DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

REPLY TO
ATTENTION OF

CEMP-CED

SEP 25 2019

MEMORANDUM FOR U.S. Army Corps of Engineers (USACE), North Atlantic Division (CENAD-PD-IIS-P/Mr. Ravi Ajodah), Fort Hamilton Military Community, 302 General Lee Ave, Brooklyn, NY 11252

SUBJECT: Approval of the Decision Document for the Former Plum Tree Island (PTI) Range Formerly Used Defense Site (FUDS) property No. C03VA0202, Project Nos. (01,03,04,05,06,07,08,09), Poquoson, Virginia

1. Reference: Memorandum, CENAD, dated 12 August 2019, subject as above (enclosed).

2. The subject Decision Document, dated June 2019, has been approved by the Deputy Commanding General, Military and International Operations.

3. This document presents a Selected Remedy with a total present worth cost estimate of $25.8M. The selected remedies for the five land projects (01,03,04,07,09) include surface and shoreline surface munitions explosively charged (MEC) removal and institutional controls (ICs) or only ICs. The selected remedies for the three water projects (05,06,08) include exposed MEC removal and ICs or only ICs.

4. This Decision Document is approved and forwarded to you, pursuant to both USACE Interim Guidance Document for the FUDS Decision Document Staffing and Approval, dated 9 February 2017, and to Engineer Regulation 200-3-1, FUDS Program Policy, dated 10 May 2004.

5. Please ensure that this document is filed in accordance with Records Management procedures, in both the Administrative Record and the Permanent Project File. Also, please ensure that the FUDS Management Information System is updated with this approval in the Property Information, Record of Decision/Decision Document screen.

6. The point of contact for this action is Mr. Mark Seebeck/CEMP-CED. He can be reached at 202-761-1863 or via email at mark.seebeck@usace.army.mil.

LARA E. BEASLEY
Interim Chief, Environmental Division
Directorate of Military Programs

2 Encls
1. Decision Document Packet
2. MFR, dated 12 August 2019

DECISION DOCUMENT
FOR
PLUM TREE ISLAND RANGE
MILITARY MUNITIONS RESPONSE PROGRAM

FUDS Property No. C03VA0202

(FUDS Project No(s). -01, -03, -04, -05, -06, -07, -08, -09)

POQUOSON, VIRGINIA

USACE, BALTIMORE DISTRICT
10 SOUTH HOWARD STREET
BALTIMORE, MD 21201

June 2019

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LIST OF ACRONYMS AND ABBREVIATIONS

µg/L .....micrograms per liter
AFB .....Air Force Base
AR….....Administrative Record
ARAR .....Applicable or Relevant and Appropriate Requirement
bgs.....below ground surface
CCP… ..... Comprehensive Conservation Plan
CERCLA.....Comprehensive Environmental Response, Compensation, and Liability Act of 1980
COC .....Contaminant of Concern
DD….....Decision Document
DERP .....Defense Environmental Response Program
DGM.....Digital Geophysical Mapping
DMM… .....Discarded Military Munitions
DoD .....U.S. Department of Defense
FBERA .....Focused Baseline Ecological Risk Assessment
FS.....Feasibility Study
ft .....foot/feet
FUDS.....Formerly Used Defense Site
HE .....High Explosives
HHRA .....Human Health Risk Assessment
IC.....Institutional Control
JATO .....Jet-Assisted Take-Off
lb.....pound
LTM .....Long Term Management
MC.....Munitions Constituents
MD.....Munitions Debris
MEC .....Munitions and Explosives of Concern
MEC HA .....MEC Hazard Assessment
mg/kg.....milligrams per kilogram
MMRP .....Military Munitions Response Program
MNR .....Monitored Natural Recovery
MPPEH.....Material Potentially Presenting an Explosive Hazard
MRS .....Munitions Response Site
NCP.....National Oil and Hazardous Substances Pollution Contingency Plan
NWR.....National Wildlife Refuge
PM… ..... Project Manager
PTI.....Plum Tree Island
RAO.....Remedial Action Objective
RI.....Remedial Investigation
SARA.....Superfund Amendments and Reauthorization Act of 1986
Shaw .....Shaw Environmental, Inc. (a CB&I Company)
SLERA.....Screening Level Ecological Risk Assessment
USACE .....U.S. Army Corps of Engineers
USAF .....U.S. Air Force
USATEC.....U.S. Army Topographic Engineering Center
USEPA .....U.S. Environmental Protection Agency
USFWS .....U.S. Fish and Wildlife Service
UXO.....Unexploded Ordnance
VDEQ .....Virginia Department of Environmental Quality
WWI.....World War I

1.0 DECLARATION

1.1 SITE NAME AND LOCATION

Site Name: Plum Tree Island (PTI) Range Formerly Used Defense Site (FUDS)

Address: City of Poquoson, Virginia

FUDS Property Number: C03VA020201

1.2 STATEMENT OF BASIS AND PURPOSE

This Decision Document (DD) presents the selected remedies for munitions and explosives of concern (MEC) at the PTI Range Munitions Response Site (MRS) located in the PTI National Wildlife Refuge (NWR) in York County, Virginia. The remedy is selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record (AR) file for the PTI Range and is consistent with the preferred remedies evaluated in the Proposed Plan (USACE, 2018). The U.S. Army Corps of Engineers (USACE), which is the lead agency for munitions responses under the Military Munitions Response Program (MMRP), has addressed MEC and Munitions Constituents (MC) at PTI Range and issued this DD. The PTI Range is eligible for restoration under FUDS due to hazards associated with unexploded ordnance (UXO), which is a class of MEC in which the ordnance was armed and used for its intended purpose, but did not function as designed. The Proposed Plan presented the USACE's preferred remedy for addressing the PTI Firing Range MRS and invited public involvement during the comment period (July 9, 2018 through August 17, 2018) and public meeting (July 26, 2018).

Surface MEC removal and Institutional Controls (IC) were selected as the remedies to address potential MEC at the PTI Range based on the evaluation of site-specific data, comprehensive analysis of alternatives developed in the Feasibility Study (FS), and effectiveness in addressing the principal concern in the form of surface MEC. The Virginia Department of Environmental Quality (VDEQ) (on behalf of the Commonwealth of Virginia) agrees with the selected remedies. Virginia's formal agreement with the selected remedies is contained in the PTI FUDS AR. USACE anticipates that this will be the final decision for MEC and MC at the PTI FUDS.

1.3 ASSESSMENT OF SITE

The PTI Range consists of 3,276 acres of salt marsh located along the Chesapeake Bay in Virginia. The U.S. Department of Defense (DoD) used the property from 1917 until 1972 for air-to-ground bombing, gunnery, and rocket practice, until it was transferred to the U.S. Fish and Wildlife Service (USFWS). The USFWS is the current property owner and has operated the property as part of the larger PTI National Wildlife Refuge since 1972. A private landowner owns three small undeveloped parcels that abut the western border of the Refuge on Lloyd Bay. The City of Poquoson has zoned the refuge and these private properties for conservation. The waters, including the water in the intertidal zone, around PTI National Wildlife Refuge fall under the jurisdiction of the Commonwealth of Virginia. The Remedial Investigation (RI) assessed the nature and extent of MEC and MC, and identified the following eight MRSs, covering both water and land areas, and expanding beyond the PTI Range boundary for a total of 4,766 acres. The MRSs were separated based on: (a) type of environment (land, shallow water, deep water); (b) ownership (USFWS-owned, privately-owned, or public waterways); and (c) amount of MEC that may be present (target areas or buffer areas).

<u>USFWS-owned MRSs:</u>

- Northern Bomb Cluster (5.4 acres)
- Central Target Area (37.7 acres)
- Southeast Target Area (449 acres)
- Refuge Land Buffer (1,921 acres)

Privately-Owned MRS:

- Non-Refuge Land Buffer (36.9 acres)

Commonwealth of Virginia Waters:

- Low Probability FUDS Water Buffer (770 acres)
- High Probability Shallow Water Buffer (599 acres)
- High Probability Deep Water Buffer (947 acres)

MEC is anticipated to be present at all eight MRSs, posing a potential safety hazard to human health. There is a higher likelihood that MEC will be present within target areas and that fewer MEC will be present within buffer areas. Based on the 2015 RI and Addendum, the three target areas (Northern Bomb Cluster MRS, Central Target Area MRS, and Southeast Target Area MRS) are the primary concerns for the presence of MEC. The surrounding buffer areas in the salt marsh (Refuge Land Buffer MRS and Non-Refuge Land Buffer MRS) showed little or no sign of former bombing activity, but may still contain DoD military munitions that failed to land within the target areas and may be MEC. The two water areas located adjacent to the Southeast Target Area (High Probability Shallow Water Buffer MRS and High Probability Deep Water Buffer MRS) may also contain MEC. Based on the RI and other observations over the years, numerous metallic anomalies can be detected in these areas. Many of the anomalies were determined to be Jet Assisted Take-Off (JATO) rockets used by planes taking off at nearby Langley Air Force Base. These JATO rockets were jettisoned after take-off near the southeast point of PTI Range as standard practice, and if empty, pose no explosion hazard. During the RI, the shoreline of the High Probability Shallow Water Buffer was searched and surface metallic anomalies were investigated and removed. Approximately 8- tons of metallic debris was removed, and the majority of metallic debris was determined to be JATO rockets.

MC was evaluated and found to pose no human health risk. Potential ecological risks were identified in sediment in some of the bomb craters in the Southeast Target Area MRS. To further assess this potential risk, a Focused Baseline Ecological Risk Assessment (FBERA) was conducted to measure key metal concentrations in avian prey tissue (mummichog, grass shrimp, and/or blue crab). The data was used in a revised food chain assessment for avian wildlife. Additional sediment samples and aquatic prey samples were collected from ponds from areas of the site not used for bombing. Copper concentrations found in prey tissue in bomb craters were similar to concentrations in prey tissue in nearby ponds that were not impacted by bombing. USACE concluded that there is no unacceptable ecological hazard posed by MC in surface water or sediment at the PTI Range. No additional measures are necessary to protect ecological receptors from MC.

The PTI Range is located on the southwestern corner of the Chesapeake Bay, adjacent to York County and within the City of Poquoson, Virginia. The Commonwealth of Virginia, under 4 VAC 20- 1065-10 through 40, designated a portion of the area around the PTI National Wildlife Refuge a “Restricted Area,” that covers the southern part of the old bombing range (from Bells Oyster Gut to Whalebone Island) and extends out 300 feet into the water from the shoreline, including the intertidal zone water. The intertidal zone land below that water (between mean high water and mean low water) is managed by USFWS as part of PTI National Wildlife Refuge, which extends seaward to the mean low water. In April 2005, USACE allowed Poquoson watermen access within the waters of the Restricted Area for the setting or hauling of crab pots, gill nets and purse seining. Anchoring, clamming with rakes, shovels or hoes, dredging, prop dredging, the intentional or unintentional beaching or grounding of vessels, and walking on the bottom are still prohibited activities.

An FS and addendum were developed for the PTI Range to evaluate potential remedial alternatives (APTIM, 2016; and 2018, respectively). A Proposed Plan (USACE, 2018) was presented to the public in July 2018 to identify USACE’s preferred alternative. USACE has selected the remedies discussed below.

1.4 DESCRIPTION OF SELECTED REMEDY

The remedies selected in this DD address the eight MRSs that comprise the PTI Range FUDS. The actions selected will be the final actions for the MRSs. The overall cleanup strategy is to take

appropriate action to remedy military munitions present that may be an unacceptable risk to human health and the environment. Response actions are selected after considering remedial alternatives and applying cost-effective solutions.

Based on the RI for human health risk assessment, MC did not exceed calculated cancer risk level for human health as determined by the U.S. Environmental Protection Agency's (USEPA) acceptable risk range of $1x10^{-6}$ to $1x10^{-4}$ (0.000001 to 0.0001). USACE concluded that there is no current or future human health risk posed by MC in surface water or sediment at the PTI Range. For the environmental risk evaluation, MC concentrations collected from surface water and sediment in bombed craters were similar to concentrations collected from ponds in areas of the site not used for bombing. The USACE concluded that, based on comparable MRS samples to background levels, there is no unacceptable ecological hazard posed by MC in surface water or sediment at the PTI Range. Therefore, no additional measures are necessary to protect human health and ecological receptors based on MC.

Past military live-fire training has resulted in areas where DoD military munitions (i.e., unexploded ordnance [UXO] or discarded military munitions [DMM]) remain. Some of the remaining DoD military munitions are likely MEC that pose an explosive safety hazard. During a site visit in July 2004, what appeared to be 40 DoD military munitions were observed in the intertidal zone scattered in the shallow waters along the southern portion of the refuge. Explosives safety hazard exists when DoD military munitions may be encountered and subsequently disturbed detonate causing an injury or death. The potential for an explosives safety hazard depends upon the presence of the following critical elements:

- Source – the presence of DoD military munitions
- Receptors – people with access to the property
- Interaction – interaction between the source and the receptor (e.g., the receptor disturbing or handling a DoD military munition causing a detonation)

The source affects the degree of hazard based on the quantity and type of DoD military munition present. The more DoD military munitions present, the greater the likelihood is for an encounter and interaction with MEC. The type and armed state of DoD military munitions that may be encountered, determine the potential severity of the hazard posed. The more sensitive a DoD military munition that is MEC is to accidental detonation, the greater the likelihood that it will function. At the PTI Range, there is a higher likelihood that MEC will be present within target areas. It is also possible that a few MEC will be present within buffer areas. The types of DoD military munitions present are rockets and bombs. Such munitions may contain large amounts of high explosives.

Receptors are people who potentially may encounter a DoD military munition. The factors affecting the hazard associated with the receptor include the number of people that can access an area that may contain MEC and ease of access to property that may contain MEC. The more receptors that use a location and the easier it is to access the property, the greater the potential for contact with DoD military munitions that may be MEC. Under the current and future land uses for the PTI Range, there are very few receptors.

A receptor's interaction with a DoD military munition that is MEC is affected by type of munition encountered, its armed state, and the energy applied during the interaction. Remedies selected for the eight MRSs include a combination of surface removal actions and institutional controls (ICs). Surface removal includes the systematic search and removal of DoD military munitions on the surface, using visual or geophysical detection technology. ICs alone do not include active remediation on the PTI Range. They focus on modifying behavior to preclude people that access the PTI National Wildlife Refuge from interacting with DoD military munitions that they may encounter. ICs will be needed as protective measures against MEC potentially remaining on the site. The ICs that will be implemented vary based on the MRS. The ICs that will be implemented on USFWS land are further discussed on page 9 of the Proposed Plan as is USFWS agreement to maintain those ICs. The ICs that will be implemented in the water-based MRSs are further discussed on pages 11-12 of the Proposed Plan and the agreement of the Virginia Marine Resources Commission (VMRC) to maintain and enforce the access restrictions is in their e-mail dated September 11, 2019 (attached to this Decision document). The ICs that will be implemented on privately-owned land consist entirely of a letter to be written by USACE that would include information about what we have found at the site, make reference to this Decision Document, and remind the landowners to exercise the 3Rs of munitions safety if they believe they may come across something.

For the **Northern Bomb Cluster** and **Central Target Area**, the Selected Remedy to address MEC is ***Land Alternative 3 – Surface MEC Removal and ICs***. These MRSs are known target areas and MEC is confirmed to be present. They are both relatively small in size (5.4 and 37.7 acres, respectively), so the action could be performed at relatively low cost and with relatively little disruption to the environment. The length of time to complete the remedy for these alternatives is short, because the areas are relatively small, so short-term risk to the public from the hazards associated with military munitions are not significant given the existing controls and remote nature of the PTI Range FUDS. This alternative also meets the statutory preference for reduction of volume through treatment. This alternative provides the most cost-effective risk reduction by focusing on MEC exposed at the surface, which is far more accessible and therefore hazardous than MEC in the subsurface. With adequate ICs in place, this MRS could be used for controlled surface activity, as deemed appropriate and compatible by the USFWS (NWRS Improvement Act of 1997, Public Law 105-57). The alternative includes:

- Removal and disposal of MEC at the surface of the salt marsh from the entire MRS; and
- ICs to educate the public, control access to the area, and control intrusive activities.

For the **Southeast Target Area MRS**, the Selected Remedy to address MEC is ***Land Alternative 5 – Shoreline Surface MEC Removal and ICs***. The Southeast Target Area is the primary area historically used for bombing activity, posing the greatest hazard due to: 1) the high number of MEC likely

2) the shoreline that is relatively accessible and subject to erosion. Due to the large size of the MRS (449 acres) and the sensitive marsh habitat, actions to perform MEC removal in the marsh would be cost prohibitive and damaging to the environment. Focusing MEC removal on only the shoreline addresses the most accessible areas and provides a cost-effective approach to risk reduction. Restricted access to the interior of the marsh would be maintained with ICs. MEC removal does not include subsurface excavation and would not affect the interior of the salt marsh, so the impact on the sensitive species population would be lower than for alternatives that include the subsurface removal of DoD military munitions. The alternative includes:

- Detection, removal, and disposal of surface MEC along the shoreline from the mean low water to dune (where present) and 20-feet into marsh (where dune is not present); and
- ICs and signage to educate the public, control access to the area, and control intrusive activities.

For the **Refuge Land Buffer MRS and Non-Refuge Land Buffer MRS**, the Selected Remedy to address MEC is ***Land Alternative 2 – ICs***. These MRSs contain no known areas where MEC is likely to be concentrated as a result of historical training activities. While there is a potential for MEC to be present as a result of stray bombs or small bomb target clusters, the probability for encountering these items is deemed to be low. The large area of this MRS (1,921 acres) and the sensitive marsh habitat makes actions to perform MEC removal in the marsh cost prohibitive and damaging to the environment. The majority of these MRSs are remote and difficult to access; therefore, ICs would be protective of human health and the environment. With adequate ICs in place, this MRS could be used for controlled surface activity, as deemed appropriate and compatible by the USFWS (NWRS Improvement Act of 1997, Public Law 105-57). The alternative includes:

- ICs and signage to educate the public, control access to the area, and control intrusive activities.

For the **Low Probability FUDS Water Buffer**, the Selected Remedy to address MEC is ***Water Alternative 2 – ICs***. This MRS contains no known areas where MEC is likely concentrated as a result of historical training activities. While there is a potential for MEC to be present as a result of stray bombs, the probability for encountering these items is deemed to be low. The large area of this MRS (770 acres) and the difficulty in searching for and removing MEC from water areas makes ICs the most cost-effective approach. With adequate ICs in place, the current activities occurring in this MRS (hunting, fishing, crabbing, and recreation) could continue. The alternative includes:

- ICs to notify the public of the historical use of the adjacent marsh for bombing activities and the potential for MEC to be present.

For the **High Probability Shallow Water Buffer** and **High Probability Deep Water Buffer**, the Selected Remedy to address MEC is ***Water Alternative 4 – Exposed MEC Removal and ICs***. These MRSs are adjacent to the Southeast Target Area where most of the bombing targets were located, and contain a significant amount of metallic debris based on underwater geophysics data. There is a potential for MEC to be present as a result of stray bombs or transport of MEC that eroded out of the salt marsh. The large area of these MRSs (599 and 947 acres, respectively) and the difficulty in searching for and removing munitions from water areas, makes this alternative expensive and difficult to implement. However, ICs alone would be difficult to implement effectively because of the public nature of the waterways and difficulty in enforcement. Furthermore, if MEC were allowed to remain in the water MRSs, storm activity could transport hazardous items to land-based MRSs such as the Southeast Target Area, where shorelines are easily accessed by boat and trespassing is a concern. The alternative includes:

- Detection, removal, and disposal of MEC exposed in the substrate; and
- ICs and signage to educate the public.

1.5 STATUTORY DETERMINATIONS

The Selected Remedies, as documented in this DD, are protective of human health and the environment, comply with Federal and State laws that are applicable or relevant and appropriate to the remedial action, are cost-effective, and utilize permanent solutions to the maximum extent practicable.

The Selected Remedies to address MEC in the Northern Bomb Cluster, Central Target Area, Southeast Target Area, High Probability Shallow Water Buffer, and High Probability Deep Water Buffer satisfy the statutory preference for treatment as a principal element of the remedy by removing and disposing of MEC. The Selected Remedies for the Refuge Land Buffer, Non-Refuge Land Buffer and Low Probability FUDS Water Buffer utilize only ICs and do not satisfy this preference for treatment because there is a low probability for MEC to be present and searching for and removing MEC would be cost prohibitive and destructive to the environment while providing minimal hazard reduction.

Because these remedies will result in hazardous substances, pollutants, or contaminants remaining on site above levels that allow for unlimited use and unrestricted exposure, a statutory five-year review will be conducted every five years after initiation of the selected remedial action in accordance with CERCLA Section 121(c) and the NCP Section 300.430(f)(4)(ii).

1.6 DATA CERTIFICATION CHECKLIST

The following table provides the location of key remedy selection information contained in the DD, Section II, Decision Summary. Additional information can be found in the AR File for the PTI Range.

DD Data Checklist Item	DD Section Number Reference
Contaminants of concern (COCs) and their respective concentrations	5.2
Current and reasonably anticipated future land-use assumptions used in the baseline risk assessment and DD	6.0
Baseline risk represented by the COCs	7.2
Remediation objectives	8.2, 8.3
How principal threats are addressed	11.0
Key factors that led to the selection of the remedy	12.1
Estimated capital, annual long-term maintenance (LTM), and the total present worth costs for the Selected Remedy, discount rate, and the number of years over which the remedy cost estimates are projected.	12.3

1.7 AUTHORIZING SIGNATURE

Anthony C. Funkhouser

25 SEP 19

ANTHONY C. FUNKHOUSER
Major General, USA
Deputy Commanding General
for Military and International Operations

Date

2.0 DECISION SUMMARY

2.1 SITE NAME, LOCATION, AND DESCRIPTION

The PTI Range FUDS consists of approximately 3,276 acres of land, and is located at the southwest corner of the Chesapeake Bay in the City of Poquoson, Virginia (**Figure 1**). The Site is located approximately 30 miles southeast of Williamsburg, Virginia, and approximately 18 miles northeast of Newport News, Virginia. The PTI Range is almost entirely comprised of salt marsh bordered by the city of Poquoson and other salt marsh to the west, the Chesapeake Bay to the north and east, and Back River to the south. The property is owned by the USFWS and maintained as part of the larger PTI NWR. The actual property boundaries are complicated, as the Commonwealth of Virginia claims all navigable waters, some of which lies within the PTI Range boundary, as waters of the State. Therefore, the USFWS does not have jurisdiction or ownership of all areas within the PTI Range FUDS.

USACE is the lead agency and is addressing this site under the MMRP. The PTI Range is eligible for restoration under FUDS due to hazards associated with MEC that remain after historical use of the PTI Range for air-to-ground bombing, gunnery, and rocket practice, which occurred during DoD ownership from 1917 until 1972. VDEQ is the support agency.

There are eight MRSs associated with the PTI Range (**Figure 2**), covering both land and water areas, and expanding beyond the PTI Range FUDS boundary for a total of 4,766 acres. The eight MRSs are:

USFWS-owned MRSs:

- Northern Bomb Cluster (5.4 acres)
- Central Target Area (37.7 acres)
- Southeast Target Area (449 acres)
- Refuge Land Buffer (1,921 acres)

Privately-Owned MRS:

- Non-Refuge Land Buffer (36.9 acres)

Commonwealth of Virginia Waters:

- Low Probability FUDS Water Buffer (770 acres)
- High Probability Shallow Water Buffer (599 acres)
- High Probability Deep Water Buffer (947 acres)

MEC is anticipated to be present at all eight MRSs, posing a potential safety hazard to human health. MC was evaluated and found to pose no unacceptable human health or ecological risk.

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

The PTI Range was acquired by the DoD in 1917 to support operations at the nearby Langley Air Force Base (AFB). Shortly after its establishment, the PTI Range transitioned into an extensively utilized bombing, gunnery, and rocket range that included the construction of boardwalks, observation towers, and various targets. Ordnance activity occurred on the PTI Range from the beginning of the ranges operational use until 1959.

In 1958, three children from Fox Hill, Virginia, were seriously injured when trespassing on the island ignoring warning signs and accidentally exploding a practice bomb containing black powder charge (USACE, 1996).


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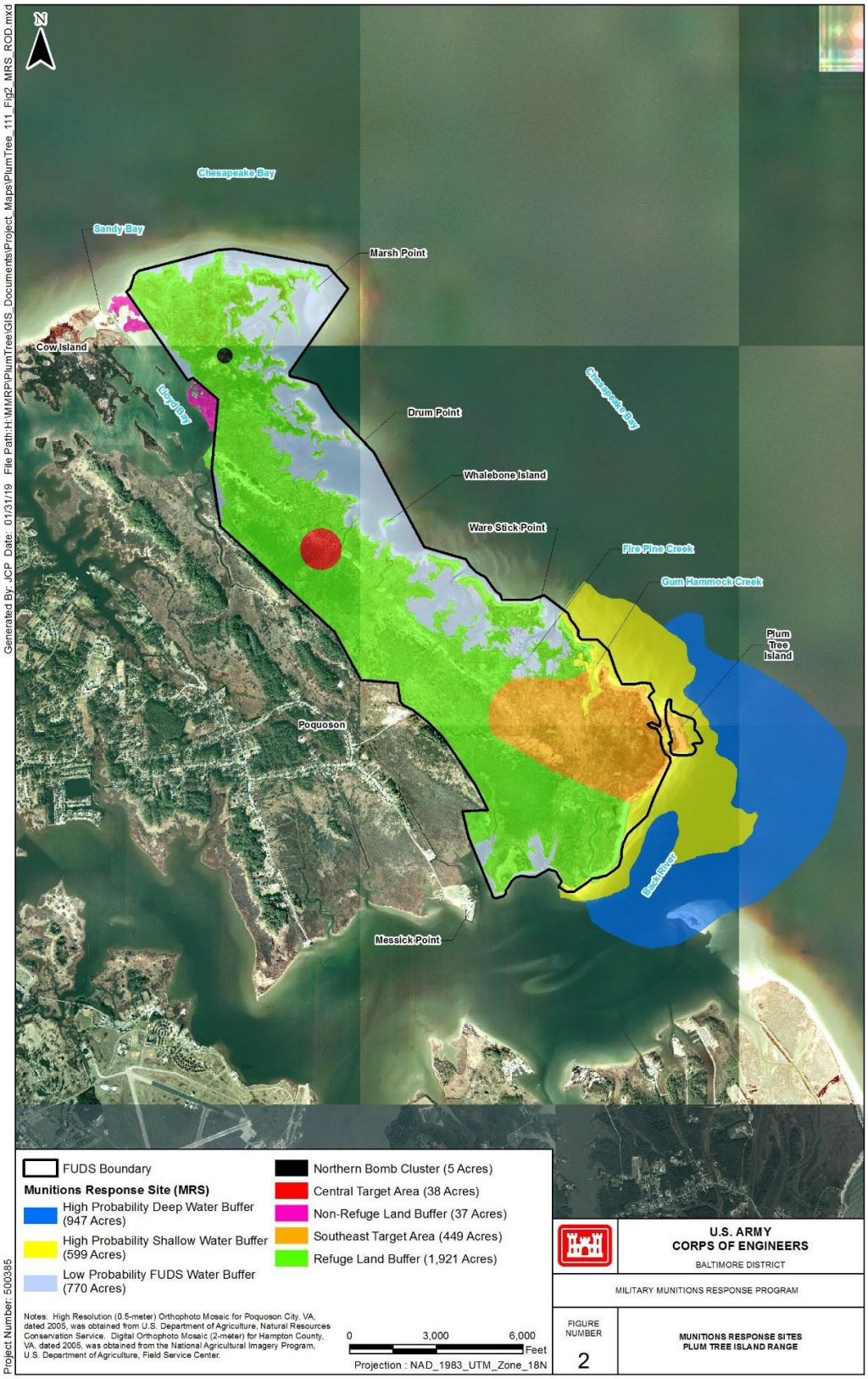
Project Number: 500385
N
Maryland
Virginia
North Carolina
Chesapeake Bay
Dale City
Fredericksburg
California
Salisbury
Richmond
Poquoson
Plum Tree Island Range
Newport News
Hampton
Norfolk
Portsmouth
Virginia Beach
Suffolk
Elizabeth City
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community
Plum Tree Island Range Location
0 10 20
Miles
Projection : NAD_1983_UTM_Zone_18N
U.S. ARMY
CORPS OF ENGINEERS
BALTIMORE DISTRICT
MILITARY MUNITIONS RESPONSE PROGRAM
FIGURE NUMBER
1
SITE LOCATION MAP
PLUM TREE ISLAND RANGE


N
Chesapeake Bay
Sandy Bay
Marsh Point
Cow Island
Lloyd Bay
Drum Point
Chesapeake Bay
Whalebone Island
Ware Stick Point
Fire Pine Creek
Gum Hammock Creek
Plum Tree Island
Poquoson
Back River
Messick Point
FUDS Boundary
Munitions Response Site (MRS)
High Probability Deep Water Buffer (947 Acres)
High Probability Shallow Water Buffer (599 Acres)
Low Probability FUDS Water Buffer (770 Acres)
Northern Bomb Cluster (5 Acres)
Central Target Area (38 Acres)
Non-Refuge Land Buffer (37 Acres)
Southeast Target Area (449 Acres)
Refuge Land Buffer (1,921 Acres)
Notes: High Resolution (0.5-meter) Orthophoto Mosaic for Poquoson City, VA, dated 2005, was obtained from U.S. Department of Agriculture, Natural Resources Conservation Service. Digital Orthophoto Mosaic (2-meter) for Hampton County, VA, dated 2005, was obtained from the National Agricultural Imagery Program, U.S. Department of Agriculture, Field Service Center.
0
3,000
6,000
Feet
Projection : NAD_1983_UTM_Zone_18N
U.S. ARMY
CORPS OF ENGINEERS
BALTIMORE DISTRICT
MILITARY MUNITIONS RESPONSE PROGRAM
FIGURE NUMBER
2
MUNITIONS RESPONSE SITES
PLUM TREE ISLAND RANGE
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Project Number: 500385

In June 1959, the U.S. Air Force (USAF) conducted a Site clearance. According to the Certificate of Clearance, the clearance included the visual surface inspection of all land above the high-water mark and the removal of all dangerous and/or explosive material reasonably possible to detect. No specific details were found concerning the amounts of MEC or munitions debris (MD) removed from the Site. The Certificate of Clearance noted that subsurface explosive ordnance may still remain undetected and recommended that the area permanently remain as a posted "Restricted Hazardous Area."

In May 1971, the PTI Range was excessed by the USAF, and in June 1972, the land was turned over to the Department of the Interior, Bureau of Fish and Wildlife for use as a Wildlife Refuge. Langley AFB reserved the right to utilize the area as an emergency jettison area and for ordnance disposal operations (USACE, 1996). The Langley AFB Air Command clarified in 2008 that the jettison area is used for pilots rather than ordnance or fuel.

In 1988, USFWS observed corroded bombs at low tide near Plum Tree Point (USACE, 1996). In 1994, the Poquoson Police reported finding an old style 100-pound (lb) demolition bomb casing, devoid of explosives or hazardous components. This item was discovered near the center of the property on the eastern shore (USACE, 1996).

In July 2004, two refuge staff members observed what appeared to be 40 UXO items in the intertidal zone scattered in the shallow waters along the southern portion of the refuge (USACE, 2005). USACE designated the area around the southern portion of the PTI NWR a Temporary Danger Zone, covering the southern part of the old bombing range (from Bells Oyster Gut to Whalebone Island) and extending into the waters of Back River and the Chesapeake Bay for a distance of 300 ft from the shoreline or original FUDS boundary, whichever is greater. The USACE installed Day Marker Danger Zone signs several hundred feet from the shore to warn people of the presence of live bombs, and declaring the area closed to the public. The initial regulatory action prohibited all navigational access to the refuge and the shallow water surrounding it. In March 2005, Federal officials met with Poquoson watermen who were concerned with the danger zone, saying they needed access to the water. After close consultation with its Federal, State and local partners, USACE revised the Plum Tree Island Temporary Danger Zone regulations to state that no activity shall be conducted within the designated area that disturbs the sub-aqueous soil. In addition, the Commonwealth of Virginia, under 4 VAC 20-1065-10 through 40, designated a portion of the area around the PTI National Wildlife Refuge a "Restricted Area." Prohibited activities include, but are not limited to, anchoring, clamming with rakes, shovels or hoes, dredging, prop dredging, the intentional/ unintentional beaching or grounding of vessels, or walking on the bottom. To address the watermen's concerns, the revised regulations further stated that the setting/hauling of crab pots, gill nets, and purse seining are exempt from these regulations.

Munitions response activities, including Site clearance and investigation activities, have been performed since 1959. These activities are summarized in **Table 1**. The most comprehensive study performed was the RI, which incorporated previous data and collected additional information at the PTI Range (USACE, 2013a). The purpose of the RI was to determine the nature and extent of MEC and MC, and subsequently determine the risk posed to human health and the environment by MEC and MC. The RI also included a shoreline surface sweep along 123 acres of the PTI Range southeastern shoreline, which USACE previously designated a Temporary Danger Zone. Recommendations in the RI include the following:

- Division of the FUDS into eight MRSs;
- Further evaluation of all eight MRSs in a feasibility study (FS) to address hazards due to MEC; and
- Further evaluation in an FBERA to assess copper concentrations in sediment. After evaluation in the FBERA, USACE concluded there was no unacceptable ecological risk due to MC.

The RI results were used to develop an FS document to address MEC.

Table 1
Site Investigations and Actions

Investigation/Action	Scope	Findings
Site Clearance, USAF, 1959	According to the Certificate of Clearance, activities included the visual surface inspection of all land above the high-water mark and the removal of all dangerous and/or explosive material reasonably possible to detect.	The Certificate of Clearance recommended that all PTI Range land be retained permanently by the Federal Government and restricted to surface use only. Due to the inaccessible nature of most of the Site, determination of the presence and clearance of subsurface explosive hazards could not be completed.
Inventory Project Report, USACE, 1992	Investigated the historical use of the PTI Site by the DoD and determined eligibility for inclusion of the Site in the Defense Environmental Restoration Program (DERP).	The Site was determined to be formerly used by the DoD as an Army Aviation Experimental Station and later as an Air Force Bombing and Gunnery Range. The Findings and Determination of Eligibility stated that the Site consisted of 3275.60 acres and the DoD used the Site from 1917 to 1972; therefore, PTI Range was eligible for restoration under the purview of DERP FUDS.
Archive Search Report, USACE, 1996	Included a discussion of previous investigations performed at the Site, Site description, presence of ordnance historically used at the Site, Site eligibility as a FUDS, visual Site inspection, evaluation of ordnance hazards, available technical data related to Site ordnance, and description of other environmental hazards.	The report concluded that there is historical evidence indicating MEC and MD remains at the property and that the following munitions were used at the Site: small arms, high explosives bombs, practice bombs, aerial rockets, and aerial practice rockets.
Supplemental Archive Search Report, USACE, 2004	Further evaluated the MEC hazards associated with the property.	Target areas were identified in the southern portion of the PTI Range, as follows: Bomb and Rocket Targets, 220 Yard Square Targets, Practice Bombing Target, Gunnery Targets, 750 Personnel Targets, 30 Type “C” Targets, the Concrete Pier Target, and the Ship Target collectively identified as Range Complex No. 1. The report included a summary of MEC associated with each of the sub-ranges at the PTI Range including munitions type, dates that the munitions were used, and risk assessment code scores.
Designation of Temporary Danger Zone, USACE, 2005	USACE designated the area around the southern portion of PTI NWR a Temporary Danger Zone that extends 300 ft into the waters of Back River and the Chesapeake Bay. USACE installed signs to warn of the danger, and declared the area closed to the public.	The initial regulatory action prohibited all navigational access to the refuge and the shallow water surrounding it. However, the restrictions were subsequently revised to state that no activity shall be conducted within the designated area that disturbs the sub-aqueous soil. Prohibited activities include, but are not limited to, anchoring, clamming with rakes, shovels or hoes, dredging, prop dredging, beaching or grounding of vessels, or walking on the bottom.
Historical Aerial Photographic Analysis, U.S. Army Topographic Engineering Center (USATEC), 2005	Historic aerial photographic analysis of the entire PTI Range.	The analysis identified structures and targets only in the southern portion of PTI Range, as well as possible impact craters located throughout PTI.

Investigation/Action	Scope	Findings
Site Inspection, USACE, 2007	The inspection included Site reconnaissance lines to identify surface material potentially presenting an explosive hazard (MPPEH) and soil, surface water, and sediment sampling to assess MC.	The inspection report concluded that MPPEH and MEC are likely present at the PTI Range. The report indicated that the media of concern which may be impacted by MC are surface soil, sediment, and surface water, and that the presence of MEC/MC poses a potential risk to human and ecological receptors.
Remedial Investigation, Shaw, 2015	Investigation conducted to characterize the nature and extent of MEC and MC and to determine the subsequent risk posed to human health and the environment.	The RI field effort was primarily limited to the land area of the PTI Range. The investigation confirmed the use of the property for bombing and aerial rockets, and the locations of heaviest usage were refined. All MEC and MD was removed from the surface along the southern shoreline. Recommendations included: 1) Division of the PTI Range into eight MRSs; 2) Further evaluation of all eight MRSs in an FS to address hazards due to MEC; and 3) Further evaluation in an FBERA to evaluate copper in sediment.
Focused Baseline Ecological Risk Assessment, (RI Addendum) 2015	Assess potentially elevated MC metals in bomb craters by comparing avian prey tissue in bomb craters and background ponds	The FBERA measured key metal concentrations in avian prey tissue to revise the food chain assessment for avian wildlife. Additional sediment samples were also collected from bomb craters, some of which were previously sampled and found to be elevated in metals. The aquatic prey collected from bomb craters were found to have similar copper concentrations compared to prey in ponds from areas of the site not used for bombing. The additional data showed no potential risk to wading birds that feed on invertebrates from bomb craters with elevated levels of copper in sediment. USACE concluded that the elevated metals do not cause unacceptable ecological risk to birds feeding upon prey in bomb craters
Feasibility Study, Revised Final FS and FS Addendum, USACE, 2013, 2016, 2018 respectively.	Assess potential remedial options for addressing site risks at the eight MRSs	The FS recommended remedial actions for each of the eight MRSs that were then proposed in the 2018 Proposed Plan. The selected alternative for each MRS is summarized in Section 2.12 below

2.3 COMMUNITY PARTICIPATION

A summary of the community participation process is provided in the Responsiveness Summary, which is included as part of this DD. Throughout the RI/FS process, the plans and results of ongoing investigations and actions have been presented to the Project Team established for PTI Range. The Project Team includes representatives from the USACE, USFWS, USEPA (consulting), VDEQ, Virginia Marine Resource Commission, City of Poquoson, and other concerned stakeholders and citizens.

Pursuant to CERCLA Section 113(k)(2)(B) and Section 117, USACE released the Proposed Plan for PTI Range to the public for comment on July 8, 2018. The Proposed Plan, as well as the RI/FS reports, were made available to the public in the Administrative Record, located in the Poquoson Public Library, 500 City Hall Avenue, in Poquoson, Virginia.

A public comment period was held from July 9, 2018 to August 17, 2018 during which comments were accepted and considered prior to a final decision on the MRSs discussed in this DD. On July 26, 2018, a public meeting was held at the City Council Chambers at 500 City Hall Avenue in Poquoson, Virginia, to present the Proposed Plan and to entertain questions and comments from the public. The notification for the Proposed Plan 30-day public comment period and meeting was published in *The Daily*

Press newspaper on July 8, 2018. Representatives from the Project Team attended the public meeting. Details of the public comment and response are provided in the Responsiveness Summary.

2.4 SCOPE AND ROLE OF RESPONSE ACTION

The response actions documented in this DD address MEC in the eight PTI Range MRSs resulting from past live-fire training. No action is required for MC. The role of the remedial actions are to reduce the potential risk associated with MEC to human health and the environment based on the current and reasonably anticipated future land use of PTI Range as a wildlife refuge. These actions are intended to be the final actions.

2.5 SITE CHARACTERISTICS

PTI Range is part of a peninsula extending from the eastern shore of Virginia into the southern portion of the Chesapeake Bay (**Figure 1**). Except for a series of forested hummocks/ridges, the topography of the PTI Range is flat with slopes generally from 0 to 2 percent, and elevations ranging from mudflats that are submerged at high tide to approximately 5 feet (ft) above mean sea level. The tidal marsh landscape contains numerous depressions that have formed small ponds, some of which are bomb craters, especially around bomb targets. The PTI Range is a dynamic environment with erosion and deposition occurring over the years. Historical aerial photographic analysis shows that erosion seems to have occurred along the outer, eastern shoreline. A growing body of evidence indicates that accelerating climate change, associated with increasing global temperatures, is affecting water, land, and wildlife resources (Titus et al. 2009). The PTI Range is expected to continue being affected by global sea level rise.

Nine major creeks and innumerable minor inlets are interwoven throughout the Range. Except for dredged channels, water depths in the inland bays and connecting waterways are generally less than 10 ft. Tidal flooding occurs twice daily on approximately 1,000 acres of the low-lying marsh and mudflats. Severe storms and tidal surges cause an additional 1,500 acres to flood. Depth to groundwater is from 1 to 2 ft bgs when the land is dry and flooding is not occurring. The entire area within the Site boundaries lies within the 100-year floodplain (USACE, 1996).

The vegetation is shrub-scrub and wooded habitat that provide a haven for waterfowl, marsh-birds, and shorebirds. Numerous species depend on a marsh/estuarine system to feed, rest, and reproduce. Approximately 100 different bird species have been observed, including northern harrier, black duck, sedge wren, sharp-tailed sparrow, bald eagle, peregrine falcon, black-necked stilts, and little blue heron. Mammals include white-tailed deer, raccoon, muskrat, and red fox, while endangered and threatened sea turtles are known to utilize the waters surrounding PTI Range. Striped bass, mullet, spot, and white perch are some of the fish found off the PTI Range shores, while oysters, clams, and blue crabs utilize the shallow waters and mudflats.

Threatened, rare, or endangered species of concern, and/or species of special concern are presented in **Table 2**. After discussions with U.S. Fish and Wildlife Service, potential impacts to the northeastern beach tiger beetle were taken into account during remedy selection. Northeastern beach tiger beetle are known to inhabit the sandy shoreline along the southern edge of PTI Range, where a majority of bombing activity occurred. Selected remedies are not expected to have a negative effect on the other species on the list.

Table 2
Threatened, Rare, and Endangered Species of Concern
Plum Tree Island Range

Common Name	Scientific Name	Federal Status	State Status
Piping plover	*Charadrius melodus*	Threatened	---
Least tern	*Sterna antillarum*	---	Special Concern
Black-necked stilt	*Himantopus mexicanus*	(1)	(1)
Wilson's plover	*Charadrius wilsonia*	---	Endangered

Yellow-crowned night-heron	*Nyctanassa violacea*	---	Special Concern
Great blue heron	*Ardea antillarum*	(1)	(1)
Green heron	*Butorides virescens*	(1)	(1)
American Oystercatcher	*Haematopus palliatus*	(1)	(1)
Seaside sparrow	*Ammodramus maritimus*	(1)	(1)
Short-billed dowitcher	*Limnodromus griseus*	(1)	(1)
Northeastern beach tiger beetle	*Cicindela dorsalis*	Threatened	---
Northern diamond-backed terrapin	*Malaclemys terrapin*	Species of Concern	---
Atlantic sturgeon	*Acipenser oxrhynchus*	---	Special Concern
Loggerhead sea turtle	*(Caretta caretta)*	Threatened	Endangered
Kemp's ridley sea turtle	*(Lepidochelys kempii)*	Endangered	Endangered
Bald eagle	*Haliaeetus leucocephalus*	Species of Concern	Endangered
Peregrine falcon	*Falco peregrinus*	---	Endangered
Atlantic bottlenose dolphin	*Tursipos truncates*	(1)	(1)

(1) Although not officially listed as threatened, rare, endangered, species of concern, and/or species of special concern by Federal or State agencies, these species have been identified as a special concern at PTI (USACE, 2005).

To evaluate the nature and extent of MEC at the site, the RI included a shoreline surface sweep along the PTI Range southeastern shoreline, which USACE previously designated a Temporary Danger Zone. The RI also included Digital Geophysical Mapping (DGM) surveys throughout the PTI Range as well as the adjacent Cow Island, which is part of the USFWS refuge but not part of the FUDS. In total, 21.7 acres of DGM data was collected, including 39 miles of DGM transects (14.2 acres) and 7.5 acres of DGM grids. Following the DGM surveys, selected geophysical anomalies were intrusively investigated to determine what metallic items created the anomalies. Most of the anomalies were found to be non-munitions related (aluminum cans and other debris). MD (bomb and rocket parts) accounted for 23 percent of the anomalies and MEC (50-lb demolition bombs and one MK25 flare) accounted for 3 percent of the anomalies. Approximately 16 percent of the anomalies were located in surface water bodies and were not investigated, and 11 percent were deeper than 4 ft into the marsh and could not be accessed. The latter are believed to represent MEC or large pieces of MD.

The investigation confirmed the use of the property for bombing and aerial rockets and the locations of heaviest usage were refined. The following summarizes the findings:

- Potential munitions observed in the water along the southeastern shoreline were investigated and found to pose less of a hazard than originally anticipated. A shoreline surface sweep was conducted along approximately 123 acres of the southeastern shoreline, resulting in the recovery and disposal of approximately 8 tons of MD. The vast majority of MD consisted of empty, jettisoned JATO bottles, while minor amounts of bomb and rocket parts were also found. Six of the JATO bottles were full and the contents could not be identified. They were assumed to contain propellant and were remotely detonated.
- DGM surveys identified the southeastern area near Plum Tree Island as having significantly greater amounts of metallic anomalies than the rest of the property. This southeastern area correlates to target areas identified on historical aerial photos. The approximate boundaries of this area were delineated, and this 449-acre area of the FUDS was designated the Southeastern Target Area. Although no MEC was recovered, numerous practice bombs and rockets, bomb fragments, and craters indicate that the area was heavily used. Historical records indicate that high explosives (HE) bombs up to 2,000 lbs were dropped.
- A second target area was identified in the central region of the FUDS where a distinct circular pattern of craters was identified in aerial photographs. A total of 11 World War I (WWI) era Mk 1, 50-pound (lb) demolition bombs were recovered in this cluster with another 10 potential

bombs remaining as large anomalies deeper than 4 ft that could not be reached for identification. All the bombs recovered were at least 1 ft below ground. Those that were 2 to 3 ft below ground were in good condition despite being in place for approximately 90 years. This is attributed to the silty peat material that limited corrosion by creating a low oxygen environment. This 37.7-acre area of the FUDS was designated the Central Target Area. Due to the vintage of the munitions, this area appears to represent the earliest bombing activity.

- A third area was discovered in the northern region of the FUDS where bombs clustered. The relatively low number of items in this cluster suggests that it does not represent a heavily used target, but may represent a stray cluster of bombs. One WWI era 50-lb demolition bomb containing HE was found along with other potential bombs remaining as large anomalies deeper than 4 ft that could not be reached. This approximately 5.4-acre area is identified as the Northern Bomb Cluster.
- The remainder of the land areas of the FUDS do not appear to have been heavily used for bombing, and are referred to as buffer areas. Although apparent bomb craters do exist (especially in the very south of the FUDS near Flat Gut where two silhouette ship targets were observed in the 1940s), geophysical mapping and anomaly investigation did not indicate a significant amount of metallic items. However, based on the apparent bomb craters and RI findings, MD and MEC can be expected to be found in the buffer areas as isolated finds or in small clusters.
- Cow Island, which is not part of the FUDS, was investigated for the presence of metallic material that would indicate former range activity. Geophysical anomalies were identified in areas where depressions resembling bomb craters were observed on aerial photos. No MEC or MD was found upon intrusive investigation of the anomalies. MC sampling was determined not to be warranted based on the results of the intrusive investigation.
- Offshore water areas outside of the FUDS represent an additional buffer area where munitions either landed or were transported via tidal or storm action. Significant shoreline erosion, particularly along the easternmost point of the FUDS, may have released MEC or MD over the years to the Chesapeake Bay or Back River. Investigation of water areas was conducted by USACE. Clusters of metallic anomalies have been identified in the water around the Southeast Target Area. Many of these anomalies are likely JATO bottles, but the presence of bombs and rockets is likely.

As shown on **Figure 2**, the PTI Range was split into eight MRSs. The eight MRSs include land areas (salt marsh) as well as water areas.

Land MRSs

- The **Northern Bomb Cluster** is a circular area of approximately 5.4 acres of salt marsh located at the northern region of the PTI Range. The relatively small area and low density of items observed using geophysics suggests that it does not represent a heavily used target area. One WWI-era 50-lb demolition bomb containing explosives was found during the RI.
- The **Central Target Area** is a circular area of approximately 37.7 acres of salt marsh, located in approximately the center of the PTI Range. Several WWI era 50-lb demolition bombs containing explosives were found during the RI.
- The **Southeast Target Area** is approximately 449 acres of salt marsh located at the southeastern portion of the PTI Range. This area encompasses a number of targets identified in historical aerial photography, and received a variety of bombs and rockets through World War II. Bombs ranging from 50 to 2,000 lbs are known to have been used in this area.
- The **Refuge Land Buffer** is approximately 1,921 acres and represents the remainder of the PTI Range outside of the three areas previously described. There is little evidence of former bombing activity, but it is considered a buffer area where stray bombs may have landed or short-lived bombing activities may have occurred. MEC may remain as isolated items or in small clusters.

- The **Non-Refuge Land Buffer** is approximately 36.9 acres and represents three small plots of land on the northwest that are not part of the PTI Range or the USFWS wildlife refuge, but are close enough to potential bombing activities that they should be considered for further action. No investigation was performed on this land.

Water MRSs

- The **Low Probability FUDS Water Buffer** is approximately 770 acres and represents all water areas and includes exposed intertidal land from mean high water to a depth of three feet along the boundary of the former range where evidence of MEC on adjacent marshland indicates a low probability of MEC.
- The **High Probability Shallow Water Buffer** is approximately 599 acres and represents all waters and includes exposed intertidal land from mean high water to a depth of three feet where evidence of bombing activity on adjacent marshland indicates a higher probability of MEC and numerous metallic items were identified during an offshore geophysical survey.
- The **High Probability Deep Water Buffer** is approximately 947 acres and represents all water deeper than 3 ft where evidence of bombing activity on adjacent marshland indicates a high probability of MEC and numerous metallic items were identified during an offshore geophysical survey.

To evaluate the nature and extent of MC at the site, the RI included sampling of surface water and sediment directly from bomb craters and from the vicinity of areas where heavy bombing or other range activity was indicated. The samples were analyzed for explosive chemicals, perchlorate, and metals to identify potential COCs that may have originated from military munitions. No explosives were detected in any of the samples and although perchlorate was positively identified in surface water at concentrations of 0.1 micrograms per liter (µg/L), the concentrations are below the minimum surface water criteria of 26 µg/L. Perchlorate was also detected in background samples of surface water and stream/pond sediment indicating a natural or anthropogenic source not related to previous munitions activities at PTI Range.

Multiple metals analytes were identified in concentrations exceeding their respective minimum criteria level for all media sampled. Although all metals of concern in surface water and sediment were initially determined to be statistically similar to background on a site-wide basis, further detailed statistical evaluations determined that five metals in sediment (cadmium, copper, lead, selenium, and zinc) were possibly elevated in individual samples. In particular, sediment in some bomb craters showed evidence of elevated levels of metals associated with small arms, such as copper, lead, and zinc. These bomb craters are primarily located in the Southeast Target Area, where strafing with small arms may have occurred in addition to bombing. The bomb craters represent preferential feeding habitat for wading birds, and copper in particular was identified as a contaminant of potential ecological concern.

Based on the concern that wading birds may preferentially use bomb craters for foraging, a more detailed study called a Focused Baseline Ecological Risk Assessment (FBERA) was conducted. The FBERA measured key metal concentrations in avian prey tissue (mummichog, grass shrimp, and/or blue crab), and these data were used in a revised food chain assessment for avian wildlife. Additional sediment samples were also collected from bomb craters, some of which were previously sampled and found to be elevated in metals. However, the aquatic prey collected from bomb craters were found to have similar copper concentrations compared to prey in ponds from areas of the site not used for bombing.

The additional data showed no potential risk to wading birds that feed on invertebrates from bomb craters with elevated levels of copper in sediment. USACE concluded that the elevated metals do not cause unacceptable ecological risk to birds feeding upon prey in bomb craters.

2.6 CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

The PTI National Wildlife Refuge was established in 1972 when the bombing range was transferred from the Department of Defense to the Department of Interior. USFWS manages PTI NWR and has a specific, congressionally mandated purpose and must be operated in a manner that aligns with federal laws and policies. The PTI NWR purpose is to protect foraging and cover habitat for numerous waterfowl, shorebirds, marsh and water birds. PTI NWR consists of 3,502 acres that includes the 3,276-acre FUDS

and Cow Island, which is not part of the former range. Limited wildlife dependent public use opportunities are available on Cow Island, but are within the jurisdiction of USFWS and are therefore not included in this document. There are multiple duck blinds for duck hunters on the peripheral waters of the former range within 100 yards from mean high tide. These duck blinds are located within the waters of the State, and thus are managed by the Commonwealth of Virginia. Currently, the PTI Range is an unstaffed refuge administered by the Eastern Virginia Rivers NWR Complex located in Warsaw, Virginia (USFWS, 2007). USFWS patrols and conducts biological studies in the area to provide wildlife protection and public safety to the refuge. Langley AFB requested a permit to reserve the right to utilize the area as an emergency jettison area for pilots, and for ordnance disposal operations (USACE, 1996). Langley AFB has reportedly never used the property for jettison or disposal of ordnance other than JATO bottles.

2.7 SUMMARY OF SITE RISKS

The results of the RI at the PTI Range were used to evaluate potential risk associated with MEC and MC. A MEC Hazard Assessment (MEC HA), a human health risk assessment (HHRA) for MC, and an ecological risk assessment were all performed and are discussed in the following sections.

2.7.1 MEC Hazard Assessment

The hazard posed by the presence of MEC was assessed via the MEC HA methodology, which evaluates the potential explosive hazard associated with MEC under various site conditions and land-use assumptions. It provides a numerical score from 1 to 4, with 1 posing the greatest hazard and 4 posing the least hazard. The score is a relative number that does not determine when remedial action is needed or what type of action is needed. It is a tool used by the DoD and USEPA to prioritize which sites are more hazardous. The MEC HA methodology is intended for land areas, not water areas. The scores derived for the land MRSs at PTI Range are shown below in **Table 3**.

It is USACE's determination that the response action identified in this DD is necessary to protect public health and welfare from MEC at the site.

Table 3
Summary of MEC Hazard Assessment

MRS	Score
Southeast Target Area	1 (highest potential explosive hazard condition)
Central Target Area	1 (highest potential explosive hazard condition)
Northern Bomb Cluster	1 (highest potential explosive hazard condition)
Refuge Land Buffer	3 (moderate potential explosive hazard condition)
Non-Refuge Land Buffer	3 (moderate potential explosive hazard condition)

2.7.2 Human Health Risk Assessment

The Human Health Risk Assessment (HHRA) evaluated the probability and magnitude of potential adverse effects on human health associated with exposure to site-related chemicals in sediment and surface water at PTI Range. Under current land-use conditions, refuge worker, adult trespasser, and adolescent trespasser exposures to surface sediment and surface water were evaluated. Under future land-use conditions, refuge worker, adult recreational visitor, and adolescent recreational visitor exposures to total sediment and surface water were evaluated. As summarized in **Table 4**, all cumulative lifetime cancer risks were within or below USEPA's acceptable risk range. Arsenic was a primary risk driver but was determined to be within the range of background concentrations. Likewise, the cumulative hazard index for all receptors were below the acceptable threshold limit of 1.

Table 4
Summary of Risks and Hazards - Human Health Risk Assessment

Receptor	Cumulative Cancer Risk	Cumulative Noncancer Hazard
Refuge Worker	$2x10^{-6}$	0.009
Adult Trespasser	$2x10^{-7}$	0.002
Adolescent Trespasser	$1x10^{-7}$	0.002
Adult Recreational Visitor	$4x10^{-6}$	0.02
Adolescent Recreational Visitor	$2x10^{-6}$	0.03

It is USACE's determination that there is no current or future human health risk posed by MC in surface water or sediment at the PTI Range. Therefore, no additional measures are necessary to protect human health based on MC.

2.7.3 Ecological Risk Assessment

A Screening Level Ecological Risk Assessment (SLERA) was performed to determine if unacceptable adverse risks are present or may accrue to ecological receptors as a result of MC. The SLERA food chain assessment suggests potential adverse impacts to wildlife, especially Wilson's plovers, seaside sparrows, least terns, short-tailed shrews, muskrats, and mink for modeled contact with the hazard drivers arsenic, copper, lead, mercury, selenium, and zinc. While background statistical evaluations showed that, on the average, these metals were not elevated above background, some sediment samples from bomb craters contained arsenic, copper, lead, and selenium in concentrations greater than what is expected for the site due to natural background variation.

Based on this finding and the concern that wading birds may preferentially use bomb craters for foraging, a more detailed study called a Focused Baseline Ecological Risk Assessment (FBERA) was conducted. The FBERA measured key metal concentrations in avian prey tissue (mummichog, grass shrimp, and/or blue crab), and these data were used in a revised food chain assessment for avian wildlife. Additional sediment samples and aquatic prey samples were also collected from bomb craters, some of which were previously sampled, and the sediment was found to be elevated in metals. However, the aquatic

prey collected from bomb craters were found to have similar copper concentrations compared to prey in ponds from areas of the site not used for bombing.

The additional data showed no potential risk to wading birds that feed on invertebrates from bomb craters with elevated levels of copper in sediment. USACE concluded that the elevated metals does not cause unacceptable ecological risk to birds feeding upon prey in bomb craters.

It is USACE's determination that there is no unacceptable ecological hazard posed by elevated metal concentrations from copper in bomb crater sediments in the Southeast Target Area MRS. Therefore, no additional measures are necessary to protect ecological receptors.

2.8 REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) consist of goals for protecting human health and the environment and can be achieved by reducing exposure, as well as removing the contaminant. RAOs drive the formulation and development of response actions.

The development of RAOs is driven by MEC that poses a risk to human health at the eight MRSs. The RAOs were developed as follows:

- To reduce the unacceptable risk due to presence of MEC (50 lb. – 2,000 lb. bombs; flares) within the boundary of the eight MRSs to address 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.

2.9 DESCRIPTION OF ALTERNATIVES

Remedial alternatives for MEC and MC were addressed in separate FSs, and are summarized below. Separate alternatives were also developed for MEC on land and MEC in water.

2.9.1 Munitions and Explosives of Concern on Land-Based MRSs

In the MEC FS, five remedial alternatives were developed to address MEC hazards in land-based MRSs:

- Land Alternative 1 – No Action
- Land Alternative 2 – Institutional Controls
- Land Alternative 3 – Surface MEC Removal and ICs
- Land Alternative 4 – Subsurface MEC Removal to 2 Feet and ICs
- Land Alternative 5 – Shoreline Surface MEC Removal and ICs
- Land Alternative 6 – Shoreline Subsurface MEC Removal and ICs

The five MEC alternatives for land-based MRSs are summarized in the following paragraphs, along with estimated capital, LTM over 30 years[1], and total costs. Future costs for LTM are expressed as present worth, reflecting the amount of money that would need to be invested today to fund the alternative for its duration with a 5 percent fixed discount rate.

Land Alternative 1 – No Action

The No Action alternative assumes no remedial action would be taken to address MEC hazards and is included for reference as a baseline alternative. There are no costs associated with this alternative.

1 A 30-year timeframe was used in accordance with the *Defense Environmental Restoration Program Manual* (DOD, 2012) for comparative analysis of the remedial alternatives. The 30-year timeframe is not intended to signify the end USACE responsibility for MEC hazards. Further information on the 30-year calculations is provided in the Revised Final Feasibility Study (USACE 2016).

Land Alternative 2 – Institutional Controls

This alternative includes no active remediation of the site. Rather it focuses on reducing human exposure to MEC by managing the activities occurring at the site. The ICs alternative includes access and land-use restrictions, construction support requirements, signage and public education, and long-term monitoring. The ICs that will be implemented vary based on the MRS. The ICs that will be implemented on USFWS land are further discussed on page 9 of the Proposed Plan as is USFWS agreement to maintain those ICs. The ICs that will be implemented on privately-owned land consist entirely of a letter to be written by USACE that would include information about what we have found at the site, make reference to this Decision Document, and remind the landowners to exercise the 3Rs of munitions safety if they believe they may come across something. Estimated costs are as follows:

MRS	Capital	LTM	Total
Northern Bomb Cluster	$21K	$54K	$75K
Central Target Area	$23K	$67K	$90K
Southeast Target Area	$30K	$120K	$150K
Refuge Land Buffer	$117K	$915K	$1.0M
Non-Refuge Land Buffer	$81K	$757K	$838K

Land Alternative 3 – Surface MEC Removal and ICs

This alternative includes the systematic search and removal of all MEC that is exposed at the surface, using visual or geophysical detection methods. Since surface MEC is far more accessible than MEC in the subsurface, it is a cost-effective way to achieve significant hazard reduction. This alternative includes ICs to protect the public from residual risks given the current and reasonably anticipated future land use. Estimated costs are as follows:

MRS	Capital	LTM	Total
Northern Bomb Cluster	$474K	$723K	$1.2M
Central Target Area	$896K	$723K	$1.6M
Southeast Target Area	$9.1M	$0.9M	$10M
Refuge Land Buffer	$12.7M	$98K	$12.8M
Non-Refuge Land Buffer	$550K	$56K	$606K

Land Alternative 4 – Subsurface MEC Removal to 2 Feet and ICs

This alternative includes the systematic search and removal of all MEC that is on the surface and within 2 ft of the surface using visual and geophysical detection methods. This alternative provides the maximum amount of MEC removed of all alternatives. It does not remove MEC deeper than 2 ft due to the excessive cost and harm to the sensitive environment that would occur from the necessary equipment. With MEC remaining at the site, this alternative would include ICs to protect the public from unacceptable residual risk at the site. Estimated costs are as follows:

MRS	Capital	LTM	Total
Northern Bomb Cluster	$629K	$713K	$1.3M
Central Target Area	$1.3M	$713K	$2.0M
Southeast Target Area	$21.7M	$447K	$22.1M
Refuge Land Buffer	$19.5M	$45K	$19.6M
Non-Refuge Land Buffer	$721K	$51K	$772K

Land Alternative 5 – Shoreline Surface MEC Removal and ICs

This alternative includes the systematic search and removal of surface MEC along the shoreline only. This would include all land from the mean low water to dune (where present) and 20-feet into marsh (where dune is not present). No MEC removal would be performed within the interior of the salt marsh itself. This alternative is only applicable to the Southeast Target Area, Refuge Land Buffer, and Non-Refuge Land Buffer MRS. The Northern Bomb Cluster and Central Target Area MRSs include no shoreline. Estimated costs are as follows:

MRS	Capital	LTM	Total
Southeast Target Area	$661K	$1.6M	$2.3M
Refuge Land Buffer	$1.2M	$56K	$1.2M
Non-Refuge Land Buffer	$265K	$56K	$321K

Land Alternative 6 – Shoreline Subsurface MEC Removal and ICs

This alternative includes the systematic search and removal of all MEC within 2 ft of the land surface, from only the shoreline, which represents the most accessible portion of the property. Similar to Land Alternative 5, the shoreline is defined as all land from the mean low water to dune (where present) and 20-feet into marsh (where dune is not present). No MEC removal would be performed within the interior of the salt marsh itself. This alternative is not applicable to the Northern Bomb Cluster and Central Target Area MRSs because they are located inland with no shoreline. Since MEC will remain at the site, this alternative will include ICs to protect the public from residual risk. Estimated costs are asfollows:

MRS	Capital	LTM	Total
Southeast Target Area	$2.8M	$496K	$3.3M
Refuge Land Buffer	$2.6M	$56K	$2.6M
Non-Refuge Land Buffer	$447K	$56K	$503K

2.9.2 Munitions and Explosives of Concern in Water-Based MRSs

In the MEC FS, three remedial alternatives were developed to address MEC hazards in water-based MRSs:

- Water Alternative 1 – No Action
- Water Alternative 2 – Institutional Controls
- Water Alternative 3 – Substrate MEC Removal and ICs
- Water Alternative 4 – Exposed MEC Removal and ICs

The four MEC alternatives for water-based MRSs are summarized in the following paragraphs, along with estimated capital, O&M over 30 years, and total costs. Future costs for O&M are expressed as present worth with a 5 percent fixed discount rate.

Water Alternative 1 – No Action

The No Action alternative assumes no remedial action would be taken to address MEC hazards and is included for reference as a baseline alternative. There are no costs associated with this alternative.

Water Alternative 2 – Institutional Controls

This alternative includes no active remediation. Rather it focuses on reducing human exposure to MEC by managing the activities occurring at the site. The ICs alternative includes access and use restrictions, construction support requirements, signage and public education, and long-term monitoring. The ICs that will be implemented in the water-based MRSs are further discussed on pages 11-12 of the Proposed Plan and the agreement of the Virginia Marine Resources Commission (VMRC) to maintain and enforce the access restrictions is in their e-mail dated September 11, 2019 (attached to this Decision document). Estimated costs are as follows:

MRS	Capital	O&M	Total
Low Probability FUDS Water Buffer	$58K	$774K	$832K
High Probability Shallow Water Buffer	$34K	$108K	$142K
High Probability Deep Water Buffer	$13K	$105K	$118K

Water Alternative 3 – Substrate MEC Removal and ICs

This alternative includes the systematic search and removal of all underwater MEC using visual or geophysical detection methods. This alternative does not remove all MEC and will includes IC to protect the public from residual risk remaining in the water. Estimated costs are as follows:

MRS	Capital	O&M	Total
Low Probability FUDS Water Buffer	$5.6M	$50K	$5.6M
High Probability Shallow Water Buffer	$14M	$50K	$14M
High Probability Deep Water Buffer	$36M	$45K	$36M

Water Alternative 4 – Exposed MEC Removal and ICs

This alternative, evaluated in MEC FS Addendum 1, includes the systematic search and removal of DoD military munitions exposed on the substrate relying primarily on visual detection technology. This alternative reduces risk but will not prevent users from interacting with DoD military munitions that may remain in the water; therefore, it includes ICs to protect human health from MEC that may remain present in the water. Estimated costs are as follows:

MRS	Capital	O&M	Total
Low Probability FUDS Water Buffer	$3.6M	$98K	$3.7M
High Probability Shallow Water Buffer	$6.1M	$1.2K	$7.3M
High Probability Deep Water Buffer	$3.7M	$9.0M	$10.7M

2.9.3 Munitions Constituents

In the MC FS, three remedial alternatives were developed to address MC hazards 1) No action; 2) Monitored Natural Recovery; and 3) Crater Backfill.

Based on the findings in the RI, a FBERA was completed that measured key metal concentrations in avian prey tissue (mummichog, grass shrimp, and/or blue crab). This data was used in a revised food chain assessment for avian wildlife. Additional sediment samples were also collected from bomb craters, some of which were previously sampled and found to be elevated in metals. However, the aquatic prey collected from bomb craters were found to have similar copper concentrations compared to prey in ponds from areas of the site not used for bombing.

USACE concluded that the MC does not cause unacceptable ecological risk to birds feeding upon prey in bomb craters.

It is USACE's determination that there is no unacceptable ecological hazard posed by elevated MC in sediment from bomb craters in the Southeast Target Area MRS. Therefore, no additional measures are necessary to protect ecological receptors based on MC.

2.10 COMPARATIVE ANALYSIS OF ALTERNATIVES

Section 300.430(e) of the NCP lists nine CERCLA criteria against which each remedial alternative must be assessed. The NCP [Section 300.430(f)] states that the first two criteria, protection of human health and the environment and compliance with ARARs, are "threshold criteria" which must be met by the selected remedial action unless a waiver is granted under Section 121(d)(4) of CERCLA. The next five criteria are "primary balancing criteria," and the trade-offs within this group must be balanced. The Selected Remedy will be the alternative that is protective of human health and the environment, is ARAR-compliant, and provides the best combination of primary balancing attributes. The detailed criteria are as follows:

Threshold Criteria:

Overall Protection of Human Health and the Environment – The selected remedy must meet this threshold criterion. The threshold criterion will be met if the risks associated with the human exposures are eliminated, reduced, or controlled through treatment, engineering, or ICs, and if the remedial action is protective of the environment.

Compliance with ARARs – Compliance with ARARs is a threshold criterion that must be met by the proposed remedial action. The remedial alternative will meet this criterion if all chemical-specific, action-specific, and location-specific ARARs are met by the alternative.

Balancing Criteria:

Long-Term Effectiveness and Permanence – This evaluation criterion assesses the ability of an alternative to maintain reliable protection of human health and the environment over time, once remedial action goals have been met. The magnitude of residual risk, and the adequacy and reliability of controls, are addressed for each alternative.

Reduction of Toxicity, Mobility, or Volume through Treatment – The statutory preference for remedial technologies that significantly and permanently reduce the toxicity, mobility, or volume of the waste is addressed by this criterion. The following factors are considered:

- The amount of hazardous materials that will be destroyed or treated;
- The degree of expected reduction in toxicity, mobility, or volume;
- The degree to which the treatment will be irreversible; and
- The type and quantity of treatment residuals that will remain following treatment.

Short-Term Effectiveness – The effects of the remedial alternative from the beginning of construction, and implementation to the completion of the remedial alternative, are addressed under this criterion. The following factors are considered.

- Protection of the community during the remedial action, such as protection from intentional and unintentional detonations, transportation of contaminated materials, and air-quality impacts from on-site disposal or treatment;
- Protection of workers during the remedial action;
- Environmental impacts of the remedial action; and
- Time required to achieve remedial response objectives.

Implementability – The technical and administrative feasibility of implementing the remedial action will be addressed. Technical feasibility refers to the ability to construct, reliably operate, and meet technology-specific regulations for process options until a remedial action is complete; it also includes operation, maintenance, replacement, and monitoring of technical components of an alternative, if required, into the future after the remedial action is complete. Administrative feasibility refers to the ability to obtain approvals from other offices and agencies, the availability of treatment, storage and disposal services, and capacity, and the requirements for, and availability of, specific equipment and technical specialists.

Cost – Includes estimated capital and annual O&M costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of plus 50 to minus 30 percent.

Modifying Criteria:

State Acceptance – Acceptability from State representatives based on formal comments on the Proposed Plan or other input, as documented in the Responsiveness Summary.

Community Acceptance – Acceptability from the community based on formal comments on the Proposed Plan or other input, as documented in the Responsiveness Summary.

2.10.1 Overall Protectiveness of Human Health and the Environment

For MEC, ***Alternative 1 (No Action)*** is not protective of human health and the environment at any of the MRSs, and therefore does not meet this threshold criterion. All the other alternatives are protective because they include ICs to prevent human exposure to MEC.

2.10.2 Compliance with ARARs

For MEC, USACE did not identify ARARs for either Land and Water **Alternative 1 (No Action)** or **Alternative 2 (ICs).**

ARARs for the other alternatives are:

- Endangered Species Act 16 USC § 1538(a)
- Wetlands – 33 USC 1311(a), prohibition on discharges except when complying with 1344 in accordance with 40 CFR 230.41
- Migratory Bird Treaty Act – 16 USC 703(a)

The alternatives that include the surface removal of DoD military munitions can be executed in compliance with ARARs.

The alternatives that include the removal of DoD military munitions on land from the subsurface will need to comply with the substantive requirements of regulations to protect wetlands and other natural resources. The threatened northeastern beach tiger beetle is present in the beaches of the Southeast Target Area, so any remedial action would need to consider the habitat of this species. USFWS rendered a biological opinion in 2009 to assess the effects of RI activities on the federally-listed threatened northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*). On September 27, 2016, USFWS informed USACE of six requirements that must be met to protect the tiger beetle during remedial actions.

1. A time-of-year restriction on proposed project: no work in the beach or intertidal zones zone from May 15 to October 1. Work in marsh habitat will not be restricted (note that USFWS has marsh restrictions from May 15 to October 1 to protect species other than the tiger beetle).
2. Conduct a survey for larvae during late September or early October. Beach and intertidal work must be executed within 6 months of the completed larval survey.
3. Based on results of larval survey, avoid sand removal or detonation of MEC in areas where larval presence is identified. If DoD military munitions are encountered, actions to neutralize the munitions in place that would not require the removal of sand or result in blasting impacts to larvae would be acceptable.
4. No substrate removal in intertidal zone in areas where larval presence is identified.
5. Use only lightweight mechanized carts or vehicles, such as all-terrain vehicles or golf carts, for travel in areas where larval presence is identified. Vehicles used must weigh less than 1,500 lbs. Mechanized carts or vehicles must be 4-wheel drive, equipped with wide tires, and used only as needed. However, they will not be driven more than once per week in the same track (note that USFWS would like to revise the 1,500-lb weight limit and replace it with a ground pressure limit).
6. Avoid landing boats in areas identified as larval habitat.

These requirements render alternatives requiring subsurface removal of DoD military munitions out of compliance with ARARs if beetle larvae are present. Whether larvae are present would need to be assessed by survey immediately prior to performing a removal. The portions of the beaches most likely to host beetle larvae are the southeastern shoreline adjacent to Back River in the Southeast Target Area MRS

and Refuge Land Buffer MRS. Both ***Land Alternative 4 (Subsurface MEC Removal to 2 feet)*** and ***Land Alternative 6 (Shoreline Subsurface MEC Removal)*** include significant intrusive activity on the beaches. These activities cannot be performed in areas where tiger beetle larvae are present. To maintain compliance with ARARs, removal actions would not be conducted in areas where larvae are present. As such, these alternatives could only be partially implemented.

In addition, under the Migratory Bird Treaty Act, USFWS has restricted certain activities to occur outside the nesting seasons for migratory birds. Remedial alternatives involving the removal of DoD military munitions will only be performed outside of the nesting season to comply with this restriction. The land MRSs are primarily salt marsh, which is a fragile environment where vegetation plays an important role in holding the marsh together. The land use for the salt marsh is wildlife refuge that provides haven for waterfowl, marsh-birds, and shorebirds.

2.10.3 Long-Term Effectiveness and Permanence

For MEC, **Alternative 1 (No Action)** does not provide long-term effectiveness and permanence.

Land and Water Alternative 2 (ICs) do not include the removal of DoD military munitions, so its effectiveness and permanence depends on the implementation and adequacy of ICs. For the government-owned MRSs, the likelihood of ICs remaining effective in the long term is better than for the privately-owned Non-Refuge Land Buffer MRS. Cooperation of the property owner to implement restrictions may not be reliable on private property. However, the other element of the ICs alternative (notification and implementation of a 3Rs Program that government agencies would perform would be reliable. Alternative 2's sole reliance on ICs is considered less effective and permanent than the alternatives that remove DoD military munitions.

Land Alternative 3 (Surface MEC Removal), Land Alternative 5 (Shoreline Surface MEC Removal), and **Water Alternative 4 (Exposed MEC Removal)** include removal of DoD military munitions on the surface. Therefore, these alternatives are considered to have lower effectiveness and permanence than alternatives that include the subsurface removal of DoD military munitions. This is because natural phenomena (e.g., erosion, movement of sediment), which can be significant on and near the shoreline, could expose DoD military munitions to the surface during storms.

Land Alternative 4 (Subsurface MEC Removal to 2 feet) and **Land Alternative 6 (Shoreline Subsurface MEC Removal)** both include removal of subsurface DoD military munitions along the shoreline, which is the primary location where the public could encounter munitions. For the water MRSs, the same logic applies.

Water Alternative 3 (Substrate MEC Removal) removes more DoD military munitions than the other water alternatives; therefore, it has the best long-term effectiveness and permanence.

2.10.4 Reduction of Toxicity, Mobility, and Volume through Treatment

For MEC, ***Alternative 1 (No Action)*** and ***Alternative 2 (ICs)*** do not provide any reduction of toxicity, mobility, or volume.

Land Alternative 3 (Surface MEC Removal), ***Land Alternative 5 (Shoreline Surface MEC Removal)*** and ***Water Alternative 4 (Exposed MEC Removal)*** provide some reduction in the quantity of DoD military munitions potentially present; however, the majority munitions are expected to be in the subsurface. Therefore, these alternatives will remove only a portion of the DoD military munitions from the site.

Land Alternative 5 (Shoreline Surface MEC Removal) and ***Land Alternative 6 (Shoreline Subsurface MEC Removal)*** focus on just the shoreline, so the anticipated number of munition recovered is relatively low.

The alternatives that provide the greatest reduction of MEC that may be present are ***Land Alternative 4 (Subsurface MEC Removal to 2 feet)*** and ***Water Alternative 3 (Substrate MEC Removal)***.

2.10.5 Short-Term Effectiveness

For MEC, alternatives that include MEC removal pose some risk to workers during cleanup, although these risks are minimized through adherence to approved safety procedures. The real differentiator among the land alternatives is associated with potential damage to the sensitive salt marsh environment. ***Land Alternative 3 (Surface MEC Removal)*** will include personnel and equipment traversing the entire MRS to search for surface MEC, which will pose some damage to vegetation and potential damage to the threatened tiger beetle habitat along the shoreline of the Southeast Target Area. The impacts to the marsh

are even greater for ***Land Alternative 4 (Subsurface MEC Removal)*** because more time and effort is spent excavating items in the subsurface. ***Land Alternative 5 (Shoreline Surface MEC Removal)*** and ***Land Alternative 6 (Shoreline Subsurface MEC Removal)*** do not affect the interior of the salt marsh; however, they include activities in threatened tiger beetle habitat. ***Water Alternative 3 (Substrate MEC Removal)*** would pose short-term impacts to watermen who would be restricted from the area when operations are in progress. Similarly, ***Water Alternative 4 (Exposed MEC Removal)*** would pose short-term impacts, but to a lesser degree and for a shorter duration.

2.10.6 Implementability

For MEC, each of the alternatives is technically feasible to implement. However, working within the salt marsh, which would need to be performed from November through February outside of the migration and breeding seasons, poses serious access and transport challenges. Removal of DoD military munitions from the subsurface of the marsh and from the deeper water areas also poses significant logistical challenges and, depending on the depth, could cause significant damage to the environment that is counter to the USFWS goals.

2.10.7 Cost

The total present worth by MRS for each MEC alternative is summarized below in **Table 5**.

For the Land Alternatives, the No Action and Institutional Controls alternatives are clearly the lowest costs. For the Northern Bomb Cluster MRS, the amount of area is small enough that costs for Alternatives 3 and 4 are very similar. The Central Target Area MRS is a larger MRS, so there is more separation in cost between Alternatives 3 and 4. Alternatives 5 and 6 provide a clear mid option because the removal of DoD military munitions is targeted to the shoreline where munitions are most likely to be encountered.

For the Water Alternatives, the No Action and ICs alternatives are clearly the lowest costs, with Alternative 3 significantly higher. Alternative 4 provides a more cost-effective option because the removal of DoD military munitions is limited to munitions that are visible on the substrate; therefore, this alternative significantly limits expensive diving operations and intrusion into the substrate.

Table 5
Summary of Costs

LAND ALTERNATIVE	Northern Bomb Cluster	Central Target Area	Southeast Target Area	Refuge Land Buffer	Non-Refuge Land Buffer
Munitions and Explosives of Concern					
1 No Action	$0	$0	$0	$0	$0
2 ICs	$75K	$90K	$150K	$1.0M	$838K
3 Surface MEC Removal and ICs	$1.2M	$1.6M	$10M	$13M	$606K
4 Subsurface MEC Removal to 2 Feet and ICs	$1.3M	$2.0M	$22M	$20M	$772K
5 Shoreline Surface MEC Removal and ICs	--	--	$2.3M	$1.2M	$321K
6 Shoreline Subsurface MEC Removal and ICs	--	--	$3.3M	$2.6M	$503K

WATER ALTERNATIVE	Low Probability FUDS Water Buffer	High Probability Shallow Water Buffer	High Probability Deep Water Buffer
Munitions and Explosives of Concern			
1 No Action	$0	$0	$0
2 ICs	$832K	$142K	$118K
3 Surface MEC Removal and ICs	$5.6M	$14M	$36M
4 Exposed MEC Removal and ICs	$3.7M	$7.3M	$10.7M

2.10.8 State Acceptance

The VDEQ (on behalf of the Commonwealth of Virginia) agrees with the selected remedies. Virginia's formal agreement with the selected remedy is contained in the PTI FUDS AR.

2.10.9 Community Acceptance

Comments were received from 12 individuals (7 were City of Poquoson Officials, five were local citizens), yet few comments related specifically to the MRSs. Most of the comments fell outside of the scope of the document. The City of Poquoson official's comments focused largely on the request for recreational use. Comments from local citizens ranged widely, from support for conservation management to an inquiry into the purpose and cost of the USACE's proposed action. Comments received during the public comment period are documented in the Responsiveness Summary (Section 3, below) and are in included in the AR.

2.11 PRINCIPAL THREAT WASTES

Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained. There are no principal threat wastes at PTI Range.

2.12 SELECTED REMEDY

2.12.1 Munitions and Explosives of Concern

For the ***Northern Bomb Cluster*** and ***Central Target Area***, the Preferred Alternative is ***Land Alternative 3 – Surface MEC Removal and ICs***. This alternative is protective of human health and the environment and can be implemented in a manner that complies with ARARs. These MRSs are known target areas and USACE has confirmed that MEC are present. These MRSs are both relatively small in size (5.4 and 37.7 acres, respectively), so the proposed actions could be performed at relatively low cost ($1.2M and $1.6M, respectively) and with relatively little disruption to the environment. The length of time to complete the remedy for these alternatives is short, because the areas are relatively small, so short-term risk to the public from the hazards associated with military munitions are not significant given the existing controls and remote nature of the PTI Range FUDS. This alternative provides long-term effectiveness because these MRSs are remote and difficult to access, so exposure is low. In addition, although these MRSs have a higher potential for the presence of DoD military munitions that may be MEC than surrounding buffer areas, the munitions are predominantly in the subsurface where access by humans is limited. This alternative can be implemented with little disruption to the subsurface because DoD military munitions will only be removed from the surface. This alternative also meets the statutory preference for reduction of volume through treatment. This alternative provides the most cost-effective risk reduction by removing surface DoD military munitions and leaving munitions in the subsurface. Both of these MRSs are located in the northern portion of the Wildlife Refuge that DoD did not use as heavily for live-fire training as it did the southern portion of the PTI Range FUDS. Performing a surface removal in these MRSs could allow for certain controlled surface activities, to be developed in the LUCIP, in the entire northern portion of the PTI. USFWS will be responsible for implementation of access and land-use restrictions.

For the ***Southeast Target Area*** MRS the Preferred Alternative is ***Land Alternative 5 – Shoreline Surface MEC Removal and ICs***. This alternative is protective of human health and the environment and can be implemented in a manner that complies with ARARs. The Southeast Target Area MRS is the primary area historically used for bombing activity, posing the greatest hazard due to (1) the high number of DoD military munitions potentially present; and (2) the shoreline that is relatively accessible. Although access to the property is already restricted by policy and warning signage, the shoreline is easily accessed by boat and trespassing is a concern. Due to the large size of the MRS (449 acres) and the sensitive marsh habitat, actions to perform removal action within the marsh would be cost prohibitive and difficult to implement without damage to the environment. Focusing removal on only DoD military munitions along the shoreline addresses the most accessible areas and provides a cost-effective approach to risk reduction. It also provides long-term protection to those that may access the shoreline by boat. Surface removal of DoD military munitions can also be implemented without damage to the salt marsh and tiger beetle habitat. Alternative 5 does not affect the interior of the salt marsh and does not include subsurface excavation, so the impact on the beetle population would be lower than for alternatives that include the subsurface removal of DoD military munitions. The total cost for this alternative is $2.3M. Access to the MRS would still be restricted because the dynamic environment may cause DoD military munitions below the surface to become exposed. Additionally, DoD military munitions present in the adjacent water MRSs could migrate to the shoreline during storm events. Access controls, which include existing signage that USACE would periodically assess. These restrictions can provide long-term effectiveness by limiting access to the area. This alternative also meets the statutory preference for reduction of volume through treatment.

For the ***Refuge Land Buffer MRS*** and the ***Non-Refuge Land Buffer MRS***, the Preferred Alternative is ***Land Alternative 2 – ICs***. These MRSs do not contain areas where DoD military munitions are likely to be concentrated. The majority of these MRSs are remote and difficult to access; therefore, ICs would be protective of human health and the environment. A small quantity of individual or clusters of DoD military munitions may be present. Given the remoteness and terrain, it is very unlikely a user might encounter MEC that may be present.

Implementation of a 3Rs Program to educate user of the action to take if they encounter a munition. The above conditions make the risk at these MRSs acceptable and achieve the RAO.

The large and remote nature of these MRSs and the sensitive marsh habitat makes removal actions cost prohibitive and difficult to implement without unacceptable damage to the environment. Given it is unlikely that DoD military munitions are present in significant numbers on the shoreline of these MRSs, alternatives that focus on the shoreline would not be cost-effective. The costs of the Preferred Alternative are $1.0M and $838K for the two MRSs, with no disruption to the environment. With adequate ICs in place, these MRSs could be used for controlled surface activity, as determined appropriate by the landowner. USACE would develop, with PTI Stakeholder collaboration, and implement a Land Use Control Implementation Plan to ensure that the proper ICs are in place. USFWS will be responsible for implementation of access and land-use restrictions on their property. Restrictions on private property would not be enforceable; however, there has not been development of the private properties and the presence of wetlands makes future development unlikely. Future use would most likely be restricted to surface recreational activities such as hunting, with potential limited subsurface disturbance. ICs for private properties would consist of written notification by DoD to the property owner that DoD used the adjacent wildlife refuge as a bombing range and there is a low potential for DoD military munitions to be present on the property. This would be in addition to the 3Rs Program that is part of each of the preferred alternatives for the PTI Range FUDS.

The ICs combined with the estimated low density of MEC and the remote nature of these areas makes ICs an effective and permanent alternative for these MRSs. This alternative does not meet the statutory preference for reduction of toxicity, mobility, or volume through treatment, but an alternative that did would not be cost-effective due to the low amount of DoD military munitions that may be present and could have detrimental impacts to the sensitive environment.

For the ***Low Probability FUDS Water Buffer MRS***, the Preferred Alternative is ***Water Alternative 2 – ICs***. Implementation of ICs under this alternative is protective of human health and the environment. This alternative provides long-term effectiveness because the MRS is controlled by the state (or, in intratidal areas, the USFWS), the likelihood of ICs being effective is high, and the MRS does not contain areas where DoD military munitions are concentrated as a result of historical live-fire training. While there is a potential for MEC to be present, the probability for encountering a DoD munitions within this MRS is deemed to be low. This alternative complies with ARARs and is straightforward to implement. The large area of this MRS (770 acres) and the difficulty in searching for and removing DoD military munitions from water areas makes active search and removal of munitions under Alternatives 3 and 4 more difficult to implement and cost prohibitive. The cost of the Preferred Alternative is $832K. With adequate ICs in place, the current activities occurring in this MRS (hunting, fishing, crabbing, and recreation) could continue. ICs would consist of notification of the historical use of the adjacent marsh for bombing activities and the potential for DoD military munitions to be present. This alternative does not meet the statutory preference for reduction of toxicity, mobility, or volume through treatment, but the only alternatives that would (Alternatives 3 and 4) are not cost effective at reducing risk because of the low probability for DoD military munitions to be present.

For the ***High Probability Shallow Water Buffer*** and ***High Probability Deep Water Buffer***, the Preferred Alternative is ***Water Alternative 4 – Exposed MEC Removal and ICs***. These MRSs are adjacent to the Southeast Target Area where most of the bombing targets were located, and contain a significant amount of metallic debris based on underwater geophysics data. While many of these metallic anomalies may be empty JATO rockets, there is a potential for MEC to be present. The large area of these MRSs (599 and 947 acres, respectively) and the difficulty in searching for and removing DoD military munitions from water areas, makes removal of munitions in these MRSs expensive and difficult to implement. Alternative 4, which only removes DoD military munitions exposed in the sediment, is significantly lower in cost compared to Alternative 3, which would search for and remove DoD military munitions buried up to 2 feet below ground surface (bgs) in the substrate. Removing buried DoD military munitions would increase the effectiveness and permanence, but the cost and short-term impacts would be higher and the degree of added risk reduction is uncertain, given the high proportion of items likely to be non-hazardous JATO rockets. Under this alternative, DoD military munitions are removed from the surface of the substrate. The probability for receptors encountering MEC buried in sediment is low, so ICs can be effective in minimizing residual risk. The total costs for this alternative in the two MRSs are $7.3M and $10.7M, respectively. ICs would still be needed. This alternative meets the statutory preference for reduction of volume through treatment.

2.12.2 Selected Remedy Summary

In summary, based on the requirements of CERCLA and the NCP, and on a detailed analysis of the response alternatives using the nine criteria, USACE has selected the following remedies for the eight MRSs:

MRS	Selected Remedy		Total Cost
Northern Bomb Cluster	Land Alternative 3	Surface MEC Removal and ICs	$1.2M
Central Target Area	Land Alternative 3	Surface MEC Removal and ICs	$1.6M
Southeast Target Area	Land Alternative 5	Shoreline Surface MEC Removal and ICs	$2.3M
Refuge Land Buffer	Land Alternative 2	ICs	$1.0M
Non-Refuge Land Buffer	Land Alternative 2	ICs	$838K
Low Probability FUDS Water Buffer	Water Alternative 2	ICs	$832K
High Probability Shallow Water Buffer	Water Alternative 4	Exposed MEC Removal and ICs	$7.3M
High Probability Deep Water Buffer	Water Alternative 4	Exposed MEC Removal and ICs	$10.7M

2.13 STATUTORY DETERMINATIONS

The Selected Remedies, as documented in this DD, are protective of human health and the environment, comply with Federal and State laws that are applicable or relevant and appropriate to the remedial action, are cost-effective, and utilize permanent solutions to the maximum extent practicable. The selected remedies satisfy the statutory requirements of CERCLA Section 121 and the NCP, as described in the following paragraphs.

2.13.1 Protection of Human Health and the Environment

The Selected Remedies would be protective of the environment through the removal of MEC and ICs to prevent human contact with MEC. Monitoring and recurring reviews would be performed to document that the controls and processes are effective. The Selected Remedies focus on effective risk reduction while minimizing impacts to the sensitive salt marsh environment.

2.13.2 Compliance with ARARs

The Selected Remedies comply with all ARARs.

2.13.3 Cost-Effectiveness

USACE has determined that the selected remedies meet the statutory requirement for a cost-effective remedy. In making this determination, USACE considered the requirements established in the NCP Section 300.430(f)(1)(ii)(D): A remedy shall be cost effective if its costs are proportional to its overall effectiveness. This was accomplished by evaluating the overall effectiveness of those alternatives that satisfied the threshold criteria (i.e., deciding whether they were protective of human health and the environment, as well as being ARAR-compliant). Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness). Overall effectiveness was then

compared to costs to determine effectiveness. The relationship of the overall effectiveness of the remedies were determined to be proportional to the costs, and thus, the Selected Remedies are cost-effective.

2.13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Possible

USACE has determined that the Selected Remedies represent the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the site. USACE has determined that of those alternatives that are protective of human health and the environment and comply with ARARs, the Selected Remedies provide the best balance of trade-offs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and bias against off-site treatment and disposal and considering State and community acceptance.

The most permanent solution to eliminate MEC hazards is the removal and disposal of MEC. Where MEC is potentially present and accessible to the public, and can be located and removed in a cost- effective way that does not harm the environment, a MEC removal remedy was selected. The less permanent ICs are relied on only where there is low probability of MEC or a significant cost or impact to the environment.

2.13.5 Preference for Treatment as a Principal Element

By physically locating, removing and disposing of MEC, the Selected Remedies for the Northern Bomb Cluster, Central Target Area, Southeast Target Area, Non-Refuge Land Buffer, High Probability Shallow Water Buffer, and High Probability Deep Water Buffer satisfy the statutory preference for treatment as a principal element of the remedy. The Selected Remedies for the Refuge Land Buffer and Low Probability FUDS Water Buffer utilize only ICs and do not satisfy this preference for treatment because the anticipated low probability for MEC to be present make searching for and removing MEC cost prohibitive and destructive to the environment while providing only minimal hazard reduction.

2.13.6 Five-Year Review Requirements

Because these remedies will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedies remain protective of human health and the environment.

2.14 DOCUMENTATION OF SIGNIFICANT CHANGES

USACE released the Proposed Plan for public comment from July 9, 2018 to August 17, 2018. The Proposed Plan identified the Selected Remedies as Preferred Alternatives. Several verbal comments were made at the public meeting and are discussed further in the Responsiveness Summary. No written comments were received during the meetings. It was determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary or appropriate.

3.0 RESPONSIVENESS SUMMARY

The public comment period for the Proposed Plan extended from July 9, 2018 through August 17, 2018. A letter was received from the Mayor of Poquoson and Ms. Nancy Brooks emailed a comment during this time. Both are attached to this Responsiveness Summary. Verbal comments were received from attendees during the public meeting held at the Poquoson City Council Chamber, 500 City Hall Avenue, Poquoson, Virginia. The public meeting transcripts are provided in **Attachment A** of this DD, and the letters and emails received are included in **Attachment B**. Comments received are presented in this section.

3.1 SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES

No site-specific verbal comments were received during the public meeting. The transcript from the meeting was incorporated into the AR.

3.1.1 Oral Comments from 2:30 Public Meeting

Buddy Green: Asked if the property owners could say what the intended use of the property was.

> Bill Crouch (USFWS) indicated that the USFWS portion of the site would be managed in the future as a wildlife refuge. USFWS presented the draft Comprehensive Plan about a year and a half ago. The draft plan is to open some land to the public outside of FUDS boundary/Cow Island which includes a beach area.

Buddy Green: Will the remediation allow for site use of some of the property?

> George Follett (USACE Project Manager (PM)) responded that the Federal Government will spend $13M to reduce risk, but the actions will not eliminate all risk, therefore Institutional Controls to restrict access will still be needed.

Jim Bates (Yorktown): Why are you doing this clean up? Are there any records of people being hurt from munitions? Why do anything? Who's exposed to the risk? The “purple area” is a good location for fishing. Why do all this for $13 million if people won’t be able to go there? I just don’t understand the reason for going through his exercise if in fact we still can’t go out there if it’s a problem.

> George Follett (USACE (PM) responded by thanking Mr Bates for his comment and adding it to the public record.
>
> This clean-up is being done to reduce risk to human and ecological receptors from MEC. Anyone accessing the site is potentially at risk. The Federal Government will spend $13M to reduce risk, but the actions will not eliminate all risk, therefore Institutional Controls to restrict access will still be needed.

Ellen Roberts (City of Poquoson Engineer): How was the low probably vs the high probability and the “no probability” determined? Is there an equal risk across all low probability areas? Would Institutional Controls go into Back River and how will this impact dredging?

> Emily Justice (APTIM) explained how the Remedial Investigation was able to come up with densities for each of these areas. There’s still a risk in all low probability areas.
>
> George Follett (USACE) mentioned the “no probability area” is outside of the FUDS boundary, and explained the survey that was done for the water munitions sites.
>
> George Follett (USACE PM) also said that dredging operations are minimally impacted by MEC risks due to coordination with Norfolk District USACE. The smallest size MEC expected 5-inch rockets. So, a 4-inch screen on dredge or smaller would be specified.

Ellen Roberts (City of Poquoson Engineer) asked about expenditures, and implementing the Institutional Controls.

> George Follett (USACE PM) explained the budget and that the Decision Document authorizes funds to be expended, including a Land Use Control Plan.

Martin Caldwell (Yorktown) asked if removal was planned for the “purple area” (Low Probability Water Buffer) it is a wonderful incubator for marine wildlife.

George Follett (USACE PM) indicated no removal was planned unless something was found in the future.

Jim Bates (Yorktown) asked about plans to dredge in the "blue area" in the future (High Probability Shallow Water Buffer.) He also asked about restrictions in the Black River.

George Follett (USACE PM) responded that there are no plans for dredging as part of the remedial action. The description of how dredging could be conducted was just a response to Ms. Roberts question. And yes, there would be restrictions in part of the river.

Randy Wheeler (City of Poquoson, Manager) --Any low probability beach access any time soon? What about weather/erosion exposing MEC later after USACE surface-clearing work completed?

George Follett (USACE PM) answered that the Proposed Plan addresses existing conditions, that a five-year review plan/report is part of the work and that every five years or after every significant event that a "find" is made, the USACE will provide identification from Navy.

Buddy Green (City of Poquoson Council) reiterated the City's concern with lack of access to a beach area.

Emily Justice (APTIM) thanked Mr. Green for his comment. USACE's scope is limited to the environmental munitions response. USFWS is responsible for issues related to future access to the site.

No additional questions or comments were received from the audience. Several side discussions occurred after the end of the formal meeting.

3.1.2 Oral Comments from 6:30 Public Meeting

Vic Wieszek: So in summary you will do surface sweeps and Institutional Controls. How often would there be a review to see if erosion exposed new items?

Emily Justice (APTIM): Yes, there will be surface sweeps in the target areas and all MRS will receive ICs.

George Follett (USACE PM): We will rely on the property owner to keep an eye on the shoreline. Then during our five-year reviews, if there were significant finds another clearance may be warranted.

Tom Powers (fisherman, on VMRC and NOAA committees of the public): When are we going to be able to use the area? Your Institutional Controls keep one from even being able to come out of the Back River and I can't even wade-fish in any of the purple area anymore! VMRC and USACE are not consistent with their restrictions.

George Follett (USACE PM) said USACE has no jurisdiction in the water but USACE will work with VMRC to come up with recommendations.

David Hux (City of Poquoson Council): Public access to Cow Island is most important to us. Since not really used as a range, public should be allowed to access at least "part" of the island.

Bill Crouch (USFWS) said their draft Comprehensive Conservation Plan (CCP) proposed opening some of Cow Island which is outside the FUDs area to the public, but that the draft from more than a year ago is still in progress.

Thomas Cannella (City of Poquoson Council): Accessibility and use of duck blinds are important to him and other duck hunters. The area of interest is in Lloyd Bay near Cow Island. Asked about accessibility in low probability areas. Is there zero chance the low probably areas will be opened to thepublic.

Emily Justice (APTIM): It's a dynamic environment; things could become exposed...so we need to keep Institutional Controls on these areas in order to be protective. The proposed plan outlines a cost associated with a complete subsurface removal and details why a complete subsurface removal isn't feasible.

Tom Powers- So what's the point of spending 4.6 million dollars for the land portion of the cleanup if the public, who's paying for it, is never going to get to use it.

George Follett (USACE PM): It's a two-part answer. First, there is a potential risk. Second, is USFWS is the landowner and they have restricted access as a wildlife refuge.

Tom Powers- You're supposed to be able to observe wildlife on wildlife refuges, why can't we at least use the marsh areas.

George Follett (USACE PM): VMRC controls the waterways, and USACE will work with them on recommendations.

Vic Wieszek: Is there an MEC HA? What's the score? How do you determine risk in the water?

Sue Tituskin (APTIM): MEC HA score in the target areas is 1, which is the highest risk

George Follett (USACE PM): Water risk was determined based on mapping conducted during the RI. The results of mapping in the water area were consistent with the target areas identified on land.

Graham Wilson (Assistant City Manager) inquired about funding. Does it need to go through Congress?

George Follett (USACE PM) responded that when USACE Headquarters signs the Decision Document, and then can authorize expenditures. USACE total budget is subject to Congress funding. PTI is high on the priority list for USACE.

David Hux (City of Poquoson Council): Indicated that there is a concern about the erosion of Plum Tree Island. So we are interested in any action that might be taken to prevent erosion and make sure that buffer stays in place. We'd certainly appreciate any action you could take on that.

Emily Justice (APTIM) thanked Mr. Hux for his comment and stated that it would be noted in the record. The scope of this project is environmental munitions response, and actions related to the munitions response are not expected to negatively impact erosion of Plum Tree Island.

No additional questions or comments were received from the audience.

3.1.3 Written Comments from Public Meetings

No written comments or questions were received from members of the public at the July 2018 public meeting.

3.1.4 Telephone and Written Comments from Public

No telephone comments were received from members of the public following publication of the news releases through the duration of the public comment period. A letter was received from the Mayor of Poquoson and an email was received from Ms. Nancy Powers. A summary of each inquiry is provided below and copies of the correspondence are provided in **Attachment B** of this DD.

Eugene Hunt (Mayor, City of Poquoson) July 11, 2018 via mail: Mr. Hunt thanked USACE for the proposed expenditures at Plum Tree Island, but wished that the USACE would consider further action to provide public access to beach areas.

USACE Response: Mr. Hunt was thanked for his comment and referred to the USFWS for questions related to future access to the site, as the USACE scope was limited to the environmental munitions response.

Eugene Hunt (Mayor, City of Poquoson) September 19, 2018 via mail: Mr. Hunt replied to the earlier response to state his continued support of additional beach access.

Nancy Brooks (Poquoson) August 3, 2018 via email: Ms. Brooks emailed in opposition to the Poquoson City Council's request to open Plum Tree to public use. She thought opening the refuge for public access would be unsafe and destroy an important wildlife reserve.

3.2 TECHNICAL AND LEGAL ISSUES

There were no technical or legal issues raised during the public comment period.

4.0 REFERENCES

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Attachment A
Public Meeting Transcript

Plum Tree Island Proposed Plan
Public Meeting
Meeting Minutes
July 26, 2018
2:30 PM EST

Date: 7/26/18
Time: 2:30 PM EST
Place: Poquoson City Council Chambers

500 City Hall
Avenue Poquoson,
VA 23662

Project Team Attendees and Affiliation:

1. George Follett, USACE Baltimore
2. Brent Graybill, USACE Baltimore
3. Chris Augsburger, USACE Norfolk
4. Emily Justice, APTIM
5. Sue Tituskin, APTIM
6. Eric Salopek, VADEQ
7. Bill Crouch, U.S. Fish and Wildlife
8. Cyrus Brame, U.S. Fish and Wildlife
9. John McCloskey, U.S. Fish and Wildlife
10. Lauren Cruz, U.S. Fish and Wildlife
11. Mike Johnson, Virginia Marine Resource Commission

Private Citizen Attendees and Affiliation (where provided)

1. Tony Place, Weston
2. Jon Bates, Fisherman
3. Marin Carowell, Fisherman
4. Ellen Roberts, City Engineer
5. Garret Feagans, City of Poquoson
6. Randy Wheeler, Poquoson
7. Buddy Green, City Council

Introduction

Chris Augsburger (USACE) opened the meeting by introducing the topic of the Proposed Plan, for the Plum Tree Island, Formerly Used Defense Sites (FUDS) hosted by the U.S. Army Corps of Engineers (USACE). He requested that due to the length of the presentation, that the audience hold any questions to after the completion of the presentation. He also asked that if any members of the press are present, the USACE will address their questions separately following the presentation. He reminded the audience to sign (Attachment 2) in if they hadn't done so already. He noted that there are forms to provide written questions and comments on the table at the front of the room. Comments can be handed in at the end of the meeting or mailed to the address provided on the form. He informed the audience the remainder of the presentation, including

their questions will be recorded. He then turned the presentation over to Brent Graybill (USACE).

The meeting was guided by slides (Attachment 1). Notes below summarize key points. Detailed notes are provided in the transcripts of the recordings (Attachment 3).

Slides 1-5 Brent Graybill (USACE)

Mr. Graybill, introduced the public meeting to discuss the USACE Proposed Plan for the Plum Tree Island Formerly Used Defense Site project. Introduced the project team: USACE, APTIM, VADEQ and U.S. Fish and Wildlife (USFWS). Mr. Graybill presented the overview of the presentation and introduced key terminology used for military munitions sites. Following Mr. Graybill's introduction, the remainder of the presentation was presented by Emily Justice, APTIM.

Slides 6-19: Emily Justice (APTIM)

Ms. Justice presented Plum Tree Island (PTI) history and identified the munitions response sites (MRS) at PTI. Remedial Investigation identified a potential military munitions hazard to humans at all MRSs. USFWS is the current land-based property owner and it is managed as Plum Tree Island Wildlife Refuge, establish 1972. A small portion of the site is private property on Western border on Lloyd Bay. Waterways are under jurisdiction of Commonwealth of Virginia.

Ms. Justice provided an overview of the CERCLA process. This included steps in the CERCLA process that have been completed, and the path forward following the Public Comment period.

The Remedial Goal for PTI is "Given the intended use by the property owners; to preclude current and future users of the refuge and adjacent Commonwealth of Virginia waterways from encountering military munitions items." The nine CERCLA criteria used to evaluate alternatives and select a remedy where discussed. Ms. Justice also presented a brief general summary of the alternatives evaluated including: 1) No Action, 2) Institutional Controls, 3) Surface removal, and 4) Subsurface removal.

Next each of the MRSs were discussed in detail. This included site history, remedial investigation findings, preferred alternatives, and cost of alternative. The MRSs can be summarized as follows:

> Slide 11: A description of the Northern Bomb Range Cluster and the preferred alternative were presented. This MRS is a 5.4-acre circular target area in the northern portion of PTI. Military munitions found during the RI include a 50-pound demolition bomb containing explosives. The preferred alternative is Surface MEC Removal and Institutional Controls. Cost is $381K.

Slide 12: A description of the Central Target Area and the preferred alternative were presented. This MRS is a 37.3-acre circular target area in the central portion of PTI. Military munitions found during the RI include 50-pound demolition bombs containing explosives. The preferred alternative is Surface MEC Removal and Institutional Controls. Cost is $762K.

Slide 13: A description of the Southeast Target Area and the preferred alternative were presented. This MRS is a 449-acre target area in the southeast portion of the PTI, along the shoreline. Military munitions found includes bomb fragments, evidence of craters, bombs ranging from 50 to 2,000 pounds with high explosive fillers. Erosion is occurring along the southeastern shoreline, and since this was a major target area, military munitions will likely continue to be exposed in the future. Shoreline is a protected habitat of the threatened northeastern beach tiger beetle. The preferred alternative is Shoreline Surface MEC Removal and Institutional Controls. Cost is $1.4M.

Slide 14: A description of the Refuge Land Buffer and the preferred alternative were presented. This MRS is a 1,921-acre area along the eastern boundary of the PTI. It is considered a buffer area where stray bombs may have landed or short-lived bombing activities may have occurred. The preferred alternative is Institutional Controls. Cost is $297K.

Slide 15: A description of the Non-Refuge Land Buffer and the preferred alternative were presented. This MRS includes 39.6 acres three small plots of land just outside the PTI northwest boundary. No investigations were performed here, the due to the proximity to bombing activities some stray bombs may have landed similar to the Refuge Land Buffer. The preferred alternative is Institutional Controls. Cost is $297K.

Slide 16: A description of the Low Probability Water Buffer and the preferred alternative were presented. This MRS includes 770 acres along the eastern shoreline where evidence of military munitions on adjacent marshland indicates a low probability of military munitions. The preferred alternative is Institutional Controls. Cost is $111K.

Slide 17: A description of the High Probability Shallow Water Buffer and the preferred alternative were presented. This MRS includes 559 acres along the southeastern shoreline where 8 tons of metallic debris was removed during Remedial Investigation, mostly JATO rockets. The preferred alternative is Exposed MEC Removal and Institutional Controls. Cost is $5.9M.

Slide 18: A description of the High Probability Deep Water Buffer and the preferred alternative were presented. This MRS includes 947 acres along the southeastern shoreline where bombing occurred on adjacent marsh, numerous metallic items identified. The preferred alternative is Exposed MEC Removal and Institutional Controls. Cost is $4.6M.

Following the detailed presentation of alternatives for each MRS, the meeting was opened to questions and comments from the audience. The following summarizes some of the key points. Details are provided in the meeting transcripts (Attachment 3).

Summary of Comments

Buddy Green: Asked if the property owners could say what the intended use of the property was.

> Bill Crouch (USFWS) indicated that the USFWS portion of the site will be managed in the future as a wildlife refuge. USFWS presented the draft Comprehensive Plan about a year and a half ago. The draft plan is to open some land to the public outside of FUDS boundary/Cow Island which includes a beach area.

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> Comment was noted.

Ellen Roberts (City of Poquoson Engineer): How was the low probably vs the high probability and the "no probability" determined? Is there an equal risk across all low probability areas? Would institutional controls go into black river and how will this impact dredging?

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Randy Wheeler (City of Poquoson, Manager) – Any low probability beach access any time soon? What about weather/erosion exposing MEC later after USACE surface clearing work completed?

George Follett (USACE PM) answered that the Proposed Plan addresses existing conditions, that a five-year review plan/report is part of the work and that every 5 years or after every significant event that a "find" is made, the USACE will provide confirmation of identification and removal support/Navy from Little Creek gets MEC in shallow substrate for up to 30 years.

Buddy Green (City of Poquoson Council) reiterated the City's concern with lack of access to a beach area.

The comment was noted.

No additional questions or comments were received from the audience. Several side discussions occurred after the end of the formal meeting.

Attachments:
Attachment 1- Presentation Slides
Attachment 2- Sign in Sheet
Attachment 3- Transcript of Meeting

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Public Meeting
Meeting Minutes
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9. John McCloskey, U.S. Fish and Wildlife
10. Lauren Cruz, U.S. Fish and Wildlife
11. Mike Johnson, Virginia Marine Resource Commission

Private Citizen Attendees and Affiliation (where provided)

1. Tom Powers, VMRC committees (crab and fishing), NOAA exosys, GIT
2. Vic Wieszek, DoD retired
3. Marie Albiges, Daily Press
4. Thomas Cannella, City Council
5. Graham Wilson, citizen
6. David Hux, City Council

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Next each of the MRSs were discussed in detail. This included site history, remedial investigation findings, preferred alternatives, and cost of alternative. The MRSs can be summarized as follows:

> Slide 11: A description of the Northern Bomb Range Cluster and the preferred alternative were presented. This MRS is a 5.4-acre circular target area in the northern portion of PTI. Military munitions found during the RI include a 50-pound demolition bomb containing explosives. The preferred alternative is Surface MEC Removal and Institutional Controls. Cost is $381K.
>
> Slide 12: A description of the Central Target Area and the preferred alternative were presented. This MRS is a 37.3-acre circular target area in the central portion of PTI. Military munitions found during the RI include 50-pound demolition bombs containing

explosives. The preferred alternative is Surface MEC Removal and Institutional Controls. Cost is $762K.

Slide 13: A description of the Southeast Target Area and the preferred alternative were presented. This MRS is a 449-acre target area in the southeast portion of the PTI, along the shoreline. Military munitions found includes bomb fragments, evidence of craters, bombs ranging from 50 to 2,000 pounds with high explosive fillers. Erosion is occurring along the southeastern shoreline, and since this was a major target area, military munitions will likely continue to be exposed in the future. Shoreline is a protected habitat of the threatened northeastern beach tiger beetle. The preferred alternative is Shoreline Surface MEC Removal and Institutional Controls. Cost is $1.4M.

Slide 14: A description of the Refuge Land Buffer and the preferred alternative were presented. This MRS is a 1,921-acre area along the eastern boundary of the PTI. It is considered a buffer area where stray bombs may have landed or short-lived bombing activities may have occurred. The preferred alternative is Institutional Controls. Cost is $297K.

Slide 15: A description of the Non-Refuge Land Buffer and the preferred alternative were presented. This MRS includes 39.6 acres three small plots of land just outside the PTI northwest boundary. No investigations were performed here, the due to the proximity to bombing activities some stray bombs may have landed similar to the Refuge Land Buffer. The preferred alternative is Institutional Controls. Cost is $297K.

Slide 16: A description of the Low Probability Water Buffer and the preferred alternative were presented. This MRS includes 770 acres along the eastern shoreline where evidence of military munitions on adjacent marshland indicates a low probability of military munitions. The preferred alternative is Institutional Controls. Cost is $111K.

Slide 17: A description of the High Probability Shallow Water Buffer and the preferred alternative were presented. This MRS includes 559 acres along the southeastern shoreline where 8 tons of metallic debris was removed during Remedial Investigation, mostly JATO rockets. The preferred alternative is Exposed MEC Removal and Institutional Controls. Cost is $5.9M.

Slide 18: A description of the High Probability Deep Water Buffer and the preferred alternative were presented. This MRS includes 947 acres along the southeastern shoreline where bombing occurred on adjacent marsh, numerous metallic items identified. The preferred alternative is Exposed MEC Removal and Institutional Controls. Cost is $4.6M.

Following the detailed presentation of alternatives for each MRS, the meeting was opened to questions and comments from the audience. The following summarizes some of the key points. Details are provided in the meeting transcripts (Attachment 3).

Summary of Comments

Vic Wieszek: So in summary you will do surface sweeps and institutional controls. How often would there be a review to see if erosion exposed new items?

> Emily Justice (APTIM): Yes, there will be surface sweeps in the target areas and all MRS will receive ICs.
>
> George Follett (USACE): We will rely on the property owner to keep an eye on the shoreline. Then during our five-year reviews, if there were significant finds another clearance may be warranted.

Tom Powers (fisherman, on VMRC and NOAA committees of the public): When are we going to be able to use the area? Your institutional controls keep one from even being able to come out of the Back River and I can't even wade-fish in any of the purple area anymore! VMRC and USACE are not consistent with their restrictions.

> George Follett/Baltimore (USACE PM) said USACE has no jurisdiction in the water but USACE will work with VMRC to come up with recommendations.

David Hux (City of Poquoson Council): Public access to Cow Island is most important to us. Since not really used as a range, public should be allowed to at least "part" of the island.

> Bill Crouch (USFWS) said their draft CCP proposed opening some of Cow Island which is outside the FUDs area to the public, but that the draft from more than a year ago is still in progress.

Thomas Cannella (City of Poquoson Council): Accessibility and use of duck blinds are important to him and other duck hunters. The area of interest is in Lloyd Bay near Cow Island. Asked about accessibility in low probability areas. Is there zero chance the low probably areas will be opened to the public.

> Emily Justice (APTIM): It's a dynamic environment, things could become exposed, so we need to keep institutional controls on these areas in order to be protective. The proposed plan outlines a cost associated with a complete subsurface removal and details why a complete subsurface removal isn't feasible.

Tom Powers- So what's the point of spending $4.6M for the land portion of the cleanup if the public, who's paying for it, is never going to get to use it.

> George Follett (USACE): It's a two-part answer. First, there is a potential risk. Second, is USFWS is the land owner and they have restricted access as a wildlife refuge.

Tom Powers- You're supposed to be able to observed wildlife on wildlife refuges, why can't we at least use the marsh areas.

> George Follett (USACE): VMRC controls the waterways, and USACE will work with them on recommendations.

Vic Wieszek: Is there an MEC HA? What's the score? How do you determine risk in the water?

Sue Tituskin (APTIM): MEC HA score in the target areas is 1, which is the highest risk.

George Follett (USACE): Water risk was determined based on mapped conducted during the RI. The results of mapping in the water area were consistent with the target areas identified on land.

Graham Wilson (Assistant City Manager) inquired about funding. Does it need to go through Congress?

George Follett/Baltimore (USACE PM) responded that when USACE headquarters signs the decision document, and then can authorize expenditures. USASE total budget is subject to congress funding. PTI is high on the priority list for USACE.

David Hux (City of Poquoson Council): Indicated that there is a concern about the erosion of Plum Tree Island. So we are interested in any action that might be taken to prevent erosion and make sure that buffer stays in place. We'd certainly appreciate any action you could take on that.

Comment noted.

Attachments:
Attachment 1- Presentation Slides
Attachment 2- Sign in Sheet
Attachment 3- Transcript of Meeting

PLUM TREE ISLAND FORMERLY USED DEFENSE SITE

PUBLIC MEETING

PREFERRED REMEDIAL ALTERNATIVES

July 26, 2018

Poquoson, Virginia

"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."

US Army Corps of Engineers ®

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MEETING PURPOSE

1. Review the Proposed Plan for addressing hazards on Plum Tree Island.

2. Receive formal comments from the public in response to the Proposed Plan.

MEETING OVERVIEW

- Plum Tree Island History
- Overview of CERCLA Process, Remedial Action Objective, and Remedial Alternatives
- Description of each munitions response site and the Preferred Remedial Alternative for each site
- Comment/ Questions

TERMINOLOGY

- **Formerly Used Defense Site (FUDS)** An eligible property used by the DoD prior to 1986.
- **Military Munitions/Munitions and Explosives of Concern (MEC)** military munitions with explosive hazard including unexploded ordnance (UXO) and discarded military munitions (DMM).
- **Munitions Constituents (MC)** includes any chemicals originating from munitions (explosive compounds and metals).
- **Munitions Debris (MD)** inert remnants of munitions (e.g., fragments, projectiles, shell casings, pieces).
- **Munitions Response Site (MRS)** A discrete location that requires a munitions response. There are 8 MRSs at Plum Tree Island
- **Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)** Regulatory framework under which USACE conducts the FUDS program

PARTNER AGENCIES

U.S. Army Corps of Engineers/Lead Agency for FUDs Army Properties
- George Follett, Project Manager
- Brent Graybill
- Emily Justice and Sue Tituskin, USACE Contractors

Virginia Department of Environmental Quality/Lead Regulatory Agency
- Eric Salopek, Remedial Project Manager

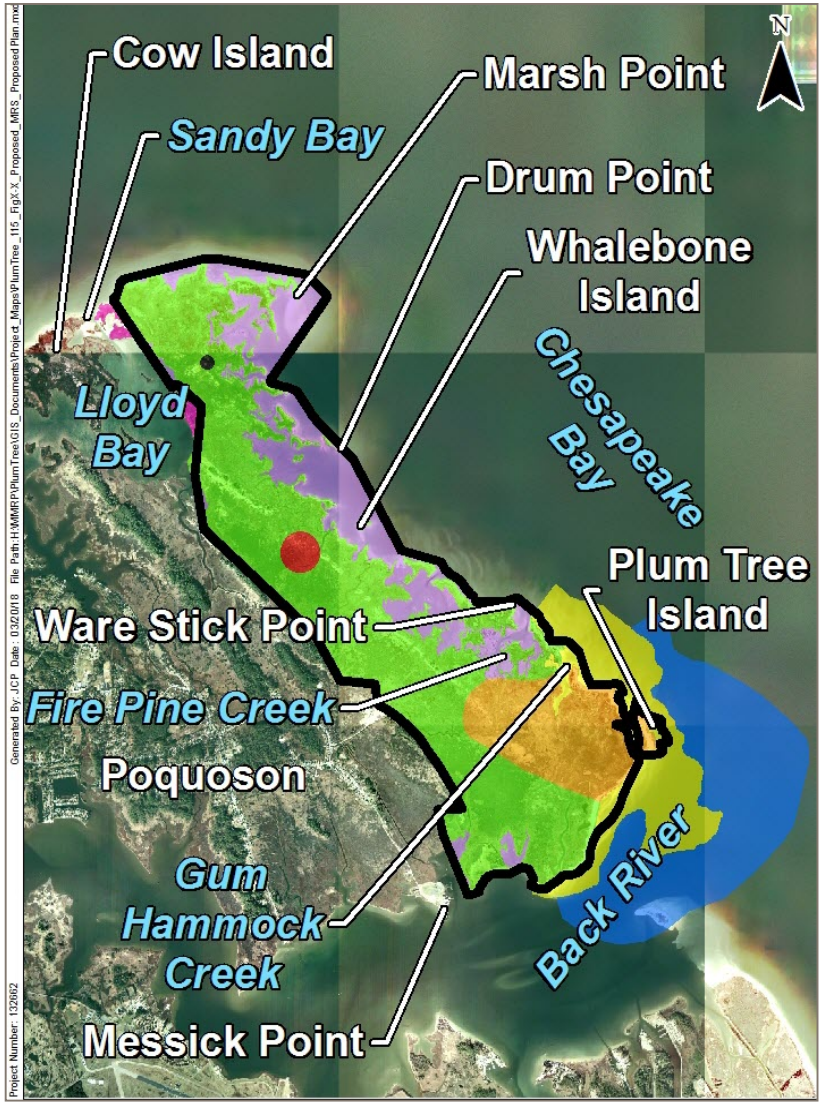
Virginia Marine Resources Commission/Lead agency for water areas
- Mike Johnson

City of Poquoson

U.S. Fish and Wildlife Service/Land-based Property Owner
- Meghan Powell
- Cyrus Brame
- William Crouch
- John McCloskey

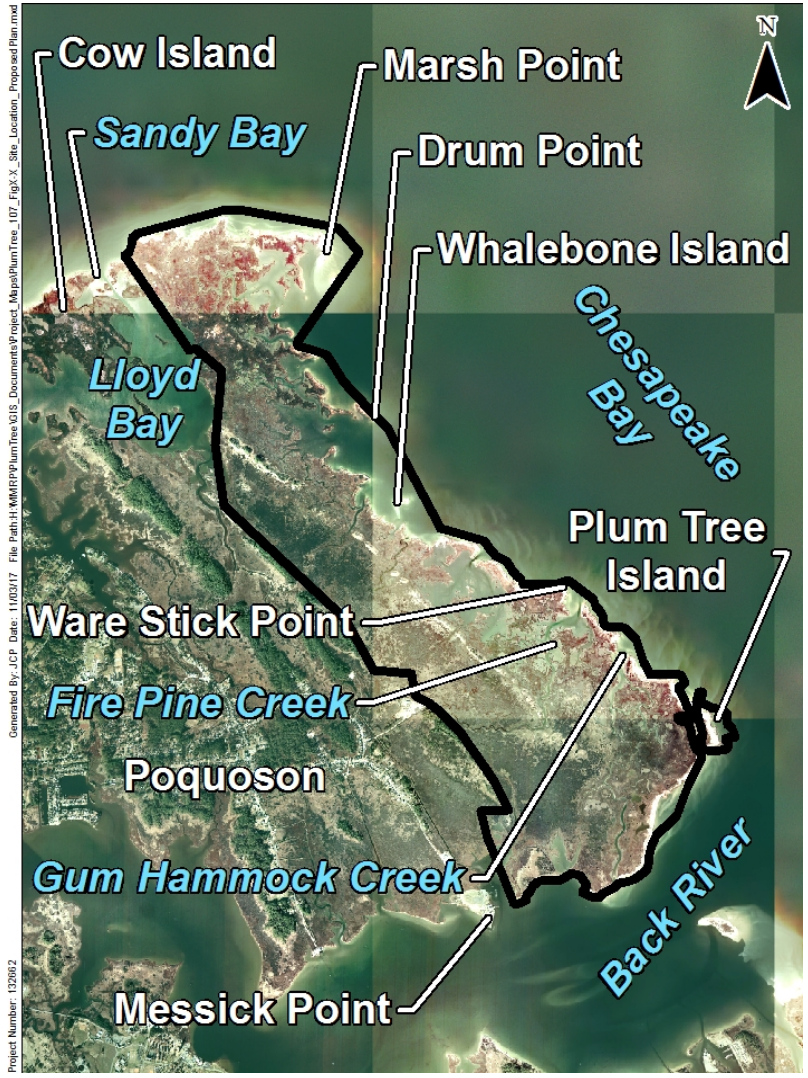
PLUM TREE ISLAND RANGE HISTORY

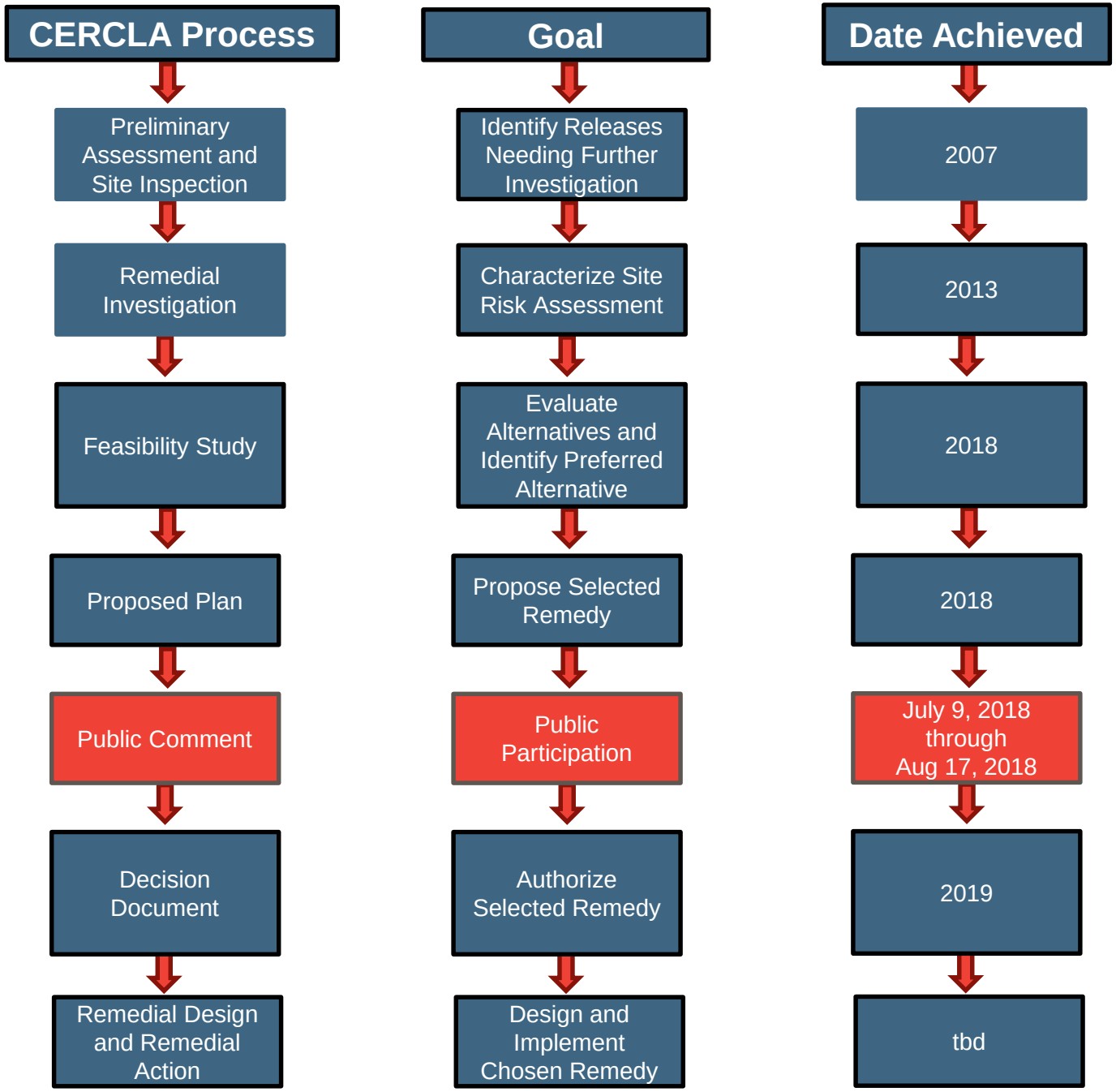
- Used from 1917 until 1972 for live-fire training (air-to-ground bombing, gunnery, and rocket practice)
- Extensive usage of Military Munitions along southern part of range (orange/yellow/blue)
- Black and red areas represent additional target areas
- Remaining area is considered a buffer with a low probability of MEC from shortfall/ misfires
- Remedial Investigation identified a potential MEC hazard to humans at all MRSs (primarily demolition bombs and JATO rockets)



PLUM TREE ISLAND RANGE

- 3,276 acres of salt marsh on the southwestern corner of Chesapeake Bay (outlined in black)
- U.S. Fish and Wildlife Service (USFWS) is the current land-based property owner- Plum Tree Island Wildlife Refuge establish 1972
- A small portion of the site is private property on Western border on Lloyd Bay
- Waterways are under jurisdiction of Commonwealth of Virginia




CERCLA Process
Goal
Date Achieved
Preliminary Assessment and Site Inspection
Identify Releases Needing Further Investigation
2007
Remedial Investigation
Characterize Site Risk Assessment
2013
Feasibility Study
Evaluate Alternatives and Identify Preferred Alternative
2018
Proposed Plan
Propose Selected Remedy
2018
Public Comment
Public Participation
July 9, 2018 through Aug 17, 2018
Decision Document
Authorize Selected Remedy
2019
Remedial Design and Remedial Action
Design and Implement Chosen Remedy
tbd

REMEDY SELECTION - REMEDIAL ACTION OBJECTIVES

What is the Goal of the Proposed Plan?

Given the intended use by the property owners; to preclude current and future users of the refuge and adjacent Commonwealth of Virginia waterways from encountering military munitions/MEC items.

REMEDY SELECTION – NINE CERCLA EVALUATION CRITERIA

Factors to determine Which Path is Best

Threshold Criteria (For an alternative to be selected, it must meet the two Threshold Criteria)

1. Overall Protection of Human Health and the Environment
2. Compliance with Applicable or Relevant and Appropriate Requirements

Balancing Criteria:

3. Long-Term Effectiveness and Permanence
4. Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment
5. Short-Term Effectiveness
6. Implementability
7. Cost

Modifying Criteria:

8. State/Support Agency Acceptance
9. Community Acceptance

NORTHERN BOMB RANGE CLUSTER-PROJECT 04 (BLACK)

Description: Circular area used as target area

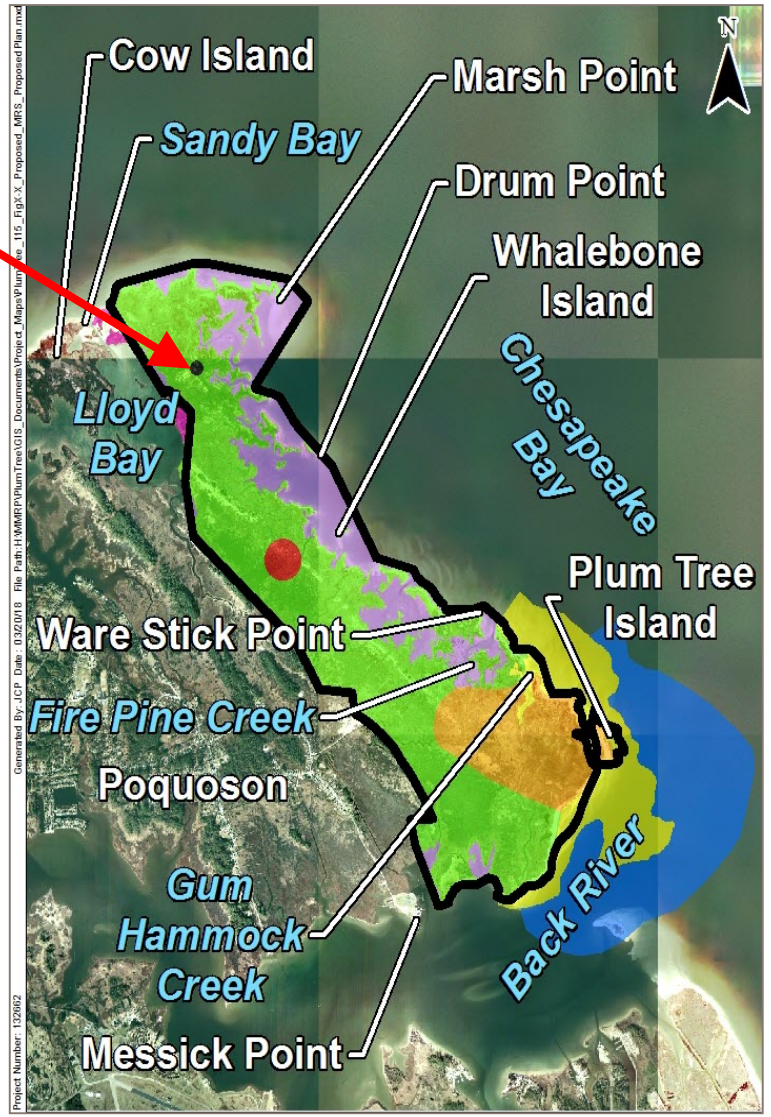
Size: 5.4 acres

MEC found: World War I era 50-pound demolition bomb containing explosives during the Remedial Investigation

Summary: The relatively small area and low density of items observed suggests that this site was not a heavily used target area.

Preferred Alternative: Surface MEC Removal and Institutional Controls

Cost: $381K



CENTRAL TARGET AREA-PROJECT 03 (RED)

Description: Circular area used as target area

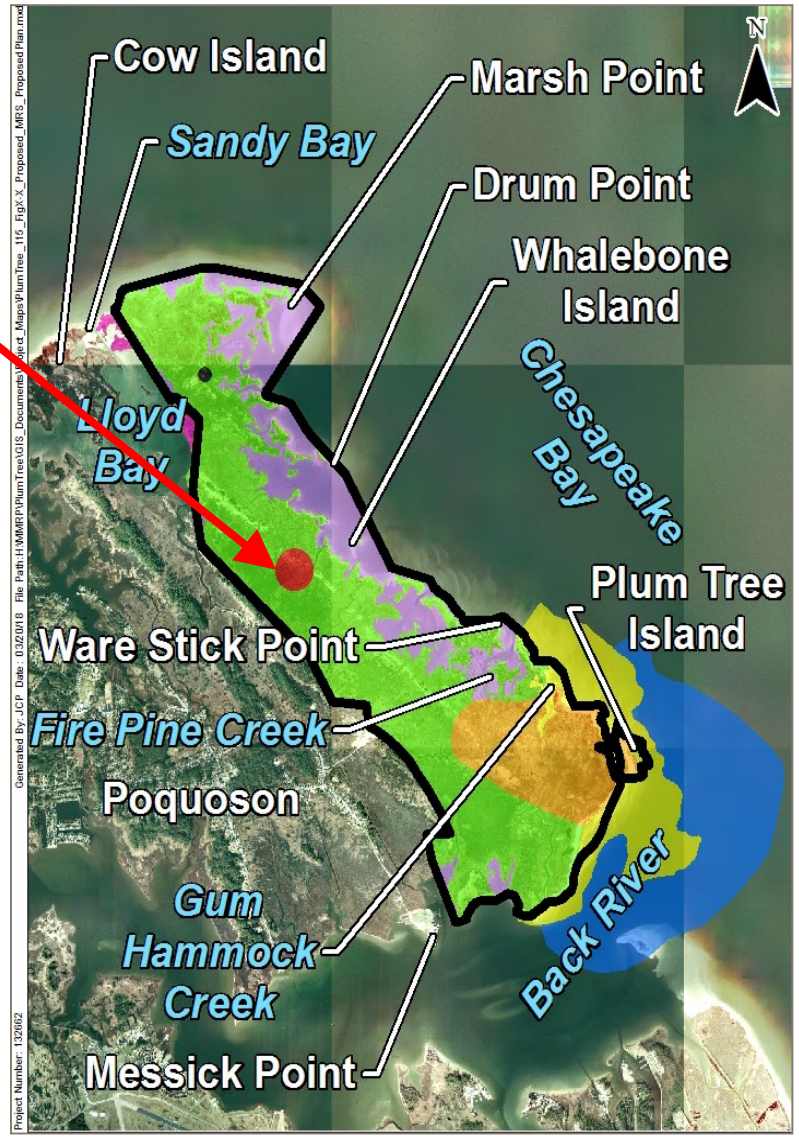
Size: 37.7 acres

MEC found: Several World War I era 50-lb demolition bombs containing explosives were recovered during the Remedial Investigation.

Summary: Investigation indicate this was a bomb target was present and used repeatedly.

Preferred Alternative: Surface MEC Removal and Institutional Controls

Cost: $762K



SOUTHEAST TARGET AREA-PROJECT 01 (ORANGE)

Description: Former target area used over and extended time frame

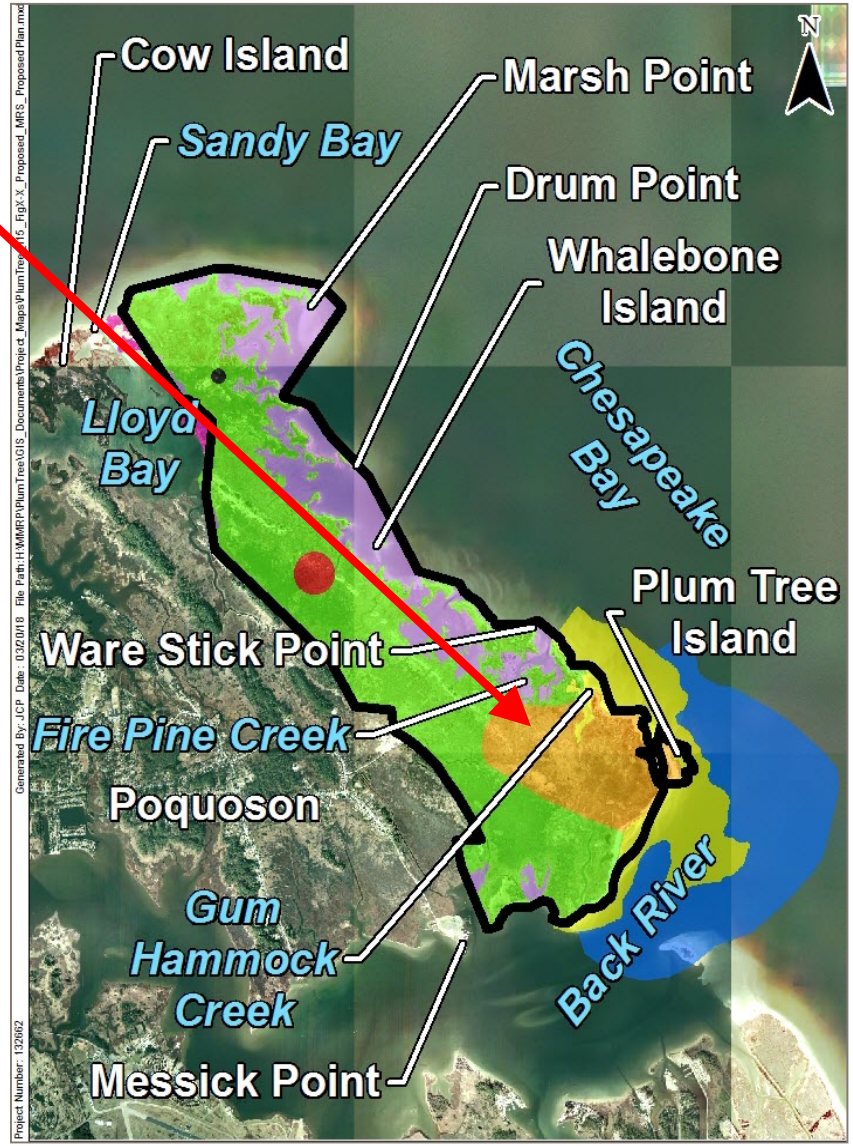
Size: 449 acres

MEC found: bomb fragments, evidence of craters, bombs ranging from 50 to 2,000 pounds with high explosive fillers

Summary: Erosion is occurring along the southeastern shoreline, and since this was a major target area, MEC will likely continue to be exposed in the future. Shoreline is a protected habitat of the threatened northeastern beach tiger beetle.

Preferred Alternative: Shoreline Surface MEC removal and Institutional Controls

Cost: $1.4M



REFUGE LAND BUFFER-PROJECT 07 (GREEN)

Description: Buffer area where stray bombs may have landed

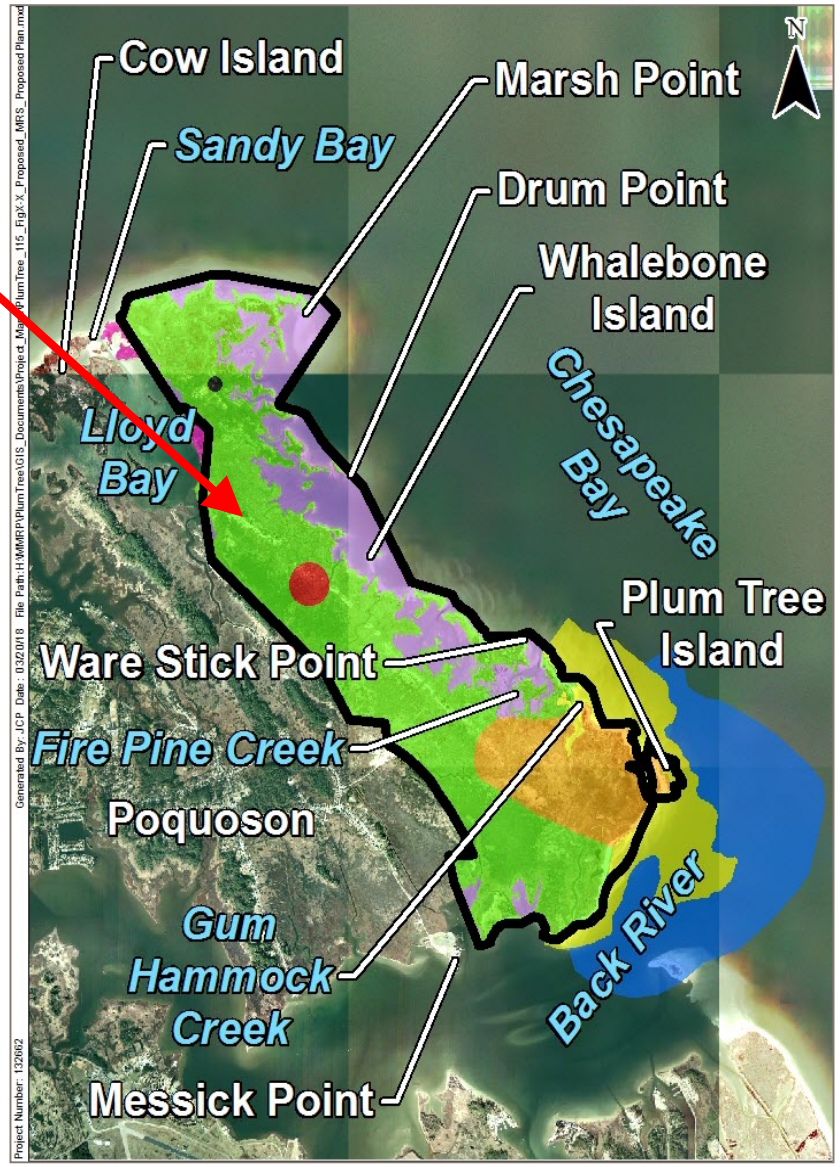
Size: 1,921 acres

MEC found: little evidence that bombing activities occurred within this MRS

Summary: It is considered a buffer area where stray bombs may have landed or short-lived bombing activities may have been performed

Preferred Alternative: Institutional Controls

Cost: $297K



NON-REFUGE LAND BUFFER-PROJECT 09 (PINK)

Description: Three small plots of land on the northwest that are not part of the FUDS or the USFWS wildlife refuge

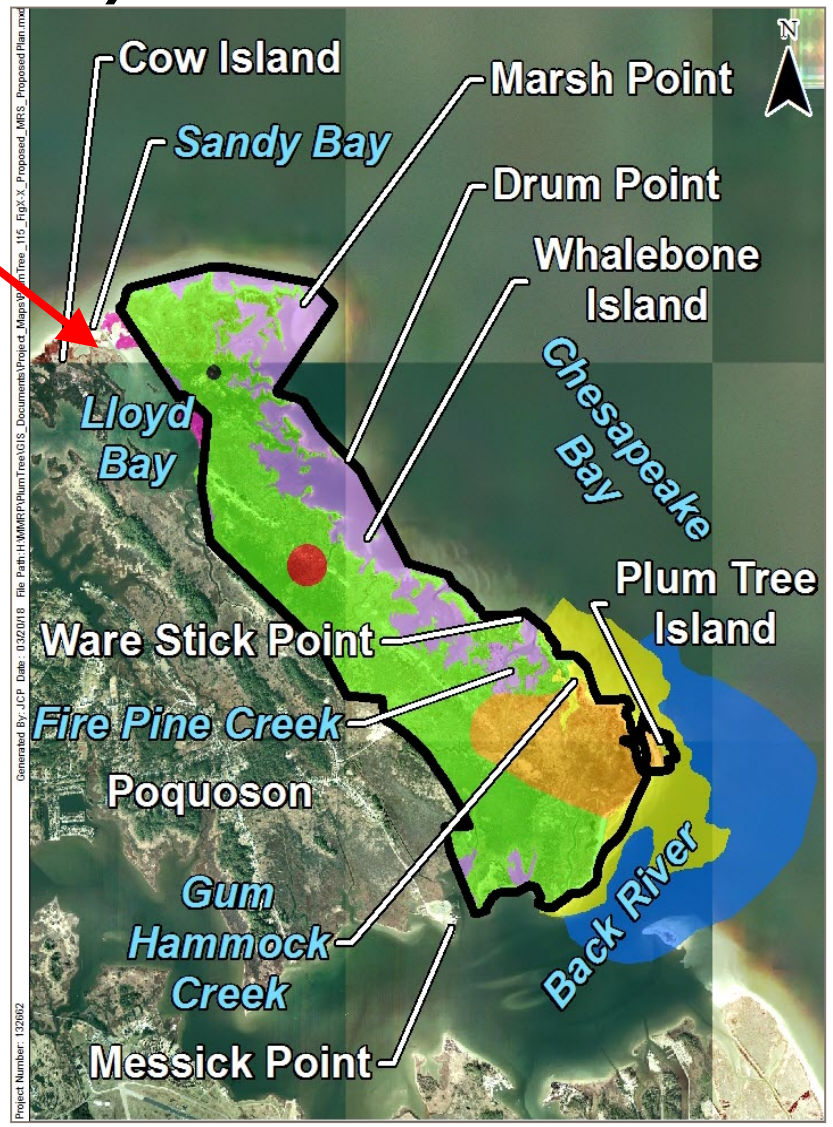
Size: approximately 39.6 acres

MEC found: No investigations were performed

Summary: Due to proximity to potential bombing activities, MEC density is expected to be similar to the Refuge Land Buffer Area occurred

Preferred Alternative: Institutional Controls

Cost: $116K



LOW PROBABILITY WATER BUFFER-PROJECT 08 (PURPLE)

Description: Buffer area in water where stray bombs may have landed

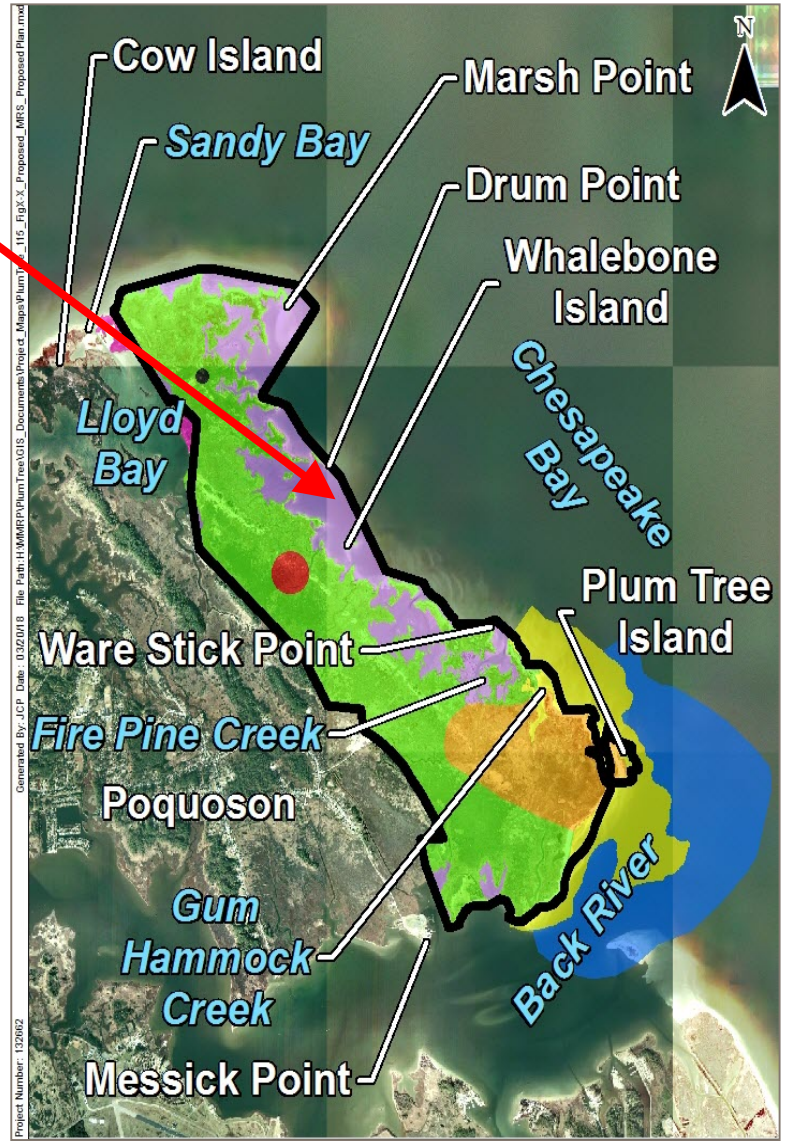
Size 770 acres

MEC found: Limited evidence of military munitions

Summary: Represents all water area within the FUDS boundary where evidence of MEC on adjacent marsh land indicates a low probability of MEC

Preferred Alternative: Institutional Controls

Cost: $111K



HIGH PROBABILITY SHALLOW WATER BUFFER-PROJECT 06 (YELLOW)

Description: Shallow water portion of former target area used over and extended time frame

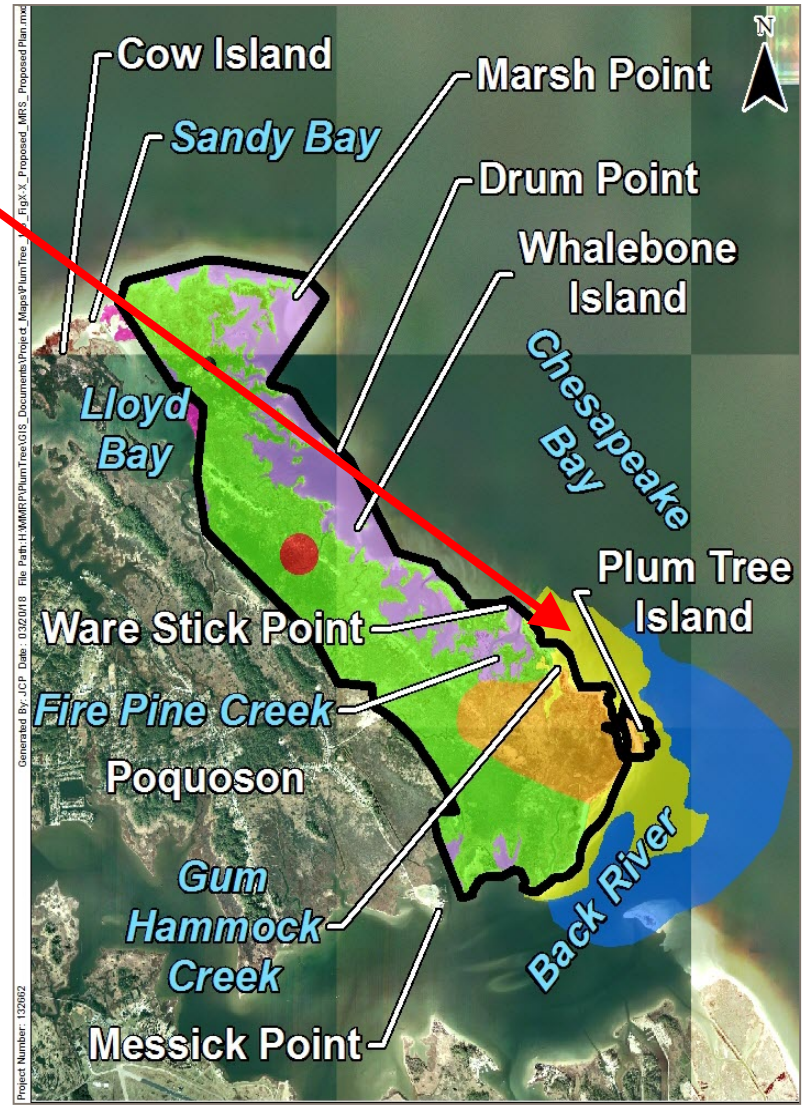
Size: 599 acres

MEC found: 8 tons of metallic debris removed during Remedial Investigation, mostly JATO rockets.

Summary: All water to a depth of approximately 3 ft where evidence of bombing activity on adjacent marsh land indicates a higher probability of MEC

Preferred Alternative: Exposed MEC Removal and Institutional Controls

Cost: $5.9M



HIGH PROBABILITY DEEP WATER BUFFER-PROJECT 05 (BLUE)

Description: Deep water portion of former target area used over and extended time frame

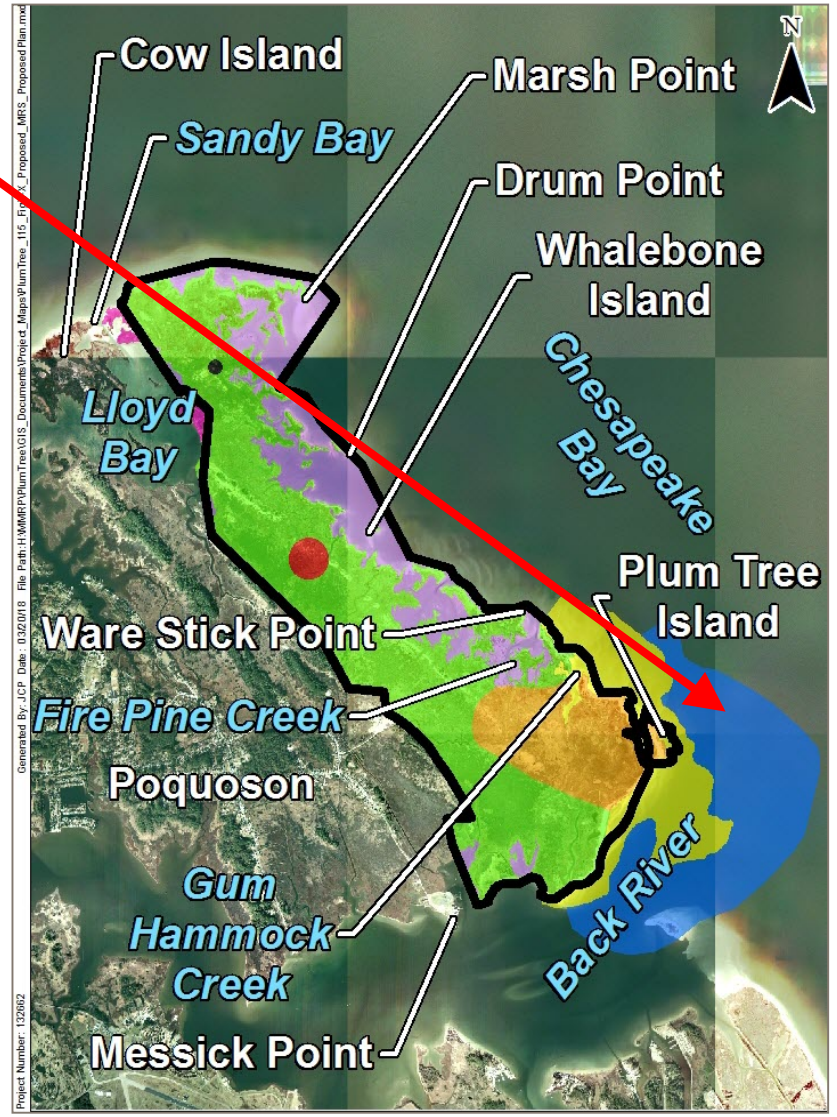
Size: 947 acres

MEC found: bombing occurred on adjacent marsh, numerous metallic items identified (but not intrusively investigated)

Summary: All water deeper than 3 ft where evidence of bombing activity on adjacent marsh land indicates a high probability of MEC

Preferred Alternative: Exposed MEC Removal and Institutional Controls

Cost: $4.6M



QUESTIONS/ COMMENTS

Your input to the Proposed Plan process for the Military Munitions Response Program is important to the USACE. Please submit comments to:

Cynthia Mitchell
U.S. Army Corps of Engineers, CENAB-PA
2 Hopkins Plaza, 10-F-24
Baltimore, MD 21203-1715
410-962-7522

Cynthia.Mitchell@usace.army.mil

Comments must be postmarked by August 17, 2018.

Transcription of Recording of the 2:30pm Public Meeting

We are recording for posterity and along for legal purposes. I want you to know that if you ask any questions they will be recording.

Good evening everyone and thanks for coming out and being part of our Public Meeting tonight to discuss a Proposed Plan that is associated with Plum Tree Island Formerly Used Defense Site Project of the Military Response Program. My name is Brent Greybill, as Chris has said, I'm the protection specialist for the U.S. Army Corp of Engineers Baltimore District working under the Formerly Used Defense Site program or you'll see the acronym FUDS.

Ok the meeting tonight will cover the basic information associated with Plum Tree Island Formerly Used Defense Site Program the project as well here in Pocoquson. But tonight's focus will be the presentation of the proposed plan. For each of the sites were historic use of munitions has taken place and potential hazards to the public were named. Then to solicit questions or comments from you the public about the proposed plan that we are going to present this meeting.

Just a quick agenda overview of the order of what we plan to cover tonight. We though a quick overview would be useful to not only cover the history of Plum Tree Island but also the Comprehensive Environmental Response, Compensation, and Liability Act Process we are orchestrating the project under. The objectives of the project and how we developed the preferred alternatives in the proposed plan presented to you tonight for each of the munitions response sites that we'll get into here individually as we going through the briefing. Lastly, as I said before, we are here to solicit your comments or questions about the project concerning the alternatives selected for each of the munitions response sites in the proposed plan to confirm the public is in agreement going forward into a decision document, which would be the next step, then a follow on design then leading ultimately to a remedial action on site.

Ok as I said before we'll try not to use acronyms but here's a list of some of the acronyms we have spelled out here and defined for you. We thought this slide might be useful so everyone understands the acronyms and might be able to refer to it or… ask us about them later if we use them accidentally. But we're hoping we can use this list here to kind of know what we're talking about.

Lastly, I wanted to discuss some of the partnering agencies we have here. The team entails the Corp of Engineers out of Baltimore District as well as Norfolk. As I said before I'm Brent Greybill I'm the protection specialize for Baltimore District on the project. The project manager is George Follett; we also have contracted teammates from Aptim, Sue Tituskin and Emily Justice. We have the landowners represented here- U.S. Fish and Wildlife Service representatives, we have Virginia Department of Environmental Quality here tonight as our lead regulatory agency. We also have a stakeholder in Virginia Marine Resources as our lead agency for the waters surrounding Plum Tree Island as well as the city of Poquoson obviously.

At this time, I'm like to turn the presentation over to our contracted partners at Aptim who will continue with today's talk with you today, Emily.

Thank you Brent. My name is Emily Justice I'm with Aptim we've be contracted by the Corp of Engineers to perform the investigations and do the reporting that has gotten us to this point.

So a brief overview of the Plum Tree Island Range. The site boundary is shown here in black. It was used by the Army for from 1917 until 1972 for live firing training. The training consisted of air to ground bombing, gunnery, and rocket practice. The majority of site training activities occurring down here in this orange/yellow/blue area. It was used extensively as a target areas. And additional target areas are represented both in red and in green. The remaining portion of the site is considered a buffer area. There is a lower probability of encountering military munitions in this area, but it is still as possibility that you may encounter MEC or military munitions from short fires, misfires or fragmentation.

So we conducted a remedial investigation and it identified the potential for MEC or military munitions hazard at all of the MRSs or Munitions Response Sites. So each of these colored areas we designated a separate munitions response site based on site use and site history.

A little bit of additional information. The black boundary represents 3,276 acres of salt marsh on the southwestern corner of Chesapeake Bay. The property is owned by Fish and Wildlife Service and it is the Plum Tree Island Wildlife Refuge, it's been established as the wildlife refuge since 1972.

There is a small portion of the site up near Lloyd Bay that is private property, and the waterways are under jurisdiction of Commonwealth of Virginia.

The military munitions clean up and the FUDS or Formerly Used Defense Sites Program is governed under the CERCLA process. This left hand column shows the name of phases in CERCLA phase, the middle column, the goal, and the final column shows the date it was achieved for Plum Tree Island.

So right now we are here in orange, we are in the Public Comment period. The purpose of this to solicit public participations and the public comment phase goes until August 17th. We started here with a preliminary assessment where we identified there was military munitions at the site. We then did a remedial investigation, which determine the nature and extent of military munitions at the site and also characterized the risk that these military munitions pose. Next, we conducted a feasibility Study that evaluated different alternatives to address military munitions at the site and it presented a preferred alternative or preferred path forward to addressing the munitions.

Next is the Proposed Plan where we outlined the alternatives that we looked at in the Feasibility Study and it puts forth a preferred alternative. This is available to the public for review, its available online and also at the library current.

That brings us to the public comment period, where we are. At the end of the public comment phase, we will prepare a decision document- that will authorize the selected remedy. After that, we will implement the remedial actions that have been selected.

So what is goal of the proposed plan? The proposed plan outlines how we are going to meets the remedial action objective; and the remedial action objective at Plum Tree Island Range is to "to preclude current and future users of the refuge and adjacent Commonwealth of Virginia waterways from encountering military munitions and MEC."

How do we determine which alternative is the best way to meet that remedial action objective. Luckily, the CERCLA process outlines nine criteria that we follow to evaluate the different alternatives. The first is the threshold Criteria, so any alternative we select must meet the two threshold criteria. The threshold criteria are Overall Protections of Human Health and the Environment and Compliance with applicable or relevant laws or other requirements. After that, we look at balancing and modify criteria. This includes the Long-Term Effectiveness and Permanence of the alternatives, the total Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment, Short-Term Effectiveness, Implementability, Cost, and then finally we look for state or Support Agency Acceptance and public and community acceptance. In the following slides were going to look at each of the separate MRSs and the preferred alternative that was put forth in the proposed plan. First, a brief overview of the difference alternatives we looked at in the Feasibility Study. First is institutional controls. That would be a non-active remedy that would help to prevent encounter with military munitions. This could be restricting access, public education, warning signs. Secondly, we looked at active remediation both on the land portion of the Plum Tree Island Range and in the water. Then we looked addressing military munitions on the surface or on the surface and subsurface on the land and in the substrate underneath the water.

So the first site we are going to talk about is the Northern Bomb Cluster. That is this small black site in the northern corner. It's actually not that small – it is 5.4 acres - and it's a circular area that was used as a target. A 50-lb demolition bomb was encountered there during remedial investigation; but there is a relatively low density and a relatively small amount of items found there which suggests that this site wasn't a heavily used target area during the Army's training. With that in mind, the preferred alternative for this site would be a Surface MEC or military munitions Removal and then also Institutional Control. Institutional Controls would be restricted access, which is already restricted as a wildlife refuge by Fish and Wildlife service. Additionally public education and signs would help to prevent any further encounter. The surface MEC removal would entail sending unexploded ordnance technicians out to identify and dispose of any military munitions that may be present of the surface. The cost here represents both the cost of the removal and also the ongoing cost associated with the institutional controls.

Next up we have the central target area shown here in red. It's 37.7 acres - another target area. However, this one, our investigations suggest this was a more heavily used target area. There were several 50 lb demolition bombs identified in this area during the remedial investigation. There was a bomb target present and used repeatedly. The preferred alternative for this site is also a surface MEC removal or military munitions removal and institutional controls.

The next munitions response site is this orange area. As I mentioned previously this southern end of the Plum Tree Island range was the most heavily used target area during army training. This orange area is 449 acres. It was used over an extended period of time. The remedial investigation

identified multiple items including bomb fragments, and evidence of craters, and multiple bombs ranging from 50 to 2,000 lbs and high explosive fillers. This area is also the protected habitat for the northeastern beach tiger beetle; and with this in mind, we selected a shoreline MEC removal and institutional controls as the preferred alternative for this site.

This green are represents the land portion of the buffer area, so there is a lower probability of MEC here, but there still may be some military munitions from short-lived bombs, misfires or fragmentation. This green area is 1921 acres. Since there is a lower probability of military munitions in this area, institutional controls was selected as the preferred alternative.

This pink area is three private properties that are not part of the formerly used defense site or the U.S. Fish and Wildlife Refuge - 39.6 acres. The RI did not investigate these areas but due to the proximity of known target areas and the buffer-area there is a low potential for encounter of military munitions in this area. We've selected institutional controls as the preferred alternative for this site as well.

Next, we are going to talk about the three islands - I mean three water munitions response sites. The first one is this purple buffer area along the coast. It is 770 acres. There is little evidence that it was used as a target area but again there are known target areas to the north, in the middle of the site, and down at the bottom, so there is that chance of a stray military munition in the area. We've selected institutional control as the preferred alternative here.

Next up is this yellow area. This is the high probability shallow-water buffer. It is the shallow water that is adjacent to the land portion of this target area. It goes from the shoreline out to where the water is 3 feet deep. During the remedial investigation, 8 tons of metallic debris were removed. This was mostly rockets. This whole area at the south was used for an extended period of time and we know there is a high probability of military munitions there. We came to a preferred alternative of removing exposed military munitions from the substrate, underwater and also Institutional Controls for this site.

Lastly, this blue area is the high probability deep-water buffer. It is the deep-water portion of the former target area it was used over an extended period of time. It 947 acres. So while this area wasn't intrusively investigated during the remedial investigation, there was mapping conducted and there were a lot of metallic items, consistent with what we were finding in the shallow water out in the deeper water. We've also selected an exposed MEC removal at this munitions response site and institutional controls.

So, that brings us to the end of the presentation; so I'd like to open it up for any comments or questions. If you'd rather submit your comment in writing, we do have these sheets up here.

Mr. Green- Could you go back to your chart the second or third one in and talk about what the goal was? First off, my name is Buddy Green I live in York County. You have a chart in there that says what the goals are, right? Given the intended use of the property, are there property owners here that could stand up and say what the intended use is? That's very important before we talk about how much money you need to spend to get to the probability of setting off the explosions to some level.

Ms. Justice- Fish and Wildlife Service is the property owner.

Mr. Crouch- Sure my name is Bill Crouch I'm the acting director of Plum Tree Island National Wildlife Refuge, which includes the Plum Tree Island Range. Like the presentation had pointed out, it became a National Wildlife Refuge in 1972. That's how we manage that property currently today and that how we intend to manage the activities out there in the future as a national wildlife refuge.

Mr. Green- So, are you going to do anything new different or are you going to continue doing the same thing you're doing?

Mr. Crouch- So starting a number of years ago we embarked on preparing a comprehensive conservation planning process. We had a similar public meeting to this about a year and a half ago; and, there we had a draft plan to, among other things, take this particular wildlife refuge which is currently closed to the public and open up a portion of it for public for wildlife intended recreation similar to what you'd find on other National Wildlife Refuges. So, we anticipate moving forward with that I don't have a final date when that plan will be released. But as far as the public record is concerned, we have a draft plan that includes opening up a portion to the public. Public safety is obviously important and it factors into our plan.

Ms. Justice- And if I may add, the Formerly Used Defense Site portion of it, that would remain restricted access.

Mr. Crouch- Yes, in the draft plan the Formerly Used Defense Site portion that was a bombing range. The portion that is a bombing range will still.

Mr. Green- Lets go to that chart so we can specifically look at pictures and understand it.

Mr. Crouch- So everything in there that's black is part of the refuge with the exception of the private lands which are adjacent to Lloyds Bay. But, in addition to that, there are other acreages that are now part of the National Wildlife Refuge that are not part of the Formerly Used Defense Site and that's where we could propose to open up portions to the public to embark in wildlife intended recreation.

Mr. Green- You've got your color chart up so we can see for the things you pick and how they all match…We need to understand if you could take a line and show us with your pointer …where we can use the national park. Because that has an impact on how much effort we should spend where.

Mr. Crouch- this island here, this is Cow Island, all but I believe but a little patch is entirely owned by the Fish and Wildlife Service as part of the Plum Tree Island National Wildlife Refuge and in the draft plan, which is not the final plan, but the plan that the public was able to comment on during our public comment period, we had proposed for some public access here on Cow Island.

Mr. Green- Thank you very much for that. So who can answer the 64 thousand dollar question of why we're leaving munitions on the rest of the site… we didn't talk about. I don't understand.

Ms. Justice- Talk about this area here?

Mr. Green- Go back to your chart which said intended use of the owners… this gentleman this organization is the owner. He showed us where that is you didn't talk about anything for remediation from that perspective from that part of the game.

Mr. Follett- Sir there is no reason to expect anything to be there. We didn't find any evidence, no fragmentation or craters.

Mr. Green- I understand that, I'm agreeing with you. Go back to the chart where it says we are doing this for further use for the property owner.

Mr. Crouch- So if I could point out, I think I know what you're getting at. Because we manage, we're limited in our management of this portion of what is now the National Wildlife Refuge because of the MEC that's there. So, as part of our process that we've been going on down now for a number of years in order for us to better manage this property which not what we're really here to talk about is the Army Corps plans. But, as far as our future plan, which was talked about during the draft CCRP process, we've asked for some additional clearance so that we can better carry out of objectives at the property. We're in the forever business I like to tell people that. We want this habitat to be around forever and all the benefits of having this wildlife refuge here. Coastal protection and all the things...that it's currently doing for free…for the community.

Mr. Green- Can I ask a follow-up? So during your presentation you talked about in your survey out there you found some acceptable areas where you think you can leave as if. So now when you do this land did your results, this clearing, etc. make the entire area acceptable to that same area that you're not going to touch?

Ms. Justice- Yes, the entire area will still need Institutional Controls so the Fish and Wildlife Service will secure that land to prevent access, put up some signage.

Mr. Green- Let me apologize my question isn't clear. You said there were areas your weren't going to touch because you said it's acceptable, the risk.

Ms. Justice- There are areas that we're not going to do active remediation at, but there will still be Institutional Controls that will be documents as part of the remedial action process for that site.

Mr. Green- Thank you. Now, after you do the remediation - which your plan says is 13 or 14 million dollars - .will the entire area that has Institutional Controls around it be at the same probability level where - in other words, here's this area that's going to be perfectly acceptable with institutional controls - will the expenditure of this money get the same level of confidence for the new areas that you're going to remediation in as the areas where you're not recommending remediation, or is there still going to be variation in about where you can go and what you can do?

Mr. Follett- I can answer that sir. Basically, most of what we are going to be doing is called surface clearance. Anything that's visible that's on the ground or is partially exposed - that includes the land areas and also the water areas. We're not going to dig down. We're just going

to get the stuff that's on the top because that's the stuff that the folk that legitimately use the property may encounter. So - we know from experience - we know that if we get that out of there that removes that ….Does it change the probably? No. there were items that we know were like 6or 8 feet below and the only way to get to them to put a culvert in and to pump it out and dig down to find out what's there, and then if we did, worst case scenarios is we'd encounter a 2000 lb bomb. Which could have up to 1000 lbs on explosive materials in in and then we'd have to detonate in and that would leave a very big hole send a shock wave that would probably kill anything within 2000 feet. It's a refuge - it's a wildlife refuge - so in our discussions with the property owners, we decided - we agree – that, in this case, the cure would be much worse than the existing condition. So let's get rid of the immediate hazard doing the surface or exposed MEC you may encounter.

Mr. Green: So the answer to the question is no it will not all be at the same risk as the area you will be leaving alone.

Mr. Follett: There is no way to remove the risk if it exposed if it's not exposed. We know it's always going to be there. So, if it's a high probability area, it's always going to be a high probability area. Unless technology comes along that says we can do a better job. And who knows? Twenty years from now, maybe we'll have technology that can go out and know what it is and that it's safe so that it doesn't go off… but right now, the technology is not there.

Mr. Green: So the point being…. You're going to spend 13-14 million dollars to reduce the risk; but, in some point in time if we really want to use that other than wildlife refuge, we're going to have to spend more money in the end. So results. There's going to be no concrete results. So these are the tasks we are going to do and we're going to live with spending the 13 or 14 million.

Ms. Justice: And I would encourage you to look at the proposed plan. We include the cost of doing the subsurface removal in the plan and when you weigh that against the site's use as a wildlife refuge, and the implementability of the removal, this is our best option.

Mr. Bates: Jim Bates (Yorktown) I have a question as to why. I know of one guys who with his buddies way back in the 50s or 60s explored that areas that's orange there and he had he lost his eye and his buddy was killed. How many other people do we know of who have been damaged by any of these munitions? Do we have any records of that, first of all? Second of all, it sounds like we're trying to protect people that probably don't even go there. And I fish in this purple area and I don't necessarily want to walk in the marsh. Because it's got a lot of those mosquitos Poquoson famous for and if the wind stop, you're going to be eaten alive, so, all of this stuff about making it safer, I don't understand the reason why. Its 13 million dollars and we found out now after we spend that 13 million we still not going to have it be more accessible it's probably going to be less accessible because we're going to have signs saying "Do Not Enter" "Do Not Walk Here" and I'm wondering why. I mean, has there been a lot of bonfire or beer parties there? Why even restrict it, honestly? I mean, how many people have blown up? How many people have had munitions that fizzled and the police had to come out to defuse the bomb? I just don't understand the reason for going through his exercise if in fact we still can't go out there if it's a problem.

Mr. Follett: Thank you, sir.

Ms. Justice: Please write that down as a formal comment.

Mr. Bates: I just put it on record. Thank you.

Ms. Roberts: I'm Ellen Roberts I'm with the City of Poquoson. Can you tell me how you determine the low probability and the high areas? What criteria did you use to develop the line essentially? And how did you decide what was okay to leave alone?

Ms. Justice: We went out there in the Remedial Investigation and did a study we look across the entire site and we were able to evaluate densities of items so the high-density areas are high probability and as you move out and the density decreases; at a certain point, we call in low probability.

Ms. Roberts: Ok, but the low probability doesn't mean no probability. That black line that's on the western side – what/how did that line get determined?

Ms. Justice: The black boundary represents the Formerly Used Defense Site. So areas that was formerly used by the Army.

Ms. Roberts: Ok, so the probability across the river area - would probability going across the green - would probably not uniform across the low probability section… So the further away you get would drop.

Ms. Justice: You could go from low to lower, but all considered a low probability.

Ms. Roberts: Would the Institutional Control extend into the Back River and can you describe what those are and how they would impact dredging?

Mr. Follett- Once we have the Decision Document signed - which authorizes us to spend money - we'll go into the remediation process and part of that will include a Land Use Control Implementation Plan, and that will define what is the best thing to do in these areas. Given the probability - or low probability - it would be signs it could be… could fences. It's a whole gamut of things. I'm just telling you what it could be, but we work with the property owners, the state, and we'll work with the City. We would all put out heads together and say "OK. Here's what we have." We want to basically tell people "Hey, here's the hazards" Here's how to we keep them from interacting with the hazard and maybe it's a pretty big sign that says "Keep Out".

Ms. Roberts: but if there is a channel-dredging project in the Back River would that impact that?

Mr. Follett: It could, and we've actually been involved with that before. I'm with the Army Corp of Engineers and my partner Chris here could tell you that any time we dredge a channel we prepare a dredging plan and the probability of encountering munitions is part of the dredging plan process. So we could use screens to keep material out of the dredge. It terms of this specific areas its part of an ongoing dredging management process. So a similar dredging project we did, like Point Pleasant, they contact us and say "Hey, what's the probability of encountering MEC?" and we say "Well, the probability is high" and the way you basically keep that out is you go with the smallest item that would be live that we found at Plum Tree Island and in the area is a 5-in.

rocket. So, basically we recommend they use a 4-in. screen on their intakes. That would preclude basically a munition from being including in the dredging

Mr. Cadwell- I have a question - Assuming you get this through… assuming that happens, will any of the remediation that you're doing that eastern side there that purple that's a wonderful incubator for marine wildlife. You'll find sea horses, crabs by the dozen, all types of fish…. But during this remediation why do you do to protect that incubator to make sure we're not silting up the grass beds?

Mr. Follett: on the east side in the purple. We're not going to do anything up there. It's all Institutional Controls. Unless someone finds something and you need to call the military folks out there and say that looks like a great big bomb. We'd perform a response. They'd come in and access it, they could try and knock the fuse out of there and towing along to some place where they can make it go off or worse case it's in bad shape we can't touch it will have to shoot it with something, counter charge it, and there's really nothing you can do to mitigate that shock wave coming out but that's a possibility.

Mr. Bates- As I understand it Back River channel would be red so you're dredging it, you get the munitions out, so it becomes good old regular old … you're going to dredge it you're going to get rid of the munitions and then you can go out there and you don't have to worry about anchoring or anything at all like that. And there's duck blinds out there so those guys don't need to be worried.

Mr. Follett- that dredging was a total different question. As part of our remediation process, we do not intend to dredge. That's not how this process works. We'd have UXO tech in the water who would scan basically do a grids pattern search and they would identify certain anomalies as we call them and they'd say there's a mass over here that we need to look at…and we'd say okay that looks like it might be something. We'd put a ROV out there - an underwater vehicle - and say is it exposed. The guidance we got from the VMRC if it's subsurface and not visible, we should leave it alone. If it's exposed or totally on the top or partially exposed, we do take care of it. In that case, if someone put a net down or anything like that there's a good chance there be an interaction with it.

Mr. Bates- So it looks like that whole Back River area would be clogged up with the restrictions, and the fences, and all that.

Mr. Follett- Just because it's near, it does not totally cover it. We did a couple projects and we mapped basically from about halfway down, halfway out about 600 yards and all the way around the bottom and they mapped about maybe 300ft and they sensed how many anomalies are here and how big are they and they've got a mathematical model that tells them "Yea based on what we found this, area has a high probability".

Mr. Wheeler- I have comment and question. You don't need to respond to the comment necessarily, but I am the city manager of Poquoson… I understand that the entire black area is not accessible now and it's not planned to be publically accessible in the future. I understand that we've been consistent in our comments to the Fish and Wildlife Service plan with that. Between

the National Wildlife Refuge and their 15-year proposed plan and this, you continue to own every single piece of beach within the City of Poquoson and restrict access to all of it to the public and I'm hopeful that somewhere in the green areas we've got some area that may be made safe and accessible to the public. That my comment. My question is, I understand the basic philosophy, I read the plan too and I understand that it still isn't final the remediation gets approved it gets down and then I guess it get shifts solely to the custodial plan of the Fish and Wildlife Service to maintain it in perpetuity. With sea level rise, with storm surge and shifts… what sort of is the plan when a large event happens and the things that are no longer under the ground are now on the ground or thing that were under the subsurface under water are now above? Will that all shift to the park service, or excuse me the Fish and Wildlife Service and are they up for that responsibly?

Mr. Follett. The plan we have now, the Proposed Plan and then the Decision Document are based on existing conditions. Part of that plan is a five-year review period when you come back within 5 years - it could be 2 years - but within 5 years - and we come back and we look at the property and say given everything that we did in the Proposed Plan do we still have the same conditions and if we find out there were two or three or four responses along the shoreline because of erosion and Fish and Wildlife, or anybody else, found what they thought was a bomb, or some sort of munition, then that's going to be documented and that's a tipping point. And that a minimum of a 30-year time span from the time that Decision Document is signed we're on the hook for a minimum of 30 years to come back and make sure that we are still meeting our remedial goals

Ms. Justice. And in addition to the five-year review, regular inspections are usually part of a Land Use Control Plan.

Mr. Green. I'm Buddy Green, and I'm a member of the City Council and I get paid - as Randy said - to speak for the City Council. We all agree when I moved here in 1976 you could go to Cow Island and all those green areas and wonderful beach people would go there picnic, clam during low tide, a wonderful place. But, then, low and behold, along came Fish and Wildlife Service and the signs went up, and people started getting ticketed for being on that beach. My way of thinking is that Fish and Wildlife says that you're not welcome anywhere on that Plum Tree Island and they made it very clear and we've tried to work with them. The city's got over 80 miles of shoreline and no place to have a public beach and that is a public beach and that a perfect place you can get there 5 minutes by boat from just about anywhere in Poquoson we like you to work with us to make that a public beach. What we were hoping is that this is not the end all that you would pick a safe place, make it a public beach place, and were not interested in getting in the water just make it a beach and that's what the city council would like to see.

Ms. Justice- comment noted thank you. Are there any other comments? Thank you all for coming out today and if you'd like to leave a comment on paper you are more than welcome to and we're all around now after the meeting to answer any additional questions.

Transcription of Recording of the 6:30pm Public Meeting

Good evening everyone and thanks for coming out and being part of our Public Meeting tonight to discuss a Proposed Plan that is associated with Plum Tree Island Formerly Used Defense Site Project of the Military Response Program. My name is Brent Graybill, as Chris has said, I'm the protection specialist for the U.S. Army Corps of Engineers Baltimore District working under the Formerly Used Defense Site program or you'll see the acronym FUDS.

OK, the meeting tonight will cover the basic information associated with Plum Tree Island Formerly Used Defense Site Program the project as well here in Poquoson. But tonight's focus will be the presentation of the Proposed Plan. For each of the sites where historic use of munitions has taken place and potential hazards to the public were named. Then to solicit questions or comments from you - the public - about the Proposed Plan that we are going to present to you tonight.

Just a quick agenda overview of the order of what we plan to cover tonight. We though a quick overview would be useful to not only cover the history of Plum Tree Island but also the Comprehensive Environmental Response, Compensation, and Liability Act process we are orchestrating the project under. The objectives of the project, and how we developed the preferred alternatives in the Proposed Plan, presented to you tonight for each of the Munitions Response Sites that we'll get into here individually as we go through the briefing. Lastly, as I said before, we are here to solicit your comments or questions about the project concerning the alternatives selected for each of the Munitions Response Sites in the Proposed Plan to confirm the public is in agreement going forward into a Decision Document, which would be the next step, after the Proposed Plan in the CERCLA process; then a follow-on design; then leading ultimately to a remedial action on site.

OK, as I said before, we'll try not to use acronyms but here's a list of some of the acronyms we have spelled out here and defined for you. We thought this slide might be useful so everyone understands what we're talking about, but hopefully we won't use them.

Lastly, I wanted to discuss some of the partnering agencies we have here. The team entails the Corps of Engineers out of Baltimore District as well as Norfolk. The project manager, as Chris said earlier, is George Follett. We also have contracted teammates from Aptim, Sue Tituskin and Emily Justice. The landowners of U.S. Fish and Wildlife Service in the back of the room here, we have Virginia Department of Environmental Quality as our lead regulatory agency also in the back of the room. We also have a stakeholder in Virginia Marine Resources as our lead agency for the waters surrounding Plum Tree Island and of course the City of Poquoson obviously.

At this time, I'd like to turn the presentation over to our contracted partners at Aptim who will continue with today's briefing, Emily.

Thanks Brent. Can everyone hear me without a microphone? Are we ok? So this is the Plum Tree Island Range. The site boundary is shown here in black. It was used by the Army from 1917 until 1972. They did live-firing training. So this included of air-to-ground bombing, gunnery, and

rocket practice. The majority of site training activities occurring down here in this orange/yellow/blue area. The red here and the black they represent additional target areas. And then the green and the purple and a little bit of pink up here, they represent buffer areas. So they weren't active target areas, but there is a chance of shortfall, or misfire, or fragmentation, within these areas also. We conducted a Remedial Investigation and it identified the potential for MEC, or Military Munitions and we identified hazards at all of these different colored areas, which we call MRSs or Munitions Response Sites. So each of these colored areas is its own munitions response site that we've looked at and evaluated alternatives to address the risk present at the site.

This is a little more background on Plum Tree Island. It's 3,276 acres of salt marsh. It's on the southwestern corner of Chesapeake Bay. Again, the black outline represents the FUDs property we are addressing and the Fish and Wildlife Service is the current landowner and the Plum Tree Island Wildlife Refuge. It's been established as the wildlife refuge since 1972.

There is a small portion of the site on the Lloyd Bay that is private property, and the waterways are under jurisdiction of Commonwealth of Virginia.

So this is an overview of the CERCLA process. Plum Tree Island is a FUDS or Formerly Used Defense Sites and the cleanup is governed under the CERCLA process. We are right here, in the public comment section. This first column is the CERCLA phase, the middle column, the goal of that phase, and the third column shows the date it was achieved. We did a lot of work to get to this point in the investigation. We started here with a Preliminary Assessment where we identified there were Military Munitions at the site. We then did a Remedial Investigation, which characterized the nature and extent of Military Munitions at the site and also characterized the risk related to the Military Munitions. We did a Feasibility Study that evaluated different alternatives to address Military Munitions at the site and came up with a preferred alternative based on a number of factors that we will get into. The Proposed Plan, which is out for public review right now, proposes the selected remedy. We are in public participation, and that goes until August 17th. After the public participation is over, we'll prepare a Decision Document - that will authorize the selected remedy. After that, we will carry out remedial actions that have been selected in the Proposed Plan. And after the remedial action, the Army and the Corps of Engineers will staying involved with five-year reviews and checking to make sure that remedial action address risk at the site and is still addressing the risk at the site.

So what is goal of the Proposed Plan? The goal of the Proposed Plan is to put forth a remedy that meets the Remedial Action Objectives, and for Plum Tree Island, the Remedial Action Objectives is given the intended use of the property owners "**to preclude** current and future **users** of the refuge and adjacent Commonwealth of Virginia **waterways from encountering Military Munitions and MEC**."

How do we pick what alternative is the best for the site? What factors determine which path is best? Luckily, the CERCLA process outlines nine criteria that we is to evaluate each of the alternatives before selecting the preferred alternative. The first two are the Threshold Criteria - and any alternative that's selected must at bare minimum be Protective of Human Health and the

Environment; and, Compliance - any applicable or relevant laws or other regulations. After that, we look at balancing and modify criteria. This includes the Long-Term Effectiveness and Permanence of the alternatives, the total Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment, Short-Term Effectiveness, Implementability, Cost, and then, finally, we look for state or Support Agency Acceptance and public and community acceptance which is why we have you all here tonight. In the following slides, we're going to look at each of the separate MRSs and the preferred alternative that was put forth in the Proposed Plan. First, a brief overview of the difference alternatives we looked at in the Feasibility Study. First is Institutional Controls or Land Use Controls or public education or warning signs. Secondly, we looked at active remediation both on the land portion of the Plum Tree Island Range and in the water. Then we looked addressing Military Munitions on the surface or on the surface and subsurface on the land and in the substrate underneath the water.

This is the first site. It is the Northern Bomb Cluster. That is this small black site in the northern corner. It's actually not that small, it 5.4 acres and it's a circular area that was used as a target. A 50-lb demolition bomb containing explosives was identified in this area. But there is a relatively low density and a relatively small amount of items found there, which suggests that this site wasn't a heavily used target area during the Army's training. With that in mind, the preferred alternative for this site would be a Surface MEC or Military Munitions Removal and Institutional Controls. Institutional Controls would be restricted access, which is already restricted as a wildlife refuge by Fish and Wildlife Service. Additionally public education and signs would help to prevent any further encounter. The surface MEC removal would entail sending unexploded ordnance technicians out surveying the entire site for any Military Munitions on the surface and disposing of them. Institutional Controls would be maintaining the restriction on access that are in place for the Wildlife Refuge and also installing some signs. The cost presented represents both the cost of the removal and also the ongoing cost that are related to the Institutional Controls.

Next up we have the central target area shown here in red. It's 37.7 acres. It's a circular area that was also used as a target area. However this one, our investigations suggest, this was a more heavily used target area. There were several 50-lb demolition bombs identified in this area during the remedial investigation. The preferred alternative for this site is also a surface MEC removal or Military Munitions removal and Institutional Controls.

The majority of military use was down at the southern portion of this site. So next, we're going to talk about the orange area, which is the southeast target area. It is a former target area that was used over an extended period of time. The remedial investigation identified multiple items including bomb fragments, and evidence of craters, and multiple bombs ranging from 50 to 2,000 lbs and high explosive fillers. This is also the protected habitat for the northeastern beach tiger beetle and, with this in mind; we selected a shoreline MEC removal and Institutional Controls as the preferred alternative for this site.

This green are represents the land portion of the buffer area, it is called the Refuge Buffer Area and it is 1,921 acres. Since there is a lower probability of Military Munitions in this area Institutional Controls was selected as the preferred alternative.

In pink, there are three private properties that are not part of the Formerly Used Defense Site or the U.S. Fish and Wildlife Refuge. 39.6 acres. The RI did not investigate these areas but due to the proximity of known target areas and the buffer area there is a low potential for encounter of Military Munitions in this area. We've selected Institutional Controls as the preferred alternative for this site as well.

Next, we are going to talk about the water munitions response sites. This is the water portion of the buffer area. It is 770 acres. There is little evidence that it was used as a target area but again there are known target areas to the north, in the middle of the site, and down at the bottom, so there is that chance of a stray military munition in the area. We've selected Institutional Controls as the preferred alternative here.

Next up is this yellow area. This is the high probability shallow water buffer. It is the shallow water that is adjacent to the land portion of this target area. It goes from the shoreline out to where the water is 3 feet deep. During the Remedial Investigation, eight tons of metallic debris were removed. This was mostly rockets. This whole area at the south was used for an extended period of time and we know there is a high probability of Military Munitions there. We came to a preferred alternative of removing exposed Military Munitions from the substrate, underwater and also Institutional Controls for this site.

Lastly, this blue area is the high probability deep-water buffer. It is the deep-water portion of the former target area. It was used over an extended period of time. It's 947 acres. So while this area wasn't intrusively investigated during the remedial investigation, there was mapping conducted and there were a lot of metallic items, consistent with what we were finding in the shallow water out in the deeper water. We've also selected an exposed MEC removal at this Munitions Response Site and Institutional Controls.

So that brings us to the end of the presentation so I'd like to open it up for any comments that you all may have.

Mr. Wieszek- So basically surface sweeps and ICs.

Ms. Justice- Yes, yes. For the target areas, there will be surface removals and there will be Institutional Controls for the entire site.

Mr. Wieszek - And you talked about some erosion. Like how often would you come back to review the surface of the areas where you had removals, and see if anything washed up or exposed?

Ms. Justice- So, part of Institutional Controls would include a Land Use Control Plan, and the Land Use Control Plan would outline the frequency of inspections. So, the Corps of Engineers would come out at a regular basis.

Mr. Follett- Actually, we would do our initial look that will be outlined in the Decision Document. At that point, and then we would rely on the property owner to keep an eye on the shoreline. During our five-year review period, which would start when the Decision Document is signed, if there is significant finds in these areas then we would go back and do another clearance. It will be all summarized in the Decision Document. There no… we can't really do in perpetuity go back every year and do a clearance because the congress is the only folks that can authorize the funds for the past 5 years so we can't do that. But, if it's in the Decision Document, it's authorized and we can come out on an as-needed basis as indicated by the five-year reviews.

Tom Powers- Institutional Controls… when are we going to get access? Go back to you last chart. Right now, Institutional Controls make it so you can't access it. You won't be able to access the river or anchor off the river or fish off the river the blue goes all the way across the river… and how does this compare to the area that currently restricted, which by the way is restricted because the Army Corps says one thing and the state code regulatory code says something else. Army Corps says don't get out of your boat. State code says don't go past the sign. I don't know what's getting enforced.

Mr. Follett- This really falls under the Virginia Marine Resources Commission.

Mr. Powers- I know, I sent an email to Steve last week. Same one I sent him 10 years ago.

Mr. Follett- A letter was written to authorize commercial fishing in that area and that was before we have the data that we collated or we gathered during the Remedial Investigation. So, before that sign… back in 2005–2006… there was a letter that was signed that authorized commercial fisherman to go in.

Mr. Powers- It authorized anyone to go in so long as that you did not get out of the boat and disturb the bottom.

Mr. Follett- So, at any rate, we were talking with the Marine Resources Commission and our recommendation now is that any of the areas in the purple we'll allow you to go in there, in the waterways, not to disturb the bottom. The commercial fisherman could disturb the bottom as per the Virginia code of regulations.

Mr. Powers- so you're going to allow not allow me to go in there… but you'll going to allow haul seiners in there and drive pilings down into the bottom….

Mr. Follett- They shouldn't be driving pilings.

Mr. Powers- They do. That is the way they work that gear. And you're going to allow commercial fisherman with a gill net to use a…uh…to set their nets that'll go a foot and a half into the water…and when they are pulling it up they are going to run into that bottom, that's what they do.

Mr. Follett- So do you have a recommendation?

Mr. Powers- clear the area so that people can use it or just be consistent about how you are going to do it. If nobody can touch the bottom… if... commercial fisherman can do something in that

area, that recreational fisherman can. Certainly if you are concerned with these areas, about buried munitions, you shouldn't allow people to drive pilings down there or for haul seiners to go down there.

Mr. Follett- I agree 100 percent.

Mr. Powers- That is the way they work that gear.

Mr. Follett- And we'll work with the Virginia Marine Commission… our biggest concern is the areas in the south… our data says there's a pretty high probability of stuff being there. So we want to limit activities in that area that disturb the bottom. When we do our remedial action, the plan is to take everything that's either sitting on the bottom, or exposed and we're going to get rid of that.

Mr. Powers- so if it's under the sand you're not going to move it.

Mr. Follett- That's correct. The VMRC does not want us to do anything other that at this time. They are the property owners, so there's nothing else we can do about that.

Mr. Powers- so what your team, what you're planning on doing, is …. What restrictions are going to do as far as the Institutional Controls on the different areas? That's really the concern. I mean if, because if I have a kayak all the way around Messick Point all the way around Cow Island and back to Messick Creek.

Mr. Follett- The best this you can do is get your comments in writing, on one of these pieces of paper here, so send us an email and we will forward all this to the Virginia Marine Resources Commission.

Mr. Powers- So what is the Army Corps going to put in their directive? Right now, we're following the 2003 directive that says nobody can enter the area where the signs are. And then they…and then about 6 months after they put the regulation in place you changed the directive.

Mr. Follett- The Army Corps doesn't do directives like that.

Mr. Powers- There was I don't know what you want to call it, but there were two documents from the Army Corps that said what the restrictions were. One was in 2003, and one was in about 2005. The 2005 one apparently has the ban you were talking about. And that one said you can't disturb the bottom, and in 2003, it said you can't go to the area.

Mr. Follett- The Army Corps came up with a Danger Zone and it came out in a format of a notice to mariners. It actually expired. It expired in 2007.

Mr. Powers- So right now the Army Corps has no concern.

Mr. Follett- The Army Corps doesn't have the power to make restrictions. It falls within the purview of the VMRC. Our issue here is really the munitions that could affect people or the environment when interacting with them.

Mr. Powers- I'm just trying to figure out what interactions with the public you will continue to do. That's really what the issue is here and I imagine that's a lot of what you heard earlier today.

Mr. Follett- As I said the best thing to do is put it in writing and we'll forward that to the VMRC.

Mr. Powers- I don't have to put it in writing. I talk to Steve all the time.

Mr. Augsburger- Are there any more comments?

Mr. Hux- Yes, my name is David Hux. I serve on the Poquoson City Council. I'm here tonight to represent the constituents and taxpayers of the city. Thank you very much for being here tonight and giving us the opportunity to hear the presentation, and ask questions, and make comments. The City of Poquoson though, one topic that we are very concerned about, is access to the Cow Island portion on the refuge, which is a very small percentage of the overall acreage. I understand that Cow Island was not used as part of the bombing range. I know in past years when that was privately owned… as tax payers, in as city that is very much adjacent to that property, we would very much like access to a small portion of Cow Island. I know in past experience, me and my family have benefited from that - my children in particular gained knowledge and exposure to the wildlife. And we would very much so like if we could go back to previously before the signs were posted. Approximately 15 years ago right after the signs on Cow Island were posted, we saw the signs and my wife contacted the agency and we got an email from a Mr. John Volego I believe…. The message I received at the time was it was okay to access Cow Island for the purpose of enjoying the wildlife. Not for the purpose of cookouts and camping, and that sort of thing; but to be there for that purpose… we would appreciate very much if those portions of Cow Island could be open to public access for exposure and enjoyment of wildlife.

Ms. Justice- Bill can you give an update on where Fish and Wildlife is?

Mr. Crouch- Hello my name is Bill Crouch. I'm the acting director for Eastern Virginia Rivers Refuge Complex which includes Plum Tree Island. About a year ago, we had a similar meeting for our Comprehensive Conservation Plan meeting, and so as part of the proposed draft CCP, the proposal was to open up a portion of Cow Island to the public for wildlife related activities. We don't yet have a final plan that is ready for release at this time. And I wish I had a date for when that would be, but we, as soon as we have the green light to release that final plan we will, but I can only really speak to what's out there for the public right now, which is the draft plan from a year and a half ago which did propose to open up a portion of Cow Island which is outside of the former bombing area, for wildlife intended recreation.

Mr. Hux- Well we certainly appreciate that, I would like to reference a letter that our mayor sent out there related to the meeting about a year or so ago. And the mayor also sent a letter dated July 11 this year to Ms. Cynthia Mitchel. I feel like the mayor stated our hopes for that very well and I certainly appreciate and consideration for doing this. Thank you.

Ms. Justice- Are there any more comments?

Mr. Cannella- Yes, my name is Thomas Cannella I serve on the City of Poquoson City Council, like Councilman Hux, and I frequent the refuge and if you zoom in on Lloyd Bay …there's a little duck blind there which is kind of ironic because it 40 yards from Cow Island. But there you have them. But 40 yards at Cow Island, you can't. To me, that's part of the problem and as

Councilman Hux said, we would, and I would - our constituents would - very much appreciate access to it. Now, after the surface removals are conducted, and correct me if you are wrong, in there, and in the buffer zones, is there any change of public access after… if there was a low density or not a heavily used target area? I'm talking about the marsh that are considered buffer zones.

Mr. Crouch- as far as the marsh itself is concerned, as part of the draft plan, there's no proposal to open up that portion of the refuge which is part of the former bombing range.

Mr. Cannella- And why is that?

Mr. Crouch- Because there is no guarantee that it's safe for the public.

Mr. Cannella- So what is the…Why is the…Why…What is the hesitation in the surface surveys being conducted upon those areas and then some form of conversation between the… saying "Hey, we didn't find anything here." They are buffer zones, not a heavily used area, and to see the possibility of opening up the marsh?

Ms. Justice- So we did a Remedial Investigation that looked at the entire site. We found there was a low probability, but still a probability, there's a risk there from Military Munitions. There's no clean-up that we can do that would get you to zero risk. It's a dynamic environment; things could become exposed…so we need to keep those restrictions in order to be protective.

Mr. Cannella- So there is a zero chance that the Army will ever make the recommendation that we can access it, is that true?

Mr. Powers- So if that is the case why bother doing anything?

Mr. Cannella- Is there zero chance that the Army Corps ever make the recommendation that it can be accessible?

Ms. Justice- I don't think there's zero chance… but the Proposed Plan outlines the cost of a subsurface removal-126 million dollars, so that cost has ruled it out from further consideration.

Mr. Powers- So what's the point of spending 4.6 million dollars for the land portion of the cleanup if the public, who's paying for it, is never going to get to use it?

Ms. Justice- We're removing the highest amount of risk, to reduce the overall risk at the site.

Mr. Powers- Just put up signs that say don't go here and Fish and Wildlife says stay out of it too.

Mr. Follett- It's kind of a dual answer, certainly technology tells us that we could go in there with a 95 percent probability that there's nothing there within a few feet. But then the other part of the answer is that it's a wildlife refuge and the people that manage that property and own that property; they made that call.

Mr. Powers - put you're supposed to be able to go on the wildlife refuge and observe wildlife do bird watching, hiking, things like that, go fishing. That's one of the things that wildlife refuges allow. And right now, the way you're talking, I can't go wade fishing in any of that purple on the eastside of Plum Tree Island in the future. Right now, I can't do it from that red mark south, but

that northern part is all open. I've raised my kids going out there crabbing…and right now, you're saying we can't do that anymore because there's a risk. Is that true?

Mr. Follett- As I said before, those waterways are controlled. They are under the auspices of the VMRC, and we are going to work with them to see what's reasonable.

Mr. Powers- But what is the Army Corps of Engineers' current recommendation for use of those areas? I'm not saying drive pilings in for duck blinds - by the way I do support being able to do that - but I'm just saying getting out there or walking around out there or clamming or something like that… scraping the surface 3 or 4 feet deep?

Mr. Follett- Our recommendation may be, and I'm kind of assuming this way, if it's a low probability area, we don't have a problem with folks going in there doing certain activities as long as they don't disturb the bottom. And then the other areas down below where there is a high probability, we don't recommend any activities down there until we can get in there and do a clearance.

Mr. Wieszek- Did you do the MEC Hazard assessment on these areas?

Ms. Justice- Yes.

Mr. Wieszek- How did they come out?

Ms. Justice- There is a MEC hazard at all of these munitions response sites…off the top of my head, I don't know the number - it's in the Proposed Plan.

Mr. Follett- There's also an MRSPP, and I don't know all the numbers for that, but if you do the charts and the tables. And that was done for all of the Munitions Response Sites and that's how we determine the low probability and the high probability.

Ms. Tituskin- For the land MRSs- the Southeast Target Area, Central Target Area, and the Northern Bomb Range Cluster - all received a 1, which is the highest score.

Ms. Justice- The MEC HA doesn't apply to the water.

Mr. Wieszek- so how does the Army Corps assess the risk?

Ms. Justice- We've gone out, we've delineated these sites, where the highest probability would be based on found Military Munitions.

Mr. Follett- We actually mapped the offshore areas, if I remember correctly, every 300 meters they ran a lane and they ran it from the top all the way down south and they had some modeling software they used and they could tell that, based on what we found on land, the bottom two areas correlated almost precisely to the land portion.

Ms. Justice- Are there any other questions?

Mr. Wilson- can you go back to the schedule, back at the very beginning. We're down in the red and were getting ready to go into the Decision Document phase and then the selected remedy and so forth… and if I did the math in my head, it's about 15 million dollars for all of the sites… just

under 14 to do all of it. Is there funding for all of that? Are you all ready to go? Somewhere you've got to have the money.

Mr. Follett- the Decision Document goes to headquarters of the Army Corps of Engineers, and they are now given the authority to sign up to a certain dollar amount. I want to say its 200 million dollars they can authorize per expenditure for funds on this project, given that congress still has to appropriate the funds for each year. So then, once they do that, it goes through the different services and they allocate the funds within the programs…so the FUDS program. So if they sign-off on it, then we go ahead and do the work. And I'll tell you that Plum Tree Island is very high on priority list.

Mr. Wilson- So high priority to the Army Corps of Engineers but still subject congress?

Mr. Cannella- Are there any stats on the frequency of use for these areas?

Mr. Follett- More than we'd like.

Mr. Augsburger - Any more comments?

Mr. Hux- I do have one more comment if you'd like, the entire marsh is a storm buffer for the city of Poquoson. So we are interested in any action that might be taken to prevent erosion and make sure that buffer stays in place. We'd certainly appreciate any action you could take on that.

Ms. Justice- Noted, thank you. Are there any other questions tonight? Did everyone get a chance to fill in the sign in sheet? Well thank you all for coming out tonight and we'll be around if you have any additional question. Thank you.

Attachment B
Written Public Comments

CITY OF POQUOSON

500 CITY HALL AVENUE, POQUOSON, VIRGINIA 23662-1996
(757) 868-3000 TELEPHONE (757) 868-3101 FAX

Office of the Mayor
W. Eugene Hunt, Jr.

July 11, 2018

Ms. Cynthia Mitchell
U.S. Army Corps of Engineers, CENAB-PA
2 Hopkins Plaza, 10-F-24
Baltimore, MD 21203-1715

Dear Ms. Mitchell,

Thank you for the opportunity to provide comments regarding the Proposed Plan for the Plum Tree Island Range. As a lifelong resident of the City of Poquoson and the Mayor of the City I would like to express my appreciation and support for the approximately $13.5 million in proposed expenditures to implement a series remedial strategies/alternatives across the eight identified munitions response sites (MRS). As indicated in the preferred alternatives recommendations, these strategies range, depending on the MRS, from institutional controls to surface and shoreline munitions and explosives of concern (MEC) removal to exposed MEC removal.

While I appreciate and support the proposed actions outlined in the preferred alternatives, I would respectfully ask the USACE to strongly consider additional actions necessary to provide safe public access, most likely via boat, to one or more of the Refuge's beach areas. As you may be aware there are no publically accessible beaches available to the citizens of Poquoson. Given the fact that the proposed plan indicates that the actions selected will be the final actions for each MRS and noting the continued resistance of the U.S. Fish and Wildlife Service to allow public beach access on Cow Island, which as you are aware is a part of the Refuge outside of the identified MRS areas, a decision by the USACE to not pursue strategies to allow for public beach access effectively precludes all publically owned, i.e. federal government, beaches in our coastal community from public enjoyment and use in perpetuity.

I would be pleased to meet with you and other members of the USACE to discuss means by which limited public access to the beach(es) at Plum Tree Island might be achieved. Thank you again for the opportunity to provide my comments on the Proposed Plan.

Sincerely,

W. Eugene Hunt, Jr.
Mayor, City of Poquoson

Cc: Senator Mark R. Warner
Senator Tim Kaine
Congressman Scott Taylor

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

August 3, 2018

Executive Office

The Honorable W. Eugene Hunt, Jr.
Mayor of Poquoson City
500 City Hall Avenue
Poguoson, VA 23662

Dear Mayor Hunt:

Thank you for your letter, dated July 11, 2018, and comments regarding the Proposed Plan and Preferred Remedial Alternatives for Plum Tree Island (PTI) Range in Poquoson, Virginia. Within the letter, you request that the U.S. Army Corps of Engineers consider additional actions necessary to provide safe public access to parts of PTI and interest in meeting with Corps members to submit further comments including considering limited public access to PTI.

The Corps' sole responsibility is performing an environmental munitions response, or cleanup, of the PTI Range, Formerly Used Defense Site (FUDS) for the U.S. Department of Defense. The U.S. Fish and Wildlife Service (USFWS) is the current property owner of the former range, as part of the larger 3,501-acre PTI National Wildlife Refuge. Determinations regarding current and future public access to PTI fall outside of the Corps' responsibility and all comments addressing this matter should be directed to USFWS.

Matters regarding the water boundary surrounding PTI should be addressed to the Virginia Marine Resources Commission.

The Corps values the opinions of local community members including elected officials.

Your letter will be submitted as a formal comment and, along with other public comments received through the open period, will contribute towards the overall evaluation of PTI alternatives. If you would like to submit further comments, you may email them to Cynthia.Mitchell@usace.army.mil or send written comments to:

Ms. Cynthia Mitchell
U.S. Army Corps of Engineers, CENAB-CCO
2 Hopkins Plaza, 10-F-24
Baltimore, MD 21201

Thank you for your interest in the FUDS program. If you have any further questions, please do not hesitate to contact me or have a member of your staff contact me at 410-962-4567 or carlos.j.lazo@usace.army.mil.

Sincerely,

Carlos J. Lazo
Government Affairs Officer

cc:
Senator Mark R. Warner
Senator Tim Kaine
Congressman Scott Taylor

CITY OF POQUOSON

Office of the Mayor

500 City Hall Avenue, Poquoson, Virginia 23662-1996
(757)868-3000 Fax (757)868-3101

September 19, 2018

Ms. Cynthia Mitchell
U.S. Army Corps of Engineers, CENAB-CCO
2 Hopkins Plaza, 1-F-24
Baltimore, MD 21201

Dear Ms. Mitchell:

Thank you for your letter of August 3, 2018. I appreciate the acknowledgement of the concerns that I expressed in my letter of July 11, 2018 as it relates to providing limited, safe public access to portions of the Plum Tree Island (PTI) Refuge. I was however disheartened by your response that the Corp's sole responsibility is preforming the environmental munitions response for the Plum Tree Island Range and your subsequent referral that we contact the United States Fish and Wildlife Service (USFWS) to discuss current and future public access. We have done so several times and we are still waiting on a response from USFWS to our comments submitted over a year and a half ago as it relates to the *USFWS Draft Comprehensive Conservation Plan and Environmental Assessment for the Plum Tree Island National Wildlife Refuge* issued January 2017.

Rather than relying on the City of Poquoson to perform a coordinating role between the USFWS and the USACE, I am asking that representatives of the these two federal government agencies work together to coordinate a federal plan of action in response to the City's ongoing request on behalf of the citizens of Poquoson and the surrounding communities for increased public access. Working together, I am confident that the two agencies can develop a plan that incorporates the concerns I have previously addressed and also meets your respective responsibilities and requirements. I am concerned that without this type of proactive, coordinated federal approach all of the PTI Refuge will remain closed to the general public for the foreseeable future, perhaps permanently.

Sincerely,

W. Eugene Hunt, Jr.
Mayor, City of Poquoson

cc: Senator Mark R. Warner
Senator Tim Kaine
Congressman Scott Taylor

-----Original Message-----
From: Nancy Brooks
Sent: Friday, August 3, 2018 4:10 PM
To: Mitchell, Cynthia M CIV USARMY CENAB (US) <Cynthia.M.Mitchell@usace.army.mil>
Subject: [Non-DoD Source] Opposed to opening Poquoson wildlife reserve

I am writing to express my opposition to the Poquoson City Council's request to open Plum Tree to public use. This is a vital undeveloped tract in our waterfront city.

Not only is it impossible to make this area 100 per cent safe, it will destroy an important wildlife reserve. Thank you for the opportunity for public comment.

Nancy Brooks

ATTACHMENT C
VMRC EMAIL

-----Original Message-----
From: Warner Rhodes [mailto:Warner.Rhodes@mrc.virginia.gov]
Sent: Wednesday, September 11, 2019 10:05 AM
To: Graybill, Brent M CIV USARMY CENAB (USA) <Brent.M.Graybill@usace.army.mil>
Cc: mike.johnson@mrc.virginia.gov
Subject: RE: [Non-DoD Source] RE: Plum Tree Island - Exemption Letter for Waterman (UNCLASSIFIED)

Good morning MR. Graybill, I am in receipt of your letter addressing Plum Tree Island Restricted Area Enforcement through Environmental Engineer Mike Johnson with VMRC. I have discussed this restricted area with VA Marine Police Chief, Col. Rick Lauderman and he and I are in agreement that we will assist in the enforcement of this area. If you have any other concerns please call us.

Regards,
Lt Col. Warner Rhodes
Deputy Chief of Law Enforcement
VA Marine Police
VA Marine Resources Commission
757-257-2072 Office

-----Original Message-----
From: John Johnson <mike.johnson@mrc.virginia.gov>
Sent: Monday, September 9, 2019 10:19 AM
To: Warner Rhodes <Warner.Rhodes@mrc.virginia.gov>
Cc: Graybill, Brent M CIV USARMY CENAB (US) <Brent.M.Graybill@usace.army.mil>
Subject: FW: [Non-DoD Source] RE: Plum Tree Island - Exemption Letter for Waterman (UNCLASSIFIED)

Good morning
Please see the email below regarding the Plum Tree Island Exclusion Zone.
Can you help out the ACOE with their request as I don't have any authority to speak to this issue?

Mike Johnson
Environmental Engineer
Virginia Marine Resources Commission
380 Fenwick Road
Hampton, VA
757-247-2255

-----Original Message-----
From: Graybill, Brent M CIV USARMY CENAB (USA) <Brent.M.Graybill@usace.army.mil>
Sent: Friday, September 6, 2019 8:47 AM
To: John Johnson <Mike.johnson@mrc.virginia.gov>
Subject: FW: [Non-DoD Source] RE: Plum Tree Island - Exemption Letter for Waterman (UNCLASSIFIED)

Mike,

Good morning! See below from our lawyers concerning the restricted area's re-establishment for enforcement.

I can't find anything official from VMRC for our legal file concerning VMRC acknowledgement or receipt of the attached.

Did VMRC reply in any way back then to us? Can they? I think an email would be fine....

Brent
410-962-4258

-----Original Message-----
From: Jerger, David B Jr CIV USARMY CENAB (US)
Sent: Thursday, September 5, 2019 9:26 AM
To: Graybill, Brent M CIV USARMY CENAB (USA) <Brent.M.Graybill@usace.army.mil>
Subject: FW: [Non-DoD Source] RE: Plum Tree Island - Exemption Letter for Waterman (UNCLASSIFIED)

Brent, did we get a response from VMRC after we provided the letter requested by this email?

David

-----Original Message-----
From: John Johnson [mailto:mike.johnson@mrc.virginia.gov]
Sent: Tuesday, July 31, 2018 11:08 AM
To: Follett, George C CIV CENAB CENAD (US) <George.C.Follett@usace.army.mil>; Graybill, Brent M CIV USARMY CENAB (US) <Brent.M.Graybill@usace.army.mil>
Cc: Greene, Paul E CIV CENAB CENAD (US) <Paul.E.Greene@usace.army.mil>; Hughes, Edward T CIV USARMY CENAB (US) <Edward.T.Hughes@usace.army.mil>
Subject: [Non-DoD Source] RE: Plum Tree Island - Exemption Letter for Waterman (UNCLASSIFIED)

Good morning,
I just spoke to our law enforcement division and a summons was issued for someone entering the exclusion zone about a month ago. Since the exemption letter has expired I think we need to decide where we want to go with enforcing the exclusion zone. A discussion as to whether or not the exclusion zone should be enforced would be appropriate. If the decision is that it should be enforced then a letter to our law enforcement division should be provided. If the consensus is that the exclusion zone should be discontinued then some additional discussions will be needed as well with the ultimate goal of having our regulation rescinded.

Mike Johnson
Environmental Engineer
Virginia Marine Resources Commission
2600 Washington Avenue
Newport News, VA 23607
757-247-2255

-----Original Message-----
From: Follett, George C CIV CENAB CENAD (US) <George.C.Follett@usace.army.
mil>
Sent: Monday, July 23, 2018 2:52 PM
To: Mike.johnson@mrc.virginia.gov; Graybill, Brent M CIV USARMY CENAB
(US) <Brent.M.Graybill@usace.army.mil>

Cc: Greene, Paul E CIV CENAB CENAD (US) <Paul.E.Greene@usace.army.mil>; Hughes, Edward T CIV USARMY CENAB (US) <Edward.T.Hughes@usace.army.mil>
Subject: FW: Plum Tree Island - Exemption Letter for Waterman
(UNCLASSIFIED)

FYSA. We should discuss this on Thursday.

George Follett, OESS & PMP
USACE Baltimore
EESS Section, Cube 9-E-20
2 Hopkins Plaza
Baltimore MD 21201
410 962 6743 (desk)
410 320 8157 (BB)

-----Original Message-----
From: James, Adriane B HQ
Sent: Monday, July 23, 2018 2:43 PM
To: Hughes, Edward T CIV USARMY CENAB (US) <Edward.T.Hughes@usace.army.mil>; Follett, George C CIV CENAB CENAD (US) <George.C.Follett@usace.army.mil>
Cc: rensdryden@icloud.com
Subject: Plum Tree Island - Exemption Letter for Waterman (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Baltimore,

I just received a phone call for a local waterman(Mr. Charles Dryden -- he is cc: on this mail) from Poquoson, VA concerning Plum Tree Island.
Back when we started the FUDs project we(USACE) coordinated with Virginia Marine Resources Commission (VMRC) with a letter with an exemption to allow the local watermen to enter the restricted area. Based on my discussion with the gentleman he was told that the letter has expired.

Can someone please follow up with Mr. Dryden?

Charles Dryden (757) 592-0134
rensdryden@icloud.com

Thanks

Adriane B. James, PMP
Program Manager
CEMP-IS
PPM CoP (Military)
HQUSACE, 3S91
☎ 202-761-5786 (office)