

**FINAL  
REMEDIAL ACTION COMPLETION REPORT**

**LOW PROBABILITY FUDS WATER BUFFER MRS 08  
PLUM TREE ISLAND RANGE  
FORMERLY USED DEFENSE SITE, PROPERTY NUMBER C03VA0202  
POQUOSON, VIRGINIA**

Contract No.: W912DR-21-D-0003  
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*Prepared For:*



**U.S. ARMY CORPS OF ENGINEERS  
BALTIMORE DISTRICT**  
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Appendix A	Draft Memorandum of Understanding
Appendix B	Sign Installation Photograph Documentation
Appendix C	Plum Tree Island Range FUDS Trifold Fact Sheet

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## LIST OF ACRONYMS AND ABBREVIATIONS

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3Rs	Recognize, Retreat, and Report
AFB	Air Force Base
Alion	Alion Science and Technology
AR	Administrative Record
ARAR	applicable or relevant and appropriate requirement
BHHRA	Baseline Human Health Risk Assessment
CB&I	Chicago Bridge and Iron Company
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPCs	chemicals of potential concern
COPEC	contaminant of potential ecological concern
DD	Decision Document
DoD	U.S. Department of Defense
DQO	data quality objective
ELCR	excess lifetime cancer risk
FBERA	Focused Baseline Ecological Risk Assessment
FS	Feasibility Study
ft	foot (feet)
FUDS	Formerly Used Defense Site
GPS	Global Positioning System
Hana	Hana Engineers and Consultants, LLC
IC	Institutional Control
JATO	jet-assisted takeoff
lb	pound(s)
LUCIP	Land Use Control Implementation Plan
MC	munitions constituent
MD	munitions debris
MEC	munitions and explosives of concern
mm	millimeter
MMRP	Military Munitions Response Program
MOU	Memorandum of Understanding
MPPEH	material potentially presenting an explosive hazard
MR-QAPP	Munitions Response – Quality Assurance Project Plan
MRS	Munitions Response Site
NASA	National Aeronautics and Space Administration
NPL	National Priorities List
PIP	Public Involvement Plan
PM	Project Manager

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## LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

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PP	Proposed Plan
psi	pound(s) per square inch
PTI	Plum Tree Island
RA	remedial action
RACR	Remedial Action Completion Report
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RC	response complete
RD	Remedial Design
RI	Remedial Investigation
Shaw	Shaw Environmental, Inc.
SI	Site Inspection
SLERA	Screening Level Ecological Risk Assessment
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UXO	unexploded ordnance
VDEQ	Virginia Department of Environmental Quality
WESTON <sup>®</sup>	Weston Solutions, Inc.

## 1. OVERVIEW

Weston Solutions, Inc. (WESTON®) conducted a remedial action (RA), which was selected in the Decision Document (DD) (U.S. Army Corps of Engineers [USACE], 2019) for the Low Probability Formerly Used Defense Site (FUDS) Water Buffer Munitions Response Site (MRS) 08 on the Plum Tree Island (PTI) Range FUDS, property number C03VA0202, Poquoson, Virginia. The remedy included implementation of the following primary Institutional Controls (ICs) as prescribed in the DD:

- Access and Land Use Restrictions
- Public Education and Outreach
- Signage
- Construction Support Requirements

The purpose of the Remedial Action Completion Report (RACR) is to present the background and site information and the Remedial Action Objective (RAO) and to document the remedy has been completed and all remediation goals are achieved for MRS 08. The RAO is provided as follows:

- Reduce the unacceptable risk due to the presence of munitions and explosives of concern (MEC) (50-pound [lb] to 2,000-lb bombs, flares, and unexpended jet-assisted takeoff [JATO] bottles) within the boundary of MRS 08 to address the likelihood of exposure to refuge workers, trespassers, and recreational users via interaction during work or recreational activities, including hiking, hunting, and fishing, such that an acceptable condition of negligible risk is achieved.

This RACR presents the methods and methodologies used for implementation of the selected remedy for MRS 08. Although the PTI Range FUDS property is not a National Priorities List (NPL) site, this RACR was created in accordance with the joint guidance prepared by the U.S. Department of Defense (DoD) and the U.S. Environmental Protection Agency (USEPA), *DoD/EPA Joint Guidance on Streamlined Site Closeout and NPL Deletion Process for DoD Facilities* (DoD/USEPA, 2006), which provides specific guidance for documenting a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) RA. The *Formerly Used Defense Sites (FUDS) Program Implementing Guidance* (USACE, 2022) was also used to present documentation requirements for a response complete (RC) determination. The purpose of this RACR is to show that the following actions were achieved and that, with the implementation of ICs, there are no unacceptable risks remaining at this MRS:

- ICs are in place, as appropriate.

- RAO stated in the DD has been achieved.

The DD (USACE, 2019) is the controlling document for the RA and was referenced throughout the remedial process. A Remedial Design (RD)/Remedial Action Work Plan (RAWP), in the form of a Munitions Response – Quality Assurance Project Plan (MR-QAPP) (WESTON, 2024), provided details of the methodologies followed for the RA. The RACR has been prepared in accordance with USEPA Region 3 and Virginia Department of Environmental Quality (VDEQ) regulatory criteria with VDEQ being the primary regulatory stakeholder for the project.

## **1.1 PLUM TREE ISLAND RANGE FUDS LOCATION AND DESCRIPTION**

### **1.1.1 Plum Tree Island Range FUDS**

The PTI Range FUDS property consists of 3,276 acres and is located at the southwest corner of Chesapeake Bay in the City of Poquoson, Virginia. The FUDS property is located approximately 28 miles southeast of Williamsburg, Virginia, and approximately 16 miles northeast of Newport News, Virginia (**Figure 1-1**). The property is almost entirely composed of salt marsh bordered by the City of Poquoson and other salt marshes to the west, Chesapeake Bay to the north and east, and Back River to the south.

There are eight MRSs associated with the FUDS property, covering both land and water areas with some extending beyond the property boundary, for a total of 4,766 acres. The eight MRSs include U.S. Fish and Wildlife Service (USFWS)- and Commonwealth of Virginia-owned MRSs and a privately owned MRS. USFWS-owned MRSs include the Northern Bomb Cluster MRS 04 (5.4 acres), Central Target Area MRS 03 (37.7 acres), Southeast Target Area MRS 01 (449 acres), and Refuge Land Buffer MRS 07 (1,921 acres); the privately owned MRS includes the Non-Refuge Land Buffer MRS 09 (36.9 acres); and the Commonwealth of Virginia-owned MRSs include the Low Probability FUDS Water Buffer MRS 08 (770 acres), High Probability Shallow Water Buffer MRS 06 (599 acres), and High Probability Deep Water Buffer MRS 05 (947 acres). Their locations are presented on **Figure 1-2**.

### **1.1.2 Low Probability FUDS Water Buffer MRS 08**

MRS 08 is 770 acres and is located primarily in the northern and eastern areas of the PTI Range FUDS property with a couple of small portions in the southern and northwestern ends of the PTI

Range FUDS property. **Figure 1-3** presents a site map for MRS 08. This area represents all water within the PTI Range FUDS property where evidence of MEC on adjacent marsh land indicates a low probability of MEC. No investigations were conducted on this MRS during the Remedial Investigation (RI) (Shaw Environmental, Inc. [Shaw], 2013).

## 1.2 FUDS HISTORY

The PTI Range FUDS property was acquired by DoD in 1917 to support operations at the nearby Langley Air Force Base (AFB). Shortly after its establishment, the property transitioned into an extensively used bombing, gunnery, and rocket range. There is little information available on the use of the property from 1917 to 1933. From October to November 1933, construction/repair occurred on a Machine Gun Range located on Back River opposite Messick Point and at a Bombing Range located near Plum Tree Point. This construction/repair included the building of boardwalks and several observation towers, as well as the installation of 12 sets of foundations for machine gun targets. By July 1935, the property contained 750 personnel targets southwest of the Gunnery Range, 30 Type “C” Targets southeast of the Gunnery Range, a Ship Target southeast of the Gunnery Range, a Concrete Pier Target southeast of the Gunnery Range, a 200-yard Square Target northwest of the Bombing Target, and a Practice Bombing Target west of the Bombing Range.

Ordnance activity occurred on the PTI Range FUDS property from the beginning of the property’s operational use until 1959. In 1959, the National Aeronautics and Space Administration (NASA) began using the property to test free-flight aircraft models and vertical take-off and landing airplanes.

In May 1971, the FUDS property was excessed by the U.S. Air Force (USAF). The FUDS property was turned over to the Department of the Interior, Bureau of Fish and Wildlife, in June 1972 for use as a wildlife refuge. Langley AFB reserved the right to use the property as an emergency jettison area for pilots and for ordnance disposal operations. In 1988, USFWS personnel observed corroded bombs at low tide near Plum Tree Point. In 1994, the Poquoson Police reported finding an old style 100-lb demolition bomb casing devoid of explosives or hazardous components. This item was discovered near the center of the property on the eastern shore.

## 1.3 SITE INVESTIGATION HISTORY

### 1.3.1 Site Characterization

USACE conducted a Site Inspection (SI) at the PTI Range FUDS property in 2007 (Alion Science and Technology [Alion], 2007). The SI included reconnaissance lines to identify surface MEC along with soil, surface water, and sediment sampling to assess the presence of munitions constituents (MC). The SI Report concluded that MEC was likely present on the FUDS property. The report indicated that the media of concern that may be affected by MC were surface soil, sediment, and surface water. The report further determined that the presence of MEC/MC posed a potential risk to human and ecological receptors. The SI Report documented the finding of a suspect 20-millimeter (mm) projectile; however, this item was subsequently identified as a 50-caliber cartridge and bullet.

The 2013 Remedial Investigation (RI) field effort was primarily limited to the land area of the PTI Range FUDS property (Shaw Environmental, Inc. [Shaw], 2013) and did not include the MRS 08 area. The RI confirmed the use of the FUDS property for bombing and aerial rockets and refined the locations of heaviest usage. All encountered MEC and munitions debris (MD) were removed from the surface along the southern shoreline.

The Baseline Human Health Risk Assessment (BHHRA) concluded that excess lifetime cancer risk (ELCR) from exposure to chemicals of potential concern (COPCs) at the site are within or below the USEPA acceptable risk range. The main driver for this risk was arsenic in surface water and sediment, although for surface water, arsenic was found to be within the range of background concentrations. All cumulative hazard indices were below the acceptable limit of 1.

The Screening Level Ecological Risk Assessment (SLERA) concluded that the food chain assessment suggests potential adverse impacts to wildlife for modeled contact with copper, lead, mercury, selenium, and zinc in sediment, and with arsenic, lead, mercury, and selenium in surface water. However, none of the contaminants of potential ecological concern (COPECs) in surface water were determined to be site related, while several metals exceeded background in sediment. Based on this finding and other concerns by regulators, such as the possibility of wading birds preferentially using impact bomb craters for foraging, a Focused Baseline Ecological Risk

Assessment (FBERA) was performed. The FBERA concluded that direct contact toxicity for all COPECs evaluated in sediment was determined not to be a concern for organisms inhabiting the sediments. Because uncertainties remain regarding metal concentrations in site-collected aquatic tissue samples being statistically greater than background, VDEQ and USFWS could not support a no further action conclusion for MC.

Recommendations presented in the RI for the FUDS property (Shaw, 2013) included (1) division of the property into eight MRSs; (2) further evaluation of all eight MRSs in a Feasibility Study (FS) to address hazards due to MEC; and (3) further evaluation in an FBERA to evaluate copper in sediment. In RI Addendum 1 (Chicago Bridge and Iron Company [CB&I], 2015), the additional shrimp and crab samples from PTI background ponds were found to have similar copper concentrations compared to prey in the bomb crater ponds. It was concluded that MC-related copper did not cause unacceptable risk to predators who feed upon prey at PTI ponds; therefore, no further action was recommended for MC, and no FS is needed to address copper in sediment.

Although no investigations were performed at the Low Probability FUDS Water Buffer Area, MEC density was expected to be low. It was recommended that this area (subsequently called MRS 08) be further evaluated for potential action in an FS to address hazards due to the presence of MEC (Shaw, 2013).

### **1.3.2 Feasibility Study**

The FS and addendums (USACE, 2013, 2016, and 2018a) were developed to provide project decision-makers with the necessary data to develop, screen, and evaluate a range of potential alternatives and select a response to manage the MEC hazards to human health and the environment at the property. The FS contained the RAO and potential applicable or relevant and appropriate requirements (ARARs), as well as evaluated RA alternatives for MRS 08.

USACE developed the RAO for MRS 08 to prevent direct human contact with MEC in soil and sediment by minimizing potential exposures to MEC.

The RAO for the RA at MRS 08 is provided as follows (USACE, 2019):

- Reduce the unacceptable risk due to presence of MEC (50-lb to 2,000-lb bombs, flares, and unexpended JATO bottles) within the boundary of MRS 08 to address the likelihood of exposure to refuge workers, trespassers, and recreational users via

interaction during work or recreational activities, including hiking, hunting, and fishing, such that an acceptable condition of negligible risk is achieved.

Four alternatives were selected for detailed analysis for MRS 08. The evaluated alternatives included the following:

- Water Alternative 1 – No Action
- Water Alternative 2 – ICs
- Water Alternative 3 – Substrate MEC Removal and ICs
- Water Alternative 4 – Exposed MEC Removal to 2 feet (ft) and ICs

After examining the feasibility of alternatives in accordance with applicable law, standards, and policies, USACE selected Alternative 2, ICs only, for MRS 08. VDEQ (on behalf of the Commonwealth of Virginia) concurred with the selected remedies. Virginia's formal agreement with the selected remedies is contained in the PTI Range FUDS Administrative Record (AR). Alternative 2 indicated that ICs (MEC Recognition and Safety Training, information displays, public outreach, and warning signs) were to be implemented for MRS 08 to reduce the likelihood of receptor exposure risk to MEC through behavior control mechanisms. "MEC Recognition and Safety Training" has been subsequently updated to the term "3Rs (Recognize, Retreat, and Report) Explosives Safety Education Program."

### **1.3.3 Proposed Plan**

Pursuant to CERCLA Section 113(k)(2)(B) and Section 117, USACE released the Proposed Plan (PP) for the PTI Range FUDS property to the public for comment on July 8, 2018 (USACE, 2018b). A public comment period was held from July 9, 2018, to August 17, 2018, including a public meeting on July 26, 2018, to present the PP at the City of Poquoson Council Chambers, during which comments were accepted and considered prior to the selection of a remedial alternative for the MRSs in the DD (USACE, 2019). Based on the comparative analysis presented in the FS Report (USACE, 2013), the following alternative was selected in the PP for MRS 08:

- Low Probability FUDS Water Buffer (MRS 08): Water Alternative 2 – ICs

### **1.3.4 Decision Document**

The DD, signed on September 25, 2019 (USACE, 2019), approved funding in agreement with the selected remedy for MEC at MRS 08 on the PTI Range FUDS property.

## **1.4 SELECTED REMEDY**

The selected remedy for MRS 08 included the following major IC components:

- Access and Land Use Restrictions
- Public Education and Outreach
- Signage
- Construction Support Requirements

## **1.5 REPORT ORGANIZATION**

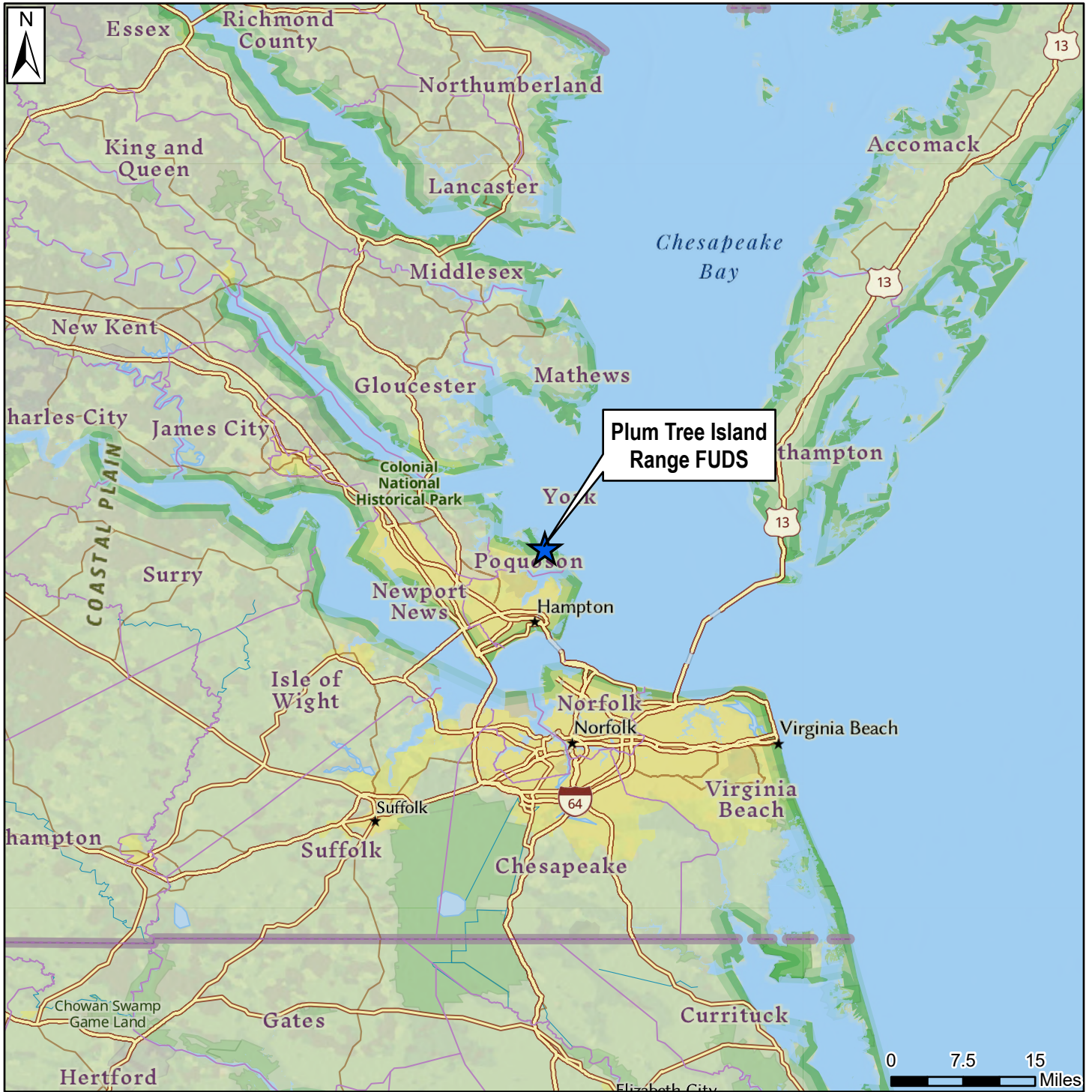
This RACR provides a summary of the RA activities that were implemented in accordance with the Final DD (USACE, 2019). In addition to this overview, the report consists of the following sections:

- Section 2 – Remedial Action Objectives
- Section 3 – Remedial Action
- Section 4 – Demonstration of Completion
- Section 5 – Ongoing Activities
- Section 6 – Community Involvement
- Section 7 – Certification Statement
- Section 8 – References

Plum Tree Island Range FUDS  
Poquoson, Virginia



Figure 1-1  
Site Location Map



★ Plum Tree Island Range FUDS

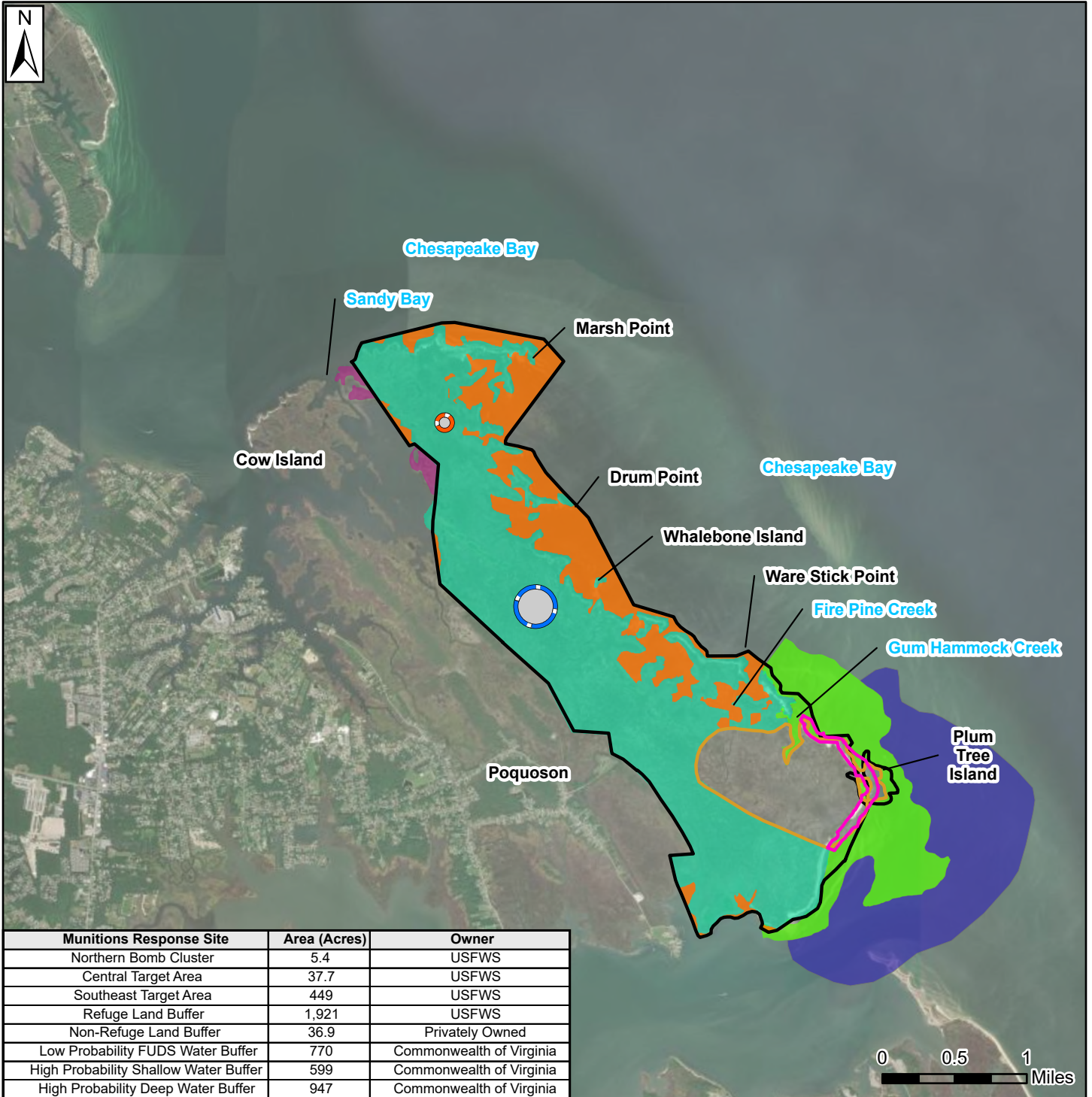
Data Sources:  
ESRI 2025

Date: August 2025  
Prepared For: USACE  
Projection: WGS 84 UTM 18N

Plum Tree Island Range FUDS  
Poquoson, Virginia



Figure 1-2  
MRS Location Map



Munitions Response Site	Area (Acres)	Owner
Northern Bomb Cluster	5.4	USFWS
Central Target Area	37.7	USFWS
Southeast Target Area	449	USFWS
Refuge Land Buffer	1,921	USFWS
Non-Refuge Land Buffer	36.9	Privately Owned
Low Probability FUDS Water Buffer	770	Commonwealth of Virginia
High Probability Shallow Water Buffer	599	Commonwealth of Virginia
High Probability Deep Water Buffer	947	Commonwealth of Virginia

Legend	
	High Probability Deep Water Buffer MRS 05
	High Probability Shallow Water Buffer MRS 06
	Non-Refuge Land Buffer MRS 09
	Low Probability FUDS Water Buffer MRS 08
	Refuge Land Buffer MRS 07
	Southeast Target Area MRS 01 Shoreline Area
	Southeast Target Area MRS 01
	FUDS Boundary
	Northern Bomb Cluster MRS 04
	Central Target Area MRS 03

Data Sources:  
ESRI 2020

Date: August 2025  
Prepared For: USACE  
Projection: WGS 84 UTM 18N

Plum Tree Island Range FUDS  
Poquoson, Virginia



Figure 1-3  
Low Probability FUDS Water Buffer MRS 08 Location Map



Munitions Response Site	Area (Acres)	Owner
Low Probability FUDS Water Buffer	770	Commonwealth of Virginia

Legend

- Low Probability FUDS Water Buffer MRS 08
- FUDS Boundary

Data Sources:  
ESRI 2020

Date: October 2025  
Prepared For: USACE  
Projection: WGS 84 UTM 18N

## 2. REMEDIAL ACTION OBJECTIVES

During the preparation of the Final DD (USACE, 2019), various objectives, criteria, and standards, including ARARs, were selected which were critical to the effectiveness and guided the design of the RA. The RAO was developed based on the findings of the munitions and risk assessments presented in the Site Characterization and FS Reports (USACE, 2013, 2016, and 2018a; Shaw, 2013). The RAO for the RA at MRS 08 is provided as follows (USACE, 2019):

- Reduce the unacceptable risk due to presence of MEC (50-lb to 2,000-lb bombs, flares, and unexpended JATO bottles) within the boundary of MRS 08 to address the likelihood of exposure to refuge workers, trespassers, and recreational users via interaction during work or recreational activities, including hiking, hunting, and fishing, such that an acceptable condition of negligible risk is achieved.

### 3. REMEDIAL ACTION

This section provides a narrative description of the RA implementation conducted by WESTON and subcontractor Hana Engineers and Consultants, LLC (Hana). The selected remedy for MRS 08 consisted of the implementation of ICs. The primary component necessary to achieve the RAO was the implementation of the ICs. The objective of the existing ICs is to minimize the exposure of refuge workers, trespassers, recreational water users, and watermen to MEC by providing information and notification, if encountered, to properly educate people on avoidance and reporting procedures. This objective is met by implementing ICs that warn of potential hazards and supply up-to-date information on how to recognize and report encounters with potential MEC. USACE has implemented the ICs discussed in the following subsections at the PTI Range FUDS property.

#### 3.1 REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN

The selected remedy consisted of the following primary components:

- Access and Land Use Restrictions
- Construction Support Requirements
- Signage
- Public Education and Outreach

There were no deviations from the proposed activities (those primary components listed above) described in the MR-QAPP (WESTON, 2024) and Land Use Control Implementation Plan (LUCIP) (USACE, 2023). The following sections discuss the RA activities (in the form of various ICs) that were completed in accordance with the MR-QAPP.

#### 3.2 ACCESS AND LAND USE RESTRICTIONS

USFWS has and will ensure that the entire PTI Range FUDS property remains closed to the public. Due to fragile habitats and safety concerns associated with its former use as a bombing range, public access is prohibited. Unauthorized entry is a federal offense and is punishable by fine and possibly imprisonment.

A draft 2025 Memorandum of Understanding (MOU) (MOU#C03VA0202) between USACE and USFWS formalizes the agreements related to implementation of ICs required per the DD (USACE, 2025) (**Appendix A**). The Virginia Department of Wildlife Resources, Virginia Marine Police

have and will enforce the prohibited bottom disturbing activities in the restricted area (4 VAC 20-1065-10 through 40), including anchoring; clamming with rakes, shovels, or hoes; dredging, prop dredging, beaching, or grounding of vessels; and walking on the bottom. Permitted activities include setting or hauling of crab pots, gill nets, and purse seining (drag nets).

The Refuge, which includes the entire FUDS property and MRS 08, is zoned as “conservation” by the City of Poquoson.

### **3.2.1 Construction Support Requirement**

Per the draft 2025 MOU between USACE and USFWS, USFWS is and will continue to be responsible for implementing the use of unexploded ordnance (UXO)-qualified escorts for MEC avoidance for authorized entrants accessing all areas of the marsh inside the boundary of the PTI Range FUDS property, including MRS 08, and for construction support for intrusive activities. This agreement includes using UXO-qualified personnel as escorts when performing subsurface activities and applies specifically to situations where anomaly avoidance can be implemented. Construction support by UXO-qualified contractors would only be required in areas where anomaly avoidance is not feasible and intrusive activities are required.

### **3.2.2 Signage**

There are currently 149 warning signs installed by USACE around the USFWS-owned FUDS property to notify visitors of the hazards and access restrictions and to deter access. The latest event, which primarily included the installation of new signs/signposts and the repair of existing signs/signposts (e.g., installation of a new warning sign [in most cases, due to a missing or damaged sign] on an existing signpost), was performed in November 2024.

As a subcontractor to WESTON, Hana installed new signposts and signs at roughly 600-ft spacing, assuring that adjacent signs were within line-of-sight of each other. If an existing sign was damaged but the post was intact, only the sign was replaced. A total of 250 signposts and 238 signs were ordered for the project. The signs that were installed measured 18 inches by 24 inches and were designed by USFWS and USACE. Signs were affixed to 12-ft, Type 2 (2 lb per ft), hot-dipped galvanized signposts. The signposts were installed 6 ft above the surface, and the signs were

fastened to the highest point. All leftover materials were delivered to USFWS on November 20, 2024, for future use for sign/signpost repair or replacement.

Land-based signs along the western side of the FUDS property were installed from November 4 to November 8, 2024. Access was provided using an Argo tracked vehicle to maintain pressure of less than 3 pounds per square inch (psi) on the marsh surface. Water-based signs on the northern, eastern, and southern extents of the FUDS property were installed from November 14 to 19, 2024, with access provided through use of a shallow-draft airboat supplied by OBX Adventures. Much of the northern and eastern boundaries of the FUDS property where many water-based signs were installed include MRS 08 as shown in **Figures 1-2** and **3-1**. Signs were also replaced/repaired in a few small portions of MRS 08 along the western (Bennett Creek and Lloyd Bay areas) and southern (Back River area) boundaries of the FUDS property.

The two-man work crew (UXO technician and engineering technician) used a Trimble Geo 7x Global Positioning System (GPS) Receiver/Datalogger to navigate to the proposed sign installation locations. The Trimble was used to confirm proper spacing between signs. Sign locations were adjusted to accommodate shoreline erosion and water features in the marsh. Damaged existing signposts (e.g., signposts bent or lying over or missing signs) that required replacement were too difficult to remove using a jack or winch, so they were left in place.

The UXO technician used a Schonstedt GA 52 Cx analog magnetometer to check for anomalies representing material potentially presenting an explosive hazard (MPPEH) ahead of the Argo when working within the boundary of the FUDS property. The magnetometer was also used to check for anomalies when the crew was on foot within the FUDS property boundary. The magnetometer and visual inspection were used to check for MPPEH at each signpost installation location. After scanning the surface with the magnetometer and finding a clear area with no anomalies, a posthole digger was used to excavate the installation point in 12-inch increments. The magnetometer was inserted in the borehole to check for anomalies ahead of the posthole digger. At 24 to 30 inches below grade (limits of the posthole digger), the magnetometer was pushed through the ground to the extent possible to confirm no anomalies at the location. The post was then installed to 6 ft below grade using a slide hammer. For the water-based sign work, the UXO technician exited the boat to scan the area for potential MEC prior to placement of the boat on land near the planned

sign location. The UXO technician would then scan the walking area to the planned sign location and conduct downhole scanning as described above. No anomalies were noted during the scanning of these areas prior to sign installation.

A total of 94 new signs/signposts were installed in November 2024 to replace signs or establish a new sign location, and 55 acceptable existing signs were located with the GPS receiver (**Figure 3-1**). **Table 3-1** includes sign coordinates (Virginia State Plane 1983, Zone Virginia South 4502) for the work. A photolog documenting warning sign installation and repair activities is included as **Appendix B**. Warning sign locations and current day markers are illustrated in **Figures 3-1** and **3-2**, respectively.

USACE will maintain warning signs through 2030 via annual inspections and repair/replacement, as necessary. USACE will also conduct inspections every 5 years starting in 2031 to assess whether repair or replacement is necessary. Per the draft 2025 MOU, beginning in 2032, for any year that is not covered by the Five-Year Reviews (2036, 2041, 2045, etc) the USFWS would be responsible for sign maintenance and replacement. In the event of extenuating circumstances, such as storms or vandalism, which necessitate the replacement of a significant amount of signage, and if USACE is notified, USACE will assess the situation and provide necessary repairs or replacements. USFWS will notify USACE of any additional support required in relation to the signage, including but not limited to, the provision of interim replacement signs or addressing other signage concerns.

### **3.2.3 Public Education and Outreach for 3Rs**

Numerous public education tasks were identified in the LUCIP (USACE, 2023), including the development of a fact sheet for agency distribution and information displays, continued submittal of 3Rs information, updates to the publicly accessible website, attendance at the Poquoson Seafood Festival to provide information to the public, mass mailing of the fact sheet, and delivery of a briefing to the City Council. A summary describing implementation of the public education tasks is presented in the following subsections.

#### **3.2.3.1 Seafood Festival**

Outreach events were developed with the input of project stakeholders to include USACE, VDEQ, the City of Poquoson, and USFWS. The events conducted included exhibiting at the annual City

of Poquoson Seafood Festival held each fall (exhibitions were conducted during the September 2022, October 2023, and October 2025 festivals).

### **3.2.3.2 Fact Sheet Development and Distribution**

Public education included the development of a trifold fact sheet (**Appendix C**), finalized in December 2024, for USACE use and public dissemination. This was identified in the LUCIP as an IC that required annual checks. An updated trifold fact sheet will be developed prior to the initiation of RAs at the land-based MRS 01, MRS 03, and MRS 04. The USACE Baltimore technical staff and USACE Baltimore and Norfolk Districts Public Affairs Offices were consulted during the development of materials that were distributed to the target audience. The target audience for education and outreach includes citizens of the City of Poquoson, recreational users of the near-shore waters of PTI, USFWS refuge personnel, and local watermen. Of the members of the target audience, only USFWS personnel have authorized access to the terrestrial portion of the PTI Range FUDS property. All other target audience members can only access the waters of the property, and activities in the waters are restricted. The PTI Range FUDS property is closed to the public.

The fact sheet primarily includes the following information:

- 3Rs (Recognize, Retreat, Report) Explosives Safety Education Program. This program has and will inform the public of the history of the site, its military use for live-fire training, and the areas of greatest concern. The 3Rs Program advises people of the actions to take should they encounter or suspect they have encountered a military munition.
- A map presenting the PTI Range FUDS property boundary and the Danger Zone within the Chesapeake Bay waters.
- Discussion of the timeline for military use and range history.
- Photographs of various areas of the PTI Range FUDS property, warning and danger zone signs, and examples of MEC.
- Points of contact and redirection to the USACE Baltimore PTI Range FUDS information website.

### **Fact Sheets with Utility Bills**

Distributing 3Rs material to City of Poquoson residents with utility bills was conducted in 2023. This was identified in the LUCIP as an annual requirement for just 2023 and 2024. This distribution did not occur in 2024, as active remediation is scheduled to take place under a separate contract action beginning in 2026. This second mailer will be conducted prior to the follow-on remediation work.

### **Fact Sheets at Marinas and Other Local Operations**

The fact sheets were distributed to stakeholders (USACE Project Manager [PM], City of Poquoson City Manager, and USFWS PM) via email on January 10, 2025. These fact sheets were placed at numerous Poquoson area locations on January 16, 2025, to specifically include Cities of Poquoson and Hampton marinas (Whitehouse Cove Marina, Dandy Haven Marina, Belle Island Marina, and Marina Cove Boat Basin), seafood facilities (Captain Harrell's II and Bill Forest), and the Poquoson Public Library. The fact sheet was also provided to the City of Poquoson for inclusion in their locked bulletin board at Messick Point (placed by the City on January 10, 2025). This was identified in the LUCIP as an IC that required annual checks, and the information displays will be inspected annually.

### **Website Update**

The fact sheet was also provided to USACE Baltimore on January 10, 2025, for inclusion on their PTI Range FUDS information website. Updating the website was identified in the LUCIP as an IC that needs to be addressed every 5 years starting in 2022.

## **3.3 FIELD CHANGES**

No components of the RA (i.e., activities and materials) differed from the DD for MRS 08 (USACE, 2019).

**Table 3-1 Warning Sign Coordinates**

Sign	North (Degrees) <sup>1</sup>	East (Degrees) <sup>1</sup>	Existing
1	4114203.24	380899.62	N
2	4114450.01	381116.13	N
3	4114407.72	380782.09	N
4	4114467.18	380629.06	N
5	4114458.76	380445.61	N
6	4114424.03	380255.43	N
7	4114596.16	380162.43	N
8	4114510.14	380068.83	N
9	4114433.97	379901.13	N
10	4114504.01	379641.05	N
11	4114419.38	379469.28	N
12	4114440.35	379307.57	N
13	4113990.41	379055.30	N
14	4114005.61	379298.81	N
15	4113861.12	379502.60	N
16	4113651.69	379676.81	N
17	4113531.48	379825.44	N
18	4113367.36	379912.20	N
19	4113264.96	380005.89	N
20	4113147.51	380142.20	N
21	4112973.15	380133.02	N
22	4112791.31	380117.59	N
23	4112626.74	380082.80	N
24	4112430.94	380030.66	N
25	4112057.56	380113.02	N
26	4111872.73	380141.33	N
27	4111731.19	380241.32	N
28	4111606.34	380376.34	N
29	4111496.29	380525.08	N
30	4111358.00	380645.68	N
31	4111233.46	380778.80	N
32	4111110.81	380912.89	N
33	4110987.60	381047.96	N
34	4110867.84	381184.39	N
35	4110744.89	381321.11	N
36	4110603.78	381423.70	N
37	4110434.45	381510.75	N
38	4110274.58	381594.81	N

**Table 3-1 Warning Sign Coordinates (Continued)**

<b>Sign</b>	<b>North (Degrees)<sup>1</sup></b>	<b>East (Degrees)<sup>1</sup></b>	<b>Existing</b>
39	4110166.26	381717.00	N
40	4110156.83	381898.98	N
41	4110104.13	382045.10	N
42	4109922.30	382074.67	N
43	4109831.38	382230.76	N
44	4109718.95	382375.39	N
45	4109593.33	382501.81	N
46	4109441.74	382599.11	N
47	4109288.62	382703.12	N
48	4109135.25	382802.88	N
49	4108979.18	382895.07	N
50	4108814.71	382974.43	N
51	4108792.07	382810.19	N
52	4108696.30	382740.50	N
53	4108517.31	382782.39	N
54	4108439.22	382872.79	Y
55	4108483.57	383006.59	Y
56	4108321.20	383016.65	Y
57	4108270.34	382992.73	N
58	4108171.99	382936.65	Y
59	4108122.68	382989.84	Y
60	4108041.13	383063.09	Y
61	4107948.39	383069.65	Y
62	4107940.24	383067.52	Y
63	4107935.83	383175.31	Y
64	4108018.28	383195.01	Y
65	4108092.23	383245.21	N
66	4108144.39	383329.70	Y
67	4108155.76	383506.90	Y
68	4108342.09	383485.70	Y
69	4108289.47	383621.43	Y
70	4108161.33	383725.94	Y
71	4108050.22	383756.18	Y
72	4107991.79	383855.82	Y
73	4107982.92	383930.35	Y
74	4107999.95	383961.54	Y
75	4108050.03	384010.06	Y
76	4108045.62	384087.89	Y

**Table 3-1 Warning Sign Coordinates (Continued)**

<b>Sign</b>	<b>North (Degrees)<sup>1</sup></b>	<b>East (Degrees)<sup>1</sup></b>	<b>Existing</b>
77	4108119.74	384010.41	Y
78	4108151.80	384045.77	Y
79	4108137.84	384131.79	Y
80	4108172.46	384209.10	Y
81	4108259.96	384313.91	Y
82	4108369.98	384355.45	N
83	4108521.73	384380.66	Y
84	4108602.58	384404.33	N
85	4108790.23	384444.79	Y
86	4108927.68	384549.35	Y
87	4108984.81	384606.44	Y
88	4109032.52	384649.91	Y
89	4109126.14	384693.25	Y
90	4109167.98	384729.59	Y
91	4109200.77	384765.39	Y
92	4109320.63	384859.97	N
93	4109377.29	384876.11	Y
94	4109456.43	384922.57	Y
95	4109471.54	384975.89	N
96	4109601.10	384916.23	Y
97	4109683.83	384880.61	Y
98	4109783.36	384882.47	N
99	4109877.73	384690.42	N
100	4109919.86	384671.50	Y
101	4110047.03	384586.46	N
102	4110053.00	384468.54	N
103	4110094.27	384332.29	N
104	4110259.44	384192.71	N
105	4110193.61	384045.98	N
106	4110344.90	384062.87	Y
107	4110526.69	383987.33	Y
108	4110652.49	383851.34	N
109	4110750.80	383749.38	Y
110	4110754.87	383575.53	Y
111	4110897.34	383553.59	N
112	4110946.44	383469.67	N
113	4110955.20	383274.75	N
114	4110950.20	383155.38	Y

**Table 3-1 Warning Sign Coordinates (Continued)**

Sign	North (Degrees) <sup>1</sup>	East (Degrees) <sup>1</sup>	Existing
115	4110995.46	383065.06	N
116	4111101.03	382961.06	Y
117	4111235.28	382812.41	N
118	4111387.86	382678.58	N
119	4111400.08	382578.10	Y
120	4111457.95	382385.31	N
121	4111421.40	382266.96	Y
122	4111454.86	382106.26	N
123	4111436.57	381963.96	Y
124	4111606.80	381962.94	Y
125	4111608.56	381849.92	Y
126	4111845.20	381958.38	Y
127	4111802.12	381910.52	Y
128	4111675.58	381738.64	N
129	4111800.23	381618.61	N
130	4111957.36	381518.52	Y
131	4112052.16	381606.26	N
132	4112095.14	381558.27	N
133	4112126.40	381377.47	N
134	4112155.52	381224.79	N
135	4112256.68	381155.56	Y
136	4112342.11	381272.81	N
137	4112539.04	381224.78	N
138	4112702.41	381541.30	N
139	4112697.85	381322.64	N
140	4112771.47	381189.29	N
141	4112950.35	381151.01	Y
142	4113090.66	381005.96	N
143	4113254.53	381082.32	N
144	4113305.18	380896.96	N
145	4113479.31	380851.24	N
146	4113559.16	380696.66	N
147	4113733.93	380707.33	N
148	4113911.68	380791.76	N
149	4114017.34	380949.34	N

**Notes:**

1. Units are in U.S. Survey Feet

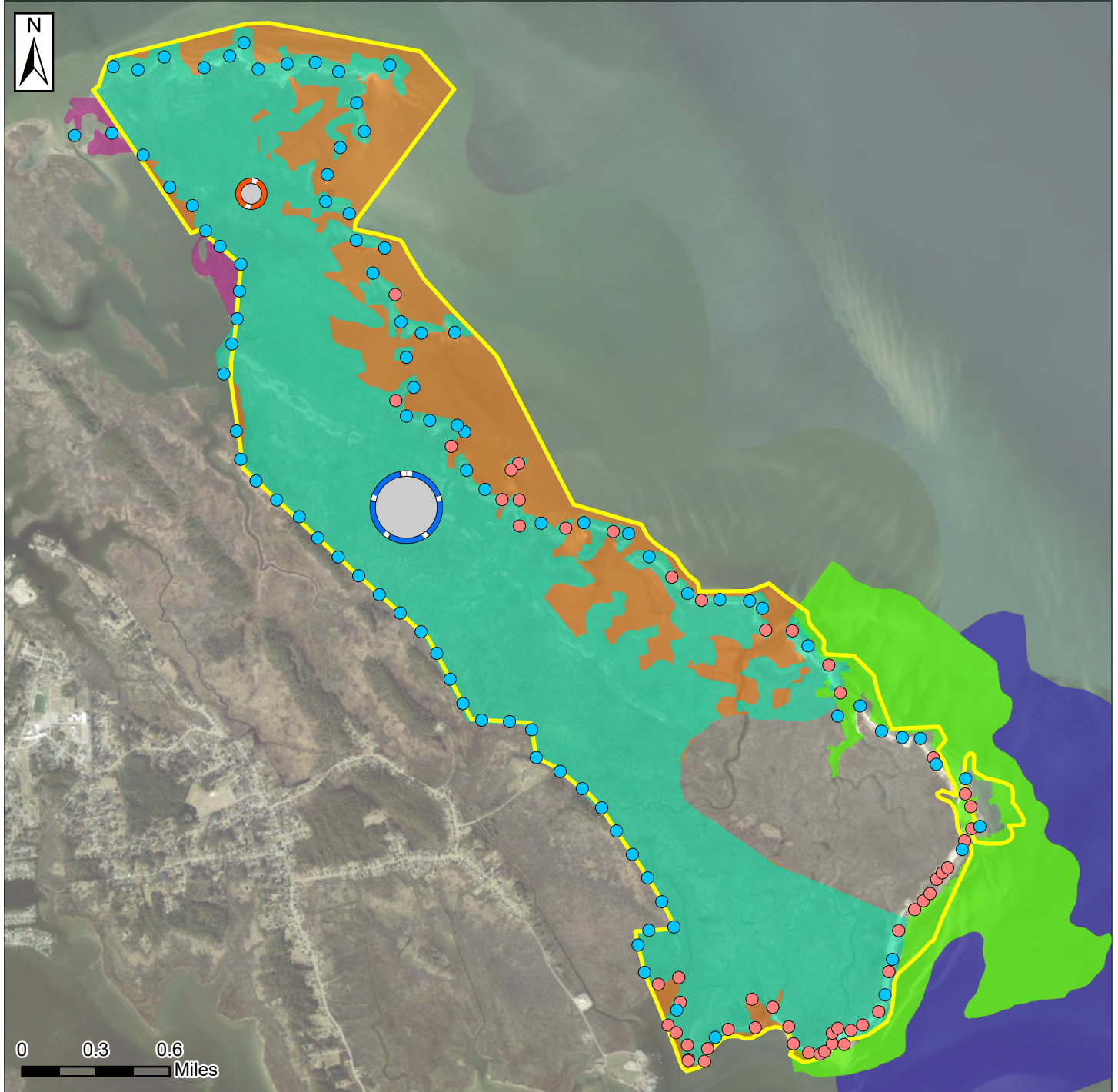
N – No

Y – Yes

Plum Tree Island Range FUDS  
Poquoson, Virginia



Figure 3-1  
Warning Sign Location Map



Legend

- Preexisting Sign (55)
- Sign Installed November 2024 (94)
- FUDS Boundary
- High Probability Deep Water Buffer MRS 05
- High Probability Shallow Water Buffer MRS 06
- Non-Refuge Land Buffer MRS 09
- Low Probability FUDS Water Buffer MRS 08
- Refuge Land Buffer MRS 07
- Central Target Area MRS 03
- Northern Bomb Cluster MRS 04

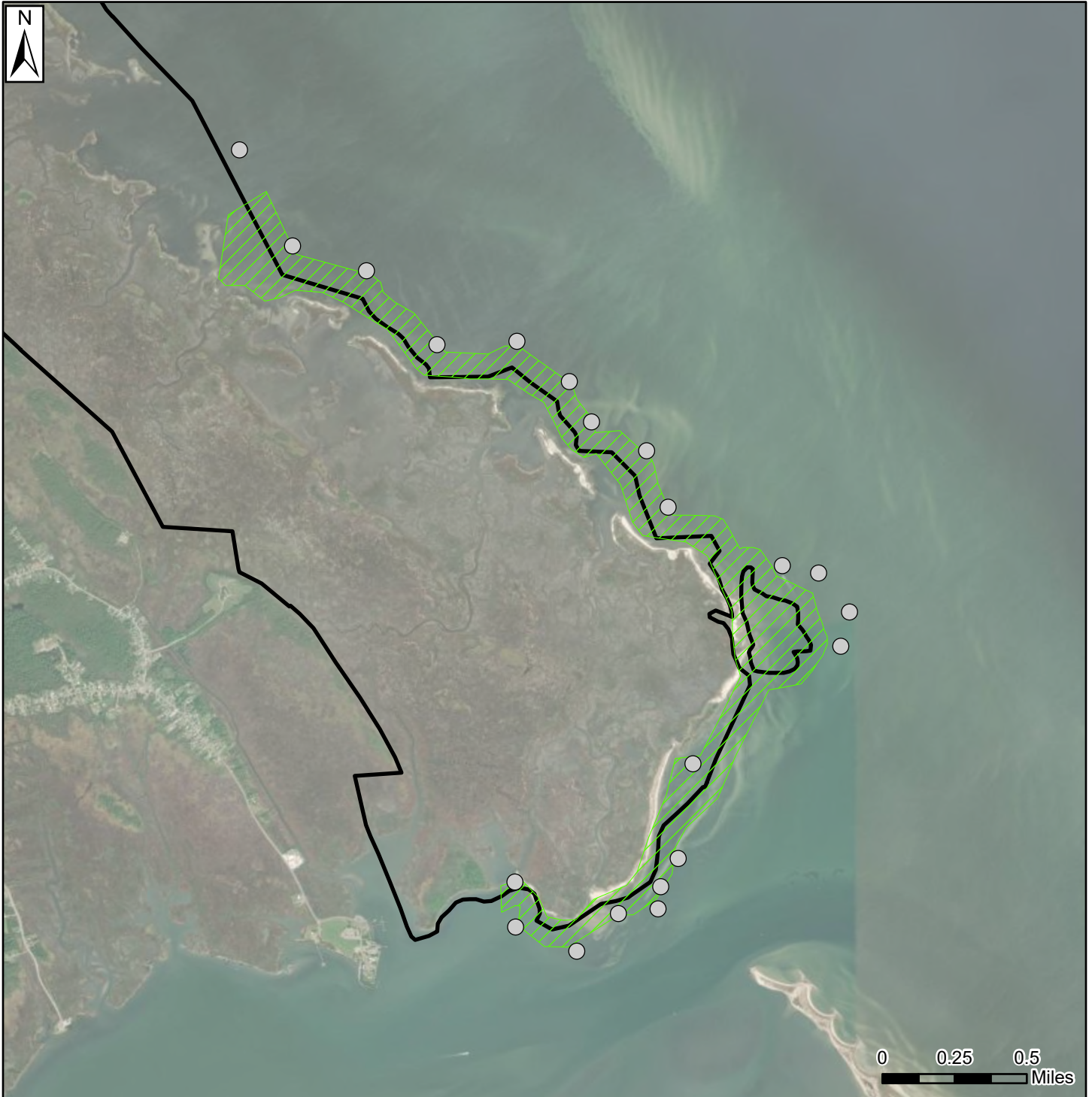
Data Sources:  
Hana Engineers & Consultants, LLC  
ESRI 2020

Date: December 2025  
Prepared For: USACE  
Projection: WGS 84 UTM 18N

Plum Tree Island Range FUDS  
Poquoson, Virginia



Figure 3-2  
Day Marker Locations



- Legend**
- Sign Location
  - ▨ Temporary Danger Zone
  - ▭ FUDS Boundary

Data Sources:  
ESRI 2020

**Notes:**  
1. High Resolution (0.5-meter) Orthophoto Mosaic for Poquoson City, VA dated 2005, was obtained from US Dept. of Agriculture, natural Resources Conservation Service. Digital Orthophoto Mosaic (2-meter) for Hampton County, VA dated 2005, was obtained from the Nat. Agricultural Imagery Program, US Dept. of Agriculture. Field Service Center.

Date: August 2025  
Prepared For: USACE  
Projection: WGS 84 UTM 18N

## 4. DEMONSTRATION OF COMPLETION

This section includes information needed to demonstrate attainment of the RAO for MRS 08.

### 4.1 RAO ATTAINMENT

The RAO for MRS 08 was identified in the DD (USACE, 2019) as follows:

- Reduce the unacceptable risk due to the presence of MEC (50-lb to 2,000-lb bombs, flares, and unexpended JATO bottles) within the boundary of MRS 08 to address the likelihood of exposure to refuge workers, trespassers, and recreational users via interaction during work or recreational activities, including hiking, hunting, and fishing, such that an acceptable condition of negligible risk is achieved.

The remedy has been implemented in accordance with the signed DD (USACE, 2019). The ICs are in place, a draft MOU has been put in place with USFWS, and there is no unacceptable risk for explosive hazards due to MEC at this MRS. The RAO for MRS 08 has been achieved. Specific actions conducted for the selected remedy components are listed as follows to present attainment of the requirements of the RAO.

- **Access and Land Use Restrictions.** Access and land use restrictions to include danger zone signs and zoning as a conservation area had previously been implemented, as documented in the DD and LUCIP (USACE, 2019 and 2023), and are still in place.
- **Public Education and Outreach.** The development and distribution of 3Rs information and fact sheets to the public and to USACE and USFWS were completed.
- **Signage.** Warning signs installed along the outside boundary of MRS 08 provide a warning to trespassers and recreational users accessing the property. Select signs were repaired and replaced in November 2024, with signs to be inspected yearly until 2029 and every 5 years going forward to determine whether additional repair or replacement is warranted.
- **Construction Support Requirements.** MRS 08 consists of low probability saturated areas offshore of the USFWS owned property and within the FUDS boundary. Signage was installed on the land (MRS 07) along the boundary of MRS 07 and MRS 08 and is protective of both MRS 07 and MRS 08. Per the draft 2025 MOU, the USFWS is and will be responsible for implementing the use of UXO-qualified escorts for MEC avoidance or construction support for authorized entrants accessing the area to maintain the protective signage within MRS 07.

## 4.2 DATA QUALITY OBJECTIVES COMPLIANCE

The primary data quality objectives (DQOs) that were identified in the MR-QAPP (WESTON, 2024) for MRS 08 included the following:

- Annual training and/or refresher training for USFWS representatives and local watermen. As noted in the DD (USACE, 2019), this training requirement takes the form of an education program for the public and USFWS on the 3Rs Program, which gives trainees the actions to take in case a potential munitions item is encountered. This requirement was met through the submittal of all 3Rs and fact sheet information to USFWS and the posting of this information at local locations. The LUCIP (USACE, 2023) documented that this 3Rs Explosives Safety Education Program should be conducted every 5 years.
- Development, installation, and maintenance of information displays at local marinas.
- Establishment of a public outreach program to consist of annual upkeep of website information, advertisement in local publications, and distribution of pamphlets.
- Inspection and repair/replacement of warning signs.

The RA that was conducted attained compliance with the above DQOs by (1) providing 3Rs information to USFWS (through several email distributions) and local watermen (through posting of 3Rs information and fact sheets at local locations) to meet the training requirements as noted in the DD, which states that the 3Rs Program is an education program for actions to take if a potential munitions item is encountered; (2) identifying numerous locations (marinas, boat ramps, libraries, etc.) to determine if information displays are available (met through the placement of fact sheets at numerous locations discussed in Section 3.2.3); (3) submitting the fact sheet, which provides the information discussed in Section 3.2.3, to USACE Baltimore for their update of the PTI website, providing information to the public at the Poquoson Seafood Festival, submitting fact sheets through the City of Poquoson mass mailer system, distributing the fact sheets to appropriate agencies, and placing fact sheets at numerous information displays; and (4) inspecting, repairing, and replacing the warning signs that surround the FUDS property boundary.

### 4.3 PROGRAM MILESTONES

Milestones are associated with the end of response phases. RC is the milestone signifying that USACE has met the RAO for a site, documented the determination (through preparation of this RACR), and sought regulatory agreement. For MRS 08, the RC signifies the RA has achieved the RAO. Post-RA activities will continue for MRS 08 in the form of maintaining various ICs as discussed in Section 5.

As prescribed in the FUDS Handbook (USACE, 2022), USACE will seek regulatory agreement on RC determinations and document these in the FUDS document repository. Documentation of regulatory agreement of RC determinations will include written agreement in the form of a dated, official letter or email from VDEQ reflecting agreement and official sanction of the RC determination.

## 5. ONGOING ACTIVITIES

Ongoing periodic maintenance activities for MRS 08 ICs include the following:

- Ensure continued land and water restrictions, including USFWS ensuring that they are documented in state records.
- Ensure that personnel who access the land and conduct any construction (intrusive) activities are aware of the requirement to conduct MEC avoidance activities via use of a UXO-qualified technician. USFWS is and will be responsible for implementing the use of UXO-qualified escorts for MEC avoidance for authorized entrants accessing all areas of the marsh within the boundary of the PTI Range FUDS property, including MRS 07, and for anomaly avoidance during subsurface activities. This agreement includes using UXO-qualified personnel as escorts when performing subsurface activities and applies specifically to situations where anomaly avoidance can be implemented. Construction support by UXO-qualified contractors would only be required in areas where anomaly avoidance is not feasible and intrusive activities are required. Inspect day markers within the Chesapeake Bay and warning signs surrounding the FUDS property boundary yearly until 2029 and every 5 years afterwards to ensure they are in good condition and are readable.
- Provide 3Rs information in the form of a fact sheet to USFWS and local watermen every 5 years and provide annual face-to-face 3Rs training to USFWS staff.
- Inspect information displays annually and update information, as necessary. An updated trifold fact sheet will be prepared in 2026 to inform about the upcoming remedial activities in the other MRSs.
- Update the USACE Baltimore publicly accessible website ([www.nab.usace.army.mil/PlumTree/](http://www.nab.usace.army.mil/PlumTree/)) for the PTI Range FUDS property annually or more frequently if revised information is available.

## 6. COMMUNITY INVOLVEMENT

The initial Public Involvement Plan (PIP) for the PTI Range FUDS property was published in March 2009 (Shaw, 2009) while an updated version (Hana, 2023) was finalized in July 2023. The updated version was prepared to outline community issues and concerns related to Military Munitions Response Program (MMRP) activities at the PTI Range FUDS property to identify community outreach and involvement activities to be conducted. Community participation included the following:

- A public meeting was conducted by USACE on May 24, 2005, to discuss the planned project at the PTI Range FUDS property, which included the demolition of two observation towers.

- Public interviews were conducted in 2008 to assist in the development of the initial 2009 PIP.
- The PTI Range FUDS property CERCLA reports, which contain information for MRS 08, including the Final RI Report (Shaw, 2013), Final FS Report (USACE, 2018a), and the Final Proposed Plan (USACE, 2018b), were made available for a public comment period from July 9 to August 17, 2018. Requests were made to the public in the public notice concerning interest in a public meeting, which was held on July 26, 2018. Public comments and responses were provided in the Responsive Summary in the DD (USACE, 2019).
- Representatives from USACE, USFWS, Hana, and WESTON set up a booth at the 2022 and 2023 Poquoson Seafood Festival to discuss planned activities at the PTI Range FUDS property with the public. Representatives from USACE, USFWS, and Hydrogeologic, Inc. set up a booth at the 2025 Poquoson Seafood Festival to discuss planned activities at the PTI Range FUDS property with the public. Maps were on display, and a fact sheet was distributed.

## 7. CERTIFICATION STATEMENT

The remedial activities achieved the RAO developed for MRS 08 by implementing specific ICs. Based on the findings and RA activities performed, a summary of the remedy for MRS 08 is presented as follows:

- **Access and Land Use Restrictions.** Access and land use restrictions, to include danger zone signs and the Virginia Marine Resources Commission's establishment of Danger Zones, had previously been conducted and are still in place. The Danger Zones are located along the south and southeast of the refuge and extend 300 ft offshore. No disturbance of the bottom is to occur in these areas.
- **Public Education and Outreach.** The following components of the public education and outreach program were completed:
  - Providing 3Rs information in the form of a fact sheet to USFWS and local watermen and providing annual hands-on 3Rs training to USFWS staff.
  - Identifying numerous locations for information displays. Displays included the fact sheets placed in January 2025 at bulletin boards at various marinas, libraries, boat ramps, fish processing facilities, etc.
  - Submitting information in the form of a fact sheet containing site information, 3Rs information, and schedules to USACE Baltimore for their update of the PTI website; providing information to the public at two Poquoson Seafood Festivals (2022 and 2023); submitting fact sheets through the City of Poquoson mass mailer system; distributing the fact sheets to appropriate agencies; and placing fact sheets at numerous information displays.
- **Signage.** The warning signs that surround the PTI Range FUDS property were inspected, repaired, and replaced in November 2024.
- **Construction Support Requirement.** MRS 08 consists of low probability saturated areas offshore of the USFWS owned property and within the FUDS boundary. Signage was installed on the land (MRS 07) along the boundary of MRS 07 and MRS 08 and is protective of both MRS 07 and MRS 08. The USFWS is and will be responsible for implementing the use of UXO-qualified escorts for MEC avoidance or construction support for authorized entrants accessing the area to maintain the protective signage within MRS 07.

In accordance with the *DoD/EPA Joint Guidance on Streamlined Site Closeout and NPL Deletion Process for DoD Facilities* (DoD/USEPA, 2006), this RACR has been reviewed and signed by a

**Remedial Action Completion Report  
Low Probability FUDS Water Buffer MRS 08, Plum Tree Island Range  
Poquoson, Virginia**

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representative authorized to sign, certifying that the RACR memorializes the completion of the RA at MRS 08 and the achievement of the RAO for that area.

## 8. REFERENCES

Alion (Alion Science and Technology). 2007. *Final Site Inspection Report for the Plum Tree Island Range*. Prepared for the U.S. Army Corps of Engineers, Baltimore. August.

CB&I (Chicago Bridge and Iron Company). 2015. *Final Remedial Investigation Addendum 1 for the Plum Tree Island Range*. Prepared for the U.S. Army Corps of Engineers, Baltimore. April.

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Hana (Hana Engineers and Consultants, LLC). 2023. *Public Involvement Plan. Plum Tree Island Range FUDS, Poquoson, Virginia*. July.

Shaw (Shaw Environmental, Inc.). 2013. *Final Remedial Investigation Report for Plum Tree Island Range, Formerly Used Defense Site, Project No. C03VA020201, Poquoson, Virginia*. Prepared for the U.S. Army Corps of Engineers, Baltimore. April.

Shaw. 2009. *Public Involvement Plan for Plum Tree Island Range*. March.

USACE (U.S. Army Corps of Engineers). 2025. *Draft Memorandum of Understanding (MOU) between the USACE and the United States Fish and Wildlife Service (USFWS) for Plum Tree Island Formerly Used Defense Site, MOU#C03VA0202*, September.

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USACE. 2022. *Formerly Used Defense Sites (FUDS) Program Implementing Guidance, CEMP-CED, FUDS Handbook, Supplement to ER 200-3-1*. December.

USACE. 2019. *Final Decision Document for Plum Tree Island Range, Poquoson, Virginia, Formerly Used Defense Site Property Number C03VA0202, Military Munitions Response Program*. June.

USACE. 2018a. *Final Feasibility Study Addendum, Plum Tree Island Range, Formerly Used Defense Site, Project No. C03VA020201, Poquoson, Virginia*. March.

USACE. 2018b. *Final Proposed Plan for Munitions Response Actions, Plum Tree Island Range, Formerly Used Defense Site*. July.

USACE. 2016. *Revised Final Feasibility Study Report, Plum Tree Island Range, Formerly Used Defense Site, Project No. C03VA020201, Poquoson, Virginia*.

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**Poquoson, Virginia**

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WESTON (Weston Solutions, Inc.). 2024. *Draft Final Munitions Response-Quality Assurance Project Plan (MR-QAPP), Environmental Remediation Services and Five-Year Review Plum Tree Island Range Poquoson, Virginia*. September.

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**APPENDIX A**  
**DRAFT MEMORANDUM OF UNDERSTANDING**

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MEMORANDUM OF UNDERSTANDING  
BETWEEN  
THE UNITED STATES ARMY CORPS OF ENGINEERS (USACE)  
AND  
THE UNITED STATES FISH AND WILDLIFE SERVICE (USFWS)  
FOR  
PLUM TREE ISLAND FORMERLY USED DEFENSE SITE  
MOU #C03VA0202

This is a memorandum of understanding (MOU) between the USACE and the USFWS. When referred to collectively, the USACE and the USFWS are referred to as the “Parties.”

1. **BACKGROUND:** The Plum Tree Island Range Formerly Used Defense Site (FUDS) Property Number C03VA0202 consists of approximately 3,276 acres and is located at the southwest corner of Chesapeake Bay in the City of Poquoson, Virginia. There are eight Munitions Response Sites (MRSs) associated with the FUDS property, covering both land and water areas, and expanding beyond the property boundary for 4,766 acres. The eight MRSs include both U.S. Fish and Wildlife Service (USFWS)-owned and privately-owned MRSs. USFWS-owned MRSs are part of the Plum Tree Island National Wildlife Refuge and include MRS 04 Northern Bomb Cluster (5.4 acres), MRS 03 Central Target Area (37.7 acres), MRS 01 Southeast Target Area (449 acres), and MRS 07 Refuge Land Buffer (1,921 acres). Use of the Plum Tree Island Range by the Department of Defense resulted in contamination with munitions or explosives of concern (MEC) requiring a remedial response by the FUDS Program. USACE, as executing agent for the FUDS Program, selected a remedial action as recorded in the Decision Document (DD) dated 25 September 2019. The selected remedial action includes Institutional Controls (ICs) that require the cooperation of USACE and USFWS. As the property owner and manager, the USFWS has agreed to maintain ICs at the USFWS-owned MRSs as described in this MOU.
2. **PURPOSE:** The purpose of this MOU is to formalize agreements between the Parties related to the implementation of Institutional Controls in the DD for the Plum Tree Island Formerly Used Defense Site (FUDS) Property Number C03VA0202, Plum Tree Island Range FUDS Property Number C03VA0202, Plum Tree Island National Wildlife Refuge, VA.

### 3. DEFINITIONS:

3.1. Intrusive Activity is an activity that involves or results in the penetration of the ground surface at an area known or suspected to contain munitions and explosives of concern.

3.2. Institutional Controls are non-engineered instruments such as administrative and legal controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. For the purposes of this MOU, Institutional Controls specifically means the controls required by the Plum Tree Island Range Decision Document, as further defined by the Final Land Use Control Implementation Plan for Plum Tree Island Range FUDS.

3.3. UXO Escort is a Department of Defense Explosive Safety Board (DDESB) TP-18 UXO qualified person, knowledgeable in identification and avoidance of MEC, who will use various instruments and methods to ensure that personnel do not contact MEC when traversing the property or performing intrusive activities where the intrusive activities can be moved to a nearby area that contains no surface or subsurface anomalies. This requirement represents an ongoing cost that would need to be funded by the landowner. This approach is considered effective, implementable and relatively inexpensive for land MRSs. It is not useful in water MRSs because the water provides a barrier to MEC when traversing the area by boat. UXO Escorts would not be able to prevent contact during boat beaching or anchoring.

3.4. Construction Support is a method of protecting people from contact with MEC during activities where there is the potential to encounter MEC. This is for activities where excavation and construction must occur at an area known or suspected to contain MEC, where anomaly avoidance cannot be achieved. DDESB TP-18 UXO qualified personnel, knowledgeable in identification of MEC, use various instruments and methods to remove MEC from the construction footprint. The level of support required will be dependent on site conditions, specifically the likelihood of encountering MEC, whether activities are land or water based, and the type of activities performed.

3.5. The 3Rs (Recognize, Retreat, Report) Explosives Safety Education Program (3Rs Program) (see 3Rs.mil) advises people of the actions to take should they encounter or suspect they have encountered a DoD military munition.

#### 4. UNDERSTANDINGS OF THE PARTIES:

##### 4.1. The USACE—

4.1.1. USACE will complete installation of 220 warning signs at access points and along the shoreline of Plum Tree Island NWR, as depicted and described in the Final Land Use Control Implementation Plan for Plum Tree Island Range FUDS.

4.1.2. USACE will perform maintenance of warning signs through 2029. In 2030, responsibility for sign maintenance and replacement will transfer to the USFWS.

4.1.3. USACE will provide 3Rs Explosives Safety Education Program materials to USFWS for distribution to Refuge personnel and authorized visitors. Provided 3Rs Program will include the standardized 3Rs brochure, a site-specific fact sheet, and a map as described in the Final Land Use Control Implementation Plan for Plum Tree Island Range FUDS.

4.1.4. USACE will coordinate with USFWS for long term monitoring of the remedial action, performance of Five Year Reviews, and if any changes to the Institutional Controls are required.

##### 4.2. The USFWS—

4.2.1. The USFWS will ensure that Plum Tree Island NWR remains closed to the public.

4.2.2. USFWS will inspect the USACE-installed warning signs on an annual basis. Beginning in 2030, USFWS will replace any signs that are damaged or illegible.

4.2.3. USFWS will provide 3Rs Explosives Safety Education Program materials supplied by USACE to Refuge personnel and authorized visitors and will ensure that these materials are reviewed and understood prior to accessing areas of USFWS property where MEC may occur.

4.2.4. USFWS will notify USACE when additional 3Rs Program materials are needed.

4.2.5. USFWS will use UXO-qualified personnel to escort authorized entrants accessing all areas of the marsh inside the boundary of the refuge and provide construction support when performing intrusive activities. Costs associated with UXO escorts and construction support will be the responsibility of USFWS. USFWS will coordinate with USACE when activities requiring UXO escorts or construction support are planned.

4.2.6. If unauthorized personnel are observed at the USFWS-owned MRSs, the USFWS will inquire as to the route of access and whether the trespasser was aware of the land restrictions. The trespasser will be provided with information on the land use restrictions and the 3Rs. If the trespasser did not observe any signs entering the MRSs, the USFWS will coordinate with USACE to determine whether additional warning signs are required.

5. PERSONNEL: No additional personnel actions are required to address this MOU. All action to be taken was contemplated in the DD.

## 6. GENERAL PROVISIONS:

6.1. POINTS OF CONTACT (POCS). The following POCs will be used by the Parties to communicate matters concerning this MOU. Each Party may change its POC upon reasonable notice to the other Party.

### 6.1.1. For the USACE—

6.1.1.1. Brent Graybill, Program Manager, Environmental and Munitions Design Center, 410-962-4258 and [brent.m.graybill@usace.army.mil](mailto:brent.m.graybill@usace.army.mil).

### 6.1.2. For the USFWS—

6.1.2.1. 6.1.2.1. Cyrus Brame, Refuge Manager, Eastern Virginia Rivers National Wildlife Refuge, 804-829-9020 and [cyrus\\_brame@fws.gov](mailto:cyrus_brame@fws.gov).

6.3. EXPIRATION DATE. This MOU does not expire.

6.4. NO THIRD-PARTY BENEFICIARIES. Nothing in this MOU, express or implied, is intended to give to, or will be construed to confer upon, any person not a party any remedy or claim under or by reason of this MOU and this MOU will be for the sole and exclusive benefit of the Parties.

7. LIST OF ATTACHMENTS: This MOU does not include any attachments. All documents referenced herein are available in the Administrative Record for the Plum Tree Island Range FUDS, available at:

By Appointment:  
U.S. Army Corps of Engineers  
2 Hopkins Plaza  
Baltimore, MD 21201  
410-962-2809

Information Repository Location:  
Poquoson Public Library  
500 City Hall Avenue  
Poquoson, VA, 23662-1996  
757-868-3060

APPROVE:

FOR THE USACE—

FOR THE USFWS—

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name and Title of Signatory

\_\_\_\_\_  
Name and Title of Signatory

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Date)

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**APPENDIX B**  
**SIGN INSTALLATION PHOTOGRAPH DOCUMENTATION**

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**Project Name: Plum Tree Island**

**Project Location: Poquoson, VA**

**Photo No. 1**

**Date:** 11-04-2024

**Description:**

New sign and sign-post installed



**Photo No. 2**

**Date:** 11-04-2024

**Description:**

New sign and sign-post installed



**Project Name: Plum Tree Island**

**Project Location: Poquoson, VA**

**Photo No. 3**

**Date:** 11-04-2024

**Description:**

New sign and sign-post installed



**Photo No. 4**

**Date:** 11-04-2024

**Description:**

New sign and sign-post installed



**Project Name: Plum Tree Island**

**Project Location: Poquoson, VA**

**Photo No. 5**

**Date:** 11-04-2024

**Description:**

New sign and sign-post installed



**Photo No. 6**

**Date:** 11-4-2024

**Description:**

New sign and sign-post installed



**Project Name: Plum Tree Island**

**Project Location: Poquoson, VA**

**Photo No. 7**

**Date:** 11-04-2024

**Description:**

New sign and sign-post installed



**Photo No. 8**

**Date:** 11-04-2024

**Description:**

New sign and sign-post installed



**Project Name: Plum Tree Island**

**Project Location: Poquoson, VA**

**Photo No. 9**

**Date:** 11-05-2024

**Description:**

New sign and sign-post installed



**Photo No. 10**

**Date:** 11-05-2024

**Description:**

New sign and sign-post installed



**Project Name: Plum Tree Island**  
**Project Location: Poquoson, VA**

**Photo No. 11**

**Date:** 11-05-2024

**Description:**

New sign and sign-post  
installed



**Photo No. 12**

**Date:** 11-08-2024

**Description:**

New sign and sign-post  
installed



**Photo No. 13**

**Date:** 11-08-2024

**Description:**

New sign and sign-post  
installed



**Photo No. 14**

**Date:** 11-14-2024

**Description:**

New sign and sign-post  
installed



**Photo No. 15**

**Date:** 11-14-2024

**Description:**

New sign and sign-post installed



**Photo No. 16**

**Date:** 11-14-2024

**Description:**

New sign installed on existing post



**Project Name: Plum Tree Island**  
**Project Location: Poquoson, VA**

**Photo No. 17**

**Date: 11-14-2024**

**Description:**

Damaged sign being replaced



**Photo No. 18**

**Date: 11-14-2024**

**Description:**

Bent over old sign



**Project Name: Plum Tree Island**

**Project Location: Poquoson, VA**

**Photo No. 19**

**Date: 11-18-2024**

**Description:**

New sign and sign-post



**Photo No. 20**

**Date: 11-18-2024**

**Description:**

New sign and sign-post  
installed



**Project Name: Plum Tree Island**

**Project Location: Poquoson, VA**

**Photo No. 21**

**Date: 11-18-2024**

**Description:**

New sign and sign-post installed



**Photo No. 22**

**Date: 11-18-2024**

**Description:**

New sign installed on existing sign-post



**Project Name: Plum Tree Island**

**Project Location: Poquoson, VA**

**Photo No. 23**

**Date: 11-18-2024**

**Description:**

New sign installed on existing sign-post



**Photo No. 24**

**Date: 11-18-2024**

**Description:**

New sign installed on existing sign-post



**Photo No. 25**

**Date: 11-19-2024**

**Description:**

Field Tech and UXO  
Tech re-installing an  
existing sign-post that  
was bent over



**Photo No. 26**

**Date: 11-19-2024**

**Description:**

Field Tech next to newly  
installed sign and sign-  
post



**Project Name: Plum Tree Island**

**Project Location: Poquoson, VA**

**Photo No. 27**

**Date:** 11-18-2024

**Description:**

UXO Tech scanning area for new sign-post being installed



**Photo No. 28**

**Date:** 11-18-2024

**Description:**

Field Tech and UXO Tech installing new sign-post



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**APPENDIX C**  
**PLUM TREE ISLAND RANGE FUDS TRIFOLD FACT SHEET**

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**US Army Corps  
of Engineers®**  
Baltimore District



Plum Tree Island provides habitat for many species.

## Where is Plum Tree Island Range?



Plum Tree Island National Wildlife Refuge is located 11.2 miles east of Newport News and includes the largest portion of the Plum Tree Island Range.



A USACE Remedial Investigation team removes Jet-Assisted Takeoff rockets from Plum Tree Island Range.

## Preserving the future along the Chesapeake

Many federal, state, and regional stakeholders are involved in the restoration of the lands and waters in and around the former Plum Tree Island Bombing Range. These agencies are committed to human health and safety, preservation of environmental resources for the Commonwealth of Virginia, and the individuals who rely on the waters of the Chesapeake Bay for their livelihood. Some of the organizations involved in this effort include:



**Virginia Department  
of Environmental Quality**



**U.S. Fish and Wildlife Service**



**Virginia Marine  
Resources Commission**



**United States Army Corps  
of Engineers**



**City of Poquoson**

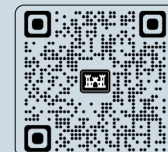
# Plum Tree Island Range

**Military Munitions Response Project  
at a Formerly Used Defense Site**



## Find more information

Scan QR code or contact  
US Army Corps of Engineers:  
nab-pao@usace.army.mil



**US Army Corps  
of Engineers®**  
Baltimore District

## Why this project matters

The Plum Tree Island Military Munitions Response Project is a restoration effort to



remove unexploded ordnance (UXO) from the island and the surrounding waters that could be dangerous to people and wildlife. Five land-based practice targets along with three water-based targets have been identified as possibly having munitions on the land

and in the waters, estuaries, salt marshes, and rivers flowing into the Chesapeake Bay.

## What's Next



To increase public awareness of hazards, warning signs (see left), fact sheets, and 3Rs information were installed and distributed in 2024. Access restrictions and public education will be ongoing. Future actions include removal and disposal of military

munitions found on land and in waters on and adjacent to the former range.

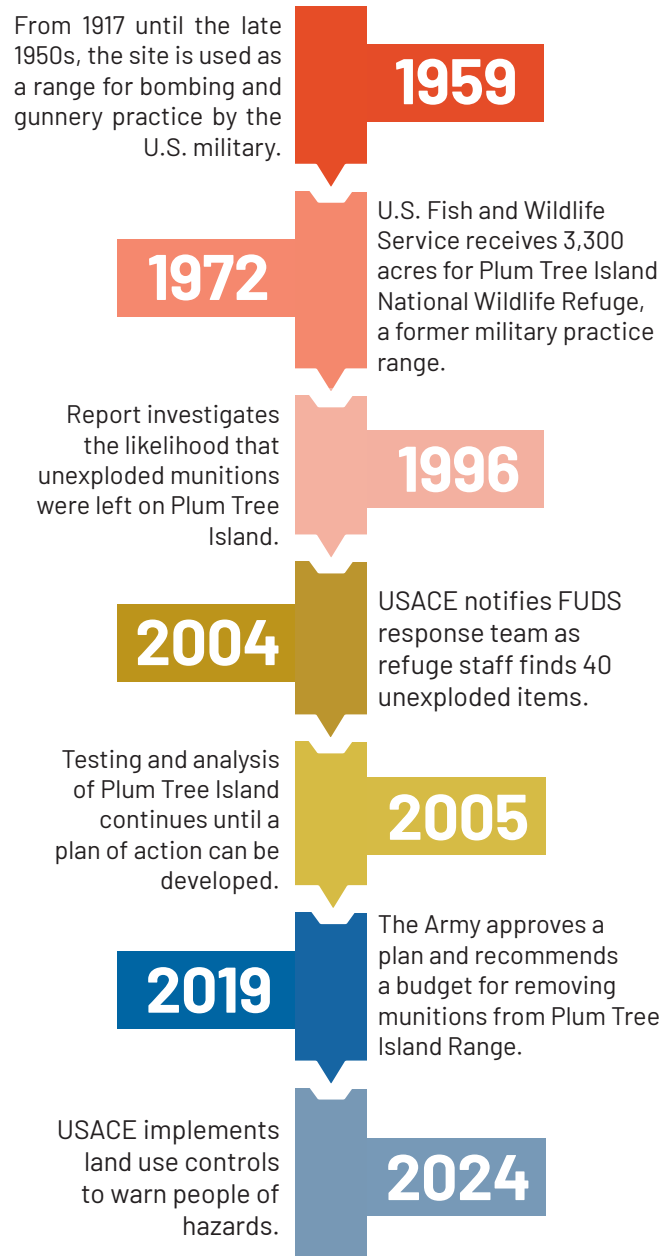
## Get in touch

The U.S. Army Corps of Engineers (USACE) is working with local and state officials to keep you up to date about the work being conducted at Plum Tree Island Range. For questions, contact USACE by email at [nab-pao@usace.army.mil](mailto:nab-pao@usace.army.mil)

# Plum Tree Island Range

## How we got here Military Use and Range History

From 1917 until the late 1950s, the site is used as a range for bombing and gunnery practice by the U.S. military.



## What should I do if I find unexploded munitions?

Unexploded ordnance can look like everyday items such as soda cans, golf balls, or other safe objects. Never take a chance. If you see an item that cannot be easily identified, leave the area and notify someone. If you are unsure what an object might be, don't pick it up.



U.S. Army Corps of Engineers Remedial Investigation team removes a World War I MK-I fuze from Plum Tree Island Range. (USACE Photo)

## Don't forget the 3 Rs



**Recognize** when you may have found a munition.  
**Retreat** by carefully leaving the area.  
**Report** what you encountered. Tell officials what you saw and where.

**CALL 757-868-3510 or 911**  
 (City of Poquoson Fire and Rescue)