being developed.
PAOC P	Interviews and records indicate former water treatment facility pump house (Building 500CG, demolished 1989). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site will undergo an SI. Sampling and Analysis Plan is being developed.
PAOC Q	Interviews and records indicate former boiler house in heat plant building (Building 607, demolished 1984). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site will undergo an SI. Sampling and Analysis Plan is being developed.
PAOC R	Interviews and records indicate former boiler house in heat plant building (Building 617, demolished 1984). The former location of this building is unknown.	The site cannot be located based on historical maps and information. Therefore NFA is necessary. Based on the description of PAOC R (relative to PAOC Q), it is possible that PAOC R may be the building located near PAOC Q in historical aerial photographs. This building has been added for investigation as part of PAOC Q. Sampling and Analysis Plan is being developed.

PAOC S	Records indicate former POL pipeline (demolished 1984). Interviews indicate that this area is the current location of the Camp Garcia refueling station. Interviews also indicate no releases occurred at this facility. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed during the site inspection (NAVFACENGCOM, 2003).	PAOC S is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for NFA, pending a geophysical survey to confirm no underground fuel pipeline is present. Sampling and Analysis Plan is being developed.
PAOC T	Interviews and records indicate former public works grounds contractor storage shed (Building 305, demolished 1991). No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site warrants NFA.
PAOC U	NEW PAOC – Vehicle Maintenance area just north of Building 303 at Camp Garcia. Current and historic storage of hazardous waste, hazardous material, and petroleum products. Some staining of soil outside of building near container storage pallets (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site warrants NFA.
PAOC V	NEW PAOC – Interviews indicate storage of leaking transformer, possible PCB contamination Two soil samples collected, one constituent detected which was below screening criteria (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site warrants NFA.
PAOC W	NEW PAOC – Observed area of pooled, discolored water adjacent to the main road from Camp Garcia to PI-21. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed. Site Interviewees had no knowledge of past activity (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site warrants NFA.
PAOC X	NEW PAOC – Quebrada (intermittent stream channel) located north from the main road and west from Camp Garcia, adjacent to the former vehicle maintenance area. Observed an automobile body, tires, scrap metal, and construction-related solid waste and debris (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site will undergo an SI that will include debris removal. Sampling and Analysis Plan is being developed.
PI 4	Interviews and records indicate location of former helicopter maintenance area, barracks, and a mess hall. Observed several large segments of concrete culverts/pipes and concrete foundation slabs with a septic vault box to the south of the concrete slabs. Observed two large, rectangular, bermed areas formerly used for fuel bladder storage (from interviews). No evidence of munitions, hazardous waste, hazardous material, or petroleum disposal was observed (NAVFACENGCOM, 2003).	PI 4 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for Expanded SI activities. Sampling and Analysis Plan is being developed.
PI 5	Surface water drainage from the runway area; interviews and records indicate historically the location of the fire department and temporary tents; beach matting was installed in the area in the past. No evidence of munitions, hazardous waste, hazardous material, or petroleum storage or disposal was observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site will undergo an SI. Sampling and Analysis Plan is being developed.

PI 6	Interviews and records indicate ASTs and facilities associated with the former location of the site drinking water system. Observed the following facilities: <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 washpad and water well pump house</li> <li>– a ground transformer near the washpad</li> <li>– a concrete pad that could potentially have contained PCB-containing transformers (NAVFACENGCOM, 2003).</li> </ul>	In October 2007, the Environmental Technical Subcommittee concurred the site will undergo an SI. Sampling and Analysis Plan is being developed.
PI 7	Interviews and records indicate southern portion was formerly a quarry and tar disposal area, northern portion was a communications facility. At the south end of the southern portion of the site, drums potentially containing asphalt were observed. Two drums were also observed in the former quarry. No items of concern identified in northern portion of site (NAVFACENGCOM, 2003).	PI 7 is included in the Final PA/SI Report for 12 Consent Order Sites and 8 PI/PAOC Sites submitted in June 2008. The site is recommended for Expanded SI activities, including drum removal. Sampling and Analysis Plan is being developed.
PI 8	Interviews and records indicate former motor pool maintenance area located south of the main road. Past storage and potential storage of hazardous materials and petroleum products. Observed a large area with dark colored/stained soils (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site will undergo an SI. Sampling and Analysis Plan is being developed.
PI 10	Interviews and records indicate site of a possible former sewage-drying lagoon. Observed two rectangular openings in the forest partially surrounded by the remains of low earthen berms. Dark colored soils were observed on portions of the enclosed areas. Evidence of limited solid waste disposal in immediate vicinity (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site will undergo an SI. Sampling and Analysis Plan is being developed.
PI 11	Interviews and records indicate pump house used for the former wastewater treatment system and/or salt water supply system. Observed a diesel engine in a vegetated area adjacent to the station and a stained area immediately under the outfall of an open pipe projecting from the side of the pump house (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site warrants NFA.
PI 20	Interviews and records indicate area used as observation point during landing exercises conducted at PI-21, and potentially used as a quarry in the past. No evidence of prior disposal activities or other contamination observed (NAVFACENGCOM, 2003).	In October 2007, the Environmental Technical Subcommittee concurred the site warrants NFA.

## APPENDIX B SITE SCREENING AREAS

### II. SITE SCREENING AREAS- MUNITIONS RESPONSE SITES, EAST VIEQUES, PR

Site Designation	MRA	Parcel	MRS	MEC Area Type	Description of Site	Status
PI 1	SIA	B-2	2	Strafing target	Within LIA. Interviews and records indicate former location of an aircraft-strafting target and water production well for residents prior to Navy activities. No evidence of hazardous waste or hazardous material or petroleum storage or disposal was observed. Non-explosive munitions were observed throughout the site (NAVFACENGCOC, 2003).	Site will be assessed during ongoing Expanded Range Assessment/ Phase II Site Inspection
PI 2	EMA	A-5	44	NA	Interviews and records indicate existing water production well and former small arms range. No evidence of munitions, hazardous waste, hazardous material, or petroleum storage or disposal was observed (NAVFACENGCOC, 2003).	Site will be assessed during ongoing Expanded Range Assessment/ Phase II Site Inspection
PI 3	EMA	A-5	14	NA	Interviews and records indicate former water production well and former small arms range. No evidence of munitions, hazardous waste, hazardous material, or petroleum storage or disposal was observed (NAVFACENGCOC, 2003).	Site will be assessed during ongoing Expanded Range Assessment/ Phase II Site Inspection
PI 9	EMA	A-8	12	Photo-Identified Munitions Storage	Field reconnaissance identified artillery casings; Aerial photos identified Open storage of probable munitions in 1959 and 1962. Containers within bermed areas, disposal of white material in large trench at north end of EBS identified as a potential OB/OD.	The site will be further evaluated under the ongoing Expanded Range Assessment/ Phase II Site Inspection
PI 12	EMA	A-8	33	NA	Interviews and records indicate water production well prior to 1970s, private residence prior to 1940s (NAVFACENGCOC, 2003). Location within the marine artillery safety fans indicates the site may be a potential MRP site	Site will be assessed during the phased munitions site inspection.
PI 13	EMA	A-8	46	Gun Position	Interviews indicate firing point for rocket-related ordnance in the 1950s-1960s. No evidence of contamination observed (NAVFACENGCOC, 2003).	Site will be assessed during the ongoing Expanded Range Assessment/ Phase II Site Inspection

## APPENDIX B SITE SCREENING AREAS

### II. SITE SCREENING AREAS- MUNITIONS RESPONSE SITES, EAST VIEQUES, PR

Site Designation	MRA	Parcel	MRS	MEC Area Type	Description of Site	Status
PI 14	EMA	A-9	41	Munitions Storage	Interviews indicate possible disposal area for scrap metal, ammunition boxes, shell casings, and miscellaneous debris. Observed a partially cleared area with possible deposited material, but no evidence of metal debris or other waste (NAVFACENCOM, 2003).	Site will be assessed during the ongoing Expanded Range Assessment/ Phase II Site Inspection
PI 15	EMA	A-8	6	Range	Interviews indicate possible observation post or a small arms range (SAR). This site consists of a low-lying area that has been disturbed by cattle. Observed one discarded compressor cylinder and a practice bomb, but observed no other indications of disposal activities (NAVFACENCOM, 2003).	Site will be assessed during the ongoing Expanded Range Assessment/ Phase II Site Inspection
PI 16	EMA	A-8	6	Disposal	Interviews indicate potential use of area for the disposal of munitions. No evidence of human disturbance was observed at this site (NAVFACENCOM, 2003).	Site will be assessed during the phased munitions site inspection.
PI 17	SIA	B-5	6	Target	Interviews and records indicate area was historically used for landing exercises and might have been used as a target area or munitions storage area. No evidence of human disturbance was observed at this site (NAVFACENCOM, 2003).	Site will be assessed during the ongoing Expanded Range Assessment/ Phase II Site Inspection
PI 18	EMA	A-5	44	Small Arms Range	Interviews indicate potential SAR. Observed an area that had recently been cleared of vegetation. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed.	Site will be assessed during the ongoing Expanded Range Assessment/ Phase II Site Inspection.
PI 19	EMA	A-5	40	Gun Position	Observed an area that had recently been cleared of vegetation. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed (NAVFACENCOM, 2003).	Site will be assessed during the ongoing Expanded Range Assessment/ Phase II Site Inspection

## APPENDIX B SITE SCREENING AREAS

### II. SITE SCREENING AREAS- MUNITIONS RESPONSE SITES, EAST VIEQUES, PR

Site Designation	MRA	Parcel	MRS	MEC Area Type	Description of Site	Status
PI 21	EMA	A-9	44	Gun Position	Interviews and records indicate possible location of a former artillery firing point. Observed the remains of small sheet metal structure, with pipes protruding from the embankment. An area of dark-colored or stained soil was also observed immediately below the outlet of the pipes (NAVFACENGCOC, 2003).	Site will be assessed during the ongoing Expanded Range Assessment/ Phase II Site Inspection
PI 22	SIA	B-2	2	Potential Target Area	Interviews, site features, and records indicate this area was formerly used for loading and unloading of range support materials and for landing exercises. Adjacent to the LIA (NAVFACENGCOC, 2003)	Site will be assessed during Expanded Range Assessment/ Phase II Site Inspection
PI 23	EMA		44	Observation Point	Large pit, not resembling a foxhole training pit, present on historical photographs. Former water production well and observation point. Adjacent to training range (NAVFACENGCOC, 2003).	Site will be assessed during the ongoing Expanded Range Assessment/ Phase II Site Inspection
PAOC Y	EMA	A-9	44	NA	Observed a large metal object on the east side of the roadway. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed. Site personnel had no knowledge of past activity (NAVFACENGCOC, 2003).	Site will be assessed during the phased munitions site inspection.
PAOC Z	EMA	A-3	29	Target	Observed an overturned tractor-trailer on the north side of the roadway. No evidence of hazardous waste, hazardous material, petroleum, or munitions storage or disposal was observed. Site personnel had no knowledge of past activity (NAVFACENGCOC, 2003)	Site will be assessed during the phased munitions site inspection.
PAOC EE	EMA	A-9	44	Munitions Storage	Site of former storage of munitions in earthen berms (NAVFACENGCOC, 2003).	Site will be assessed during the phased munitions site inspection.
PAOC FF	EMA	A-9	44	Gun Position	Site of former artillery gun placement (NAVFACENGCOC, 2003).	Site will be assessed during the phased munitions site inspection.

## APPENDIX B SITE SCREENING AREAS

### II. SITE SCREENING AREAS- MUNITIONS RESPONSE SITES, EAST VIEQUES, PR

Site Designation	MRA	Parcel	MRS	MEC Area Type	Description of Site	Status
Surface Impact Target Area (SWMU 11)	SIA	B-1, 2, 3, 4	1 - 7	Artillery/ Bombing Targets	Established in the 1950s for marine exercises; aerial photos indicate munitions craters covered over 1,800 acres; since 1974 over 100,000 rounds (over 2100 tons) of marine artillery fired at SIA.	The site will be further evaluated under the MRP Phase II Site Inspection
OP-5	SIA	B-1	1	Gun Position	Field reconnaissance detected bomb fragments, projectile fragments, small arms; was approved for firing of up to 300 rounds of 155mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection
OP-11, OP-12, OP-13,	EMA	A-4	6	Photo-Identified Gun Position	OP-12 was present prior to 1967; OP-13 was deteriorated in 1967; P-15 was identified in the EBS as a potential OP.	The site will be further evaluated under the MRP Phase II Site Inspection
G-21	SIA	B-3	2	Photo-identified Gun Position	Aerial photos identified mortar at G-21.	The site will be further evaluated under the MRP Phase II Site Inspection
G-1	EMA	A-3	22	Gun Position	Field reconnaissance did not detect MEC within the open area of the gun position; was approved for firing of up to 300 rounds of 155mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection
G-2	EMA	A-5	18	Gun Position	Field reconnaissance detected small arms MEC; was approved for firing of up to 300 rounds of 155mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection
G-3	EMA	A-5	17	Gun Position	Field reconnaissance detected small arms MEC; was approved for firing of up to 300 rounds of 155mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection
G-4	EMA	A-5	17	Gun Position	Field reconnaissance detected small arms MEC; was approved for firing of up to 300 rounds of 155mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection
G-5	EMA	A-5	17	Gun Position	Field reconnaissance did not detect MEC within the open area of the gun position; was approved for firing of up to 300 rounds of 155mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection
G-7	EMA	A-1	32	Gun Position	Field reconnaissance did not detect MEC within the open area of the gun position; was approved for firing of up to 300 rounds of 155mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection

## APPENDIX B SITE SCREENING AREAS

### II. SITE SCREENING AREAS- MUNITIONS RESPONSE SITES, EAST VIEQUES, PR

Site Designation	MRA	Parcel	MRS	MEC Area Type	Description of Site	Status
G-8	EMA	A-5	30	Gun Position	Field reconnaissance did not detect MEC within the open area of the gun position; was approved for firing of up to 300 rounds of 155mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection
GP-7	EMA	A-1	32	Target	Field reconnaissance detected MEC items including MK-76 inert bombs and 20mm; was approved for firing of up to 300 rounds of 155mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection
GP-9	EMA	A-1	16	Gun Position	Field reconnaissance detected bomb rack and bomb brace; was approved for firing of up to 300 rounds of 155mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection
OP-10	EMA	A-4	6	Gun Position	Aerial photos identified OP-10 was a cleared area in 1962 but re-vegetated in 1967.	The site will be further evaluated under the MRP Phase II Site Inspection
G-9 through G-19, G-22 through G-35	EMA	A-1, 2, 3, 4, 5, 6, 8, 9	6, 9, 10, 11, 15, 17, 18, 21, 23, 24, 26, 27, 28, 31, 33, 34, 35, 37, 43, 44, 46	Photo-identified artillery Gun Positions	Aerial photo analysis identified the following number of revetted gun positions: 3 at G-9; 6 at G-10; 9 at G-12; 6 at G-13; 3 at G-14; 6 at G-15; 10 at G-16; 6 at G-17; 3 at G-18; 4 at G-19; 6 at G-20; mortar at G-22; 3 at G-24; 6 at G-25; 6 at G-26; 4 at G-27; 6 at G-28; 4 at G-29; 6 at G-30; 6 at G-31; 6 at G-32; 6 at G-33; 8 at G-34; 8 at G-35; PI-13, PI-18, PAOC-FF identified from interviews for EBS.	The site will be further evaluated under the MRP Phase II Site Inspection
Range 1 (PAOC AA)	EMA	A-1	37	Small Arms Range	Field reconnaissance detected small arms MEC; was approved for firing of up to 30,000 rounds of 9mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection
Range 2 (PAOC BB)	EMA	A-1	36	Small Arms Range	Field reconnaissance detected small arms MEC; was approved for firing of up to 30,000 rounds of 9mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection
Range 3 (PAOC CC)	EMA	A-1	1	Rifle Grenade Range	Field reconnaissance detected small arms and 40 mm MEC; was approved for firing of up to 30,000 rounds of 9mm per day.	The site will be further evaluated under the MRP Phase II Site Inspection



## APPENDIX B SITE SCREENING AREAS

### II. SITE SCREENING AREAS- MUNITIONS RESPONSE SITES, EAST VIEQUES, PR

Site Designation	MRA	Parcel	MRS	MEC Area Type	Description of Site	Status
Range 4, 4a, 4b (PAOC DD)	EMA	A-1	2, 3, 4	40MM and Rocket Ranges	Field reconnaissance detected expended rocket motors MEC and ORS; was approved for firing of up to 30,000 rounds of 9mm per day, 500 40mm grenades per day, 100 LAWS per day.	The site will be further evaluated under the MRP Phase II Site Inspection
Range 5	EMA	A-1	5	Hand grenade Range	Field reconnaissance did not detect MEC; was approved for firing of up to 500 hand grenades per day.	The site will be further evaluated under the MRP Phase II Site Inspection
Range 6	EMA	A-2	20	Open Detonation range	Field reconnaissance detected small arms MEC; was approved for use of up to 1,000 lbs. of C4 per day.	The site will be further evaluated under the MRP Phase II Site Inspection
Photo-identified Ranges 7, 8, 9	EMA	A-1, 5, 9	14, 30, 32, 38, 44	Small Arms Ranges	Aerial photo analysis identified Range 7 may have been used for longer-range weapons and had numerous targets/impact areas; Range 8 and Range 9 were visible in 1994.	The sites will be further evaluated under the MRP Phase II Site Inspection

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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