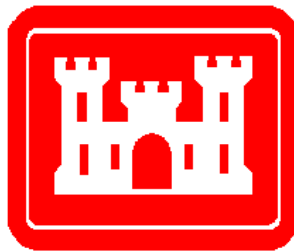


FINAL

**SECOND FIVE-YEAR REVIEW
BUCKROE BEACH
FUDS PROPERTY # C03VA1011
HAMPTON, VIRGINIA**



Prepared by

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7 August 2025

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LIST OF ACRONYMS AND ABBREVIATIONS

ARAR	Applicable or Relevant and Appropriate Regulations
AFB	Air Force Base
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
DD	Decision Document
DERP	Defense Environmental Restoration Program
DGM	Digital Geophysical Mapping
DMM	Discarded Military Munitions
EOD	Explosive Ordnance Disposal
EPA	U.S. Environmental Protection Agency
FFS	Focused Feasibility Study
FUDS	Formerly Used Defense Sites
FYR	Five-Year Review
IC	Institutional Controls
LUCs	Land Use Controls
LUCIP	Land Use Control Implementation Plan
MC	Munitions Constituent
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
MMRP	Military Munitions Response Project
MRS	Munitions Response Site
NAB	U.S. Army Corps of Engineers, Baltimore District
NAD	U.S. Army Corps of Engineers, North Atlantic Division
NCP	National Contingency Plan
PDT	Product Delivery Team
RAO	Remedial Action Objectives
RI	Remedial Investigation
SVOC	Semivolatile Organic Compounds
TBC	To Be Considered
TCRA	Time Critical Removal Action
USACE	U.S. Army Corps of Engineers
UU/UE	Unlimited Use/Unrestricted Exposure
UXO	Unexploded Ordnance
VADEQ	Virginia Department of Environmental Quality

EXECUTIVE SUMMARY

This is the second Five-Year Review (FYR) of the Buckroe Beach ('the Site'), located in Hampton, Virginia. This FYR is being performed under the Defense Environmental Restoration Program (DERP), Formerly Used Defense Site (FUDS) Program, and Military Munitions Response Program (MMRP) as a Munitions Response Site (MRS), due to hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure. The purpose of this FYR is to evaluate the implementation and performance of the remedy to determine if the remedy is and will continue to be protective of human health and the environment.

Since beach replenishment activities at Buckroe Beach in 1990 and 1996, several assessments have been conducted. Munitions and Explosives of Concern (MEC) were identified as a result of offshore dredging. As documented by the U.S. Army Corps of Engineers (USACE), interim actions—including recovery by Explosive Ordnance Disposal (EOD) teams—addressed immediate risks and were protective of public health and safety. Based on these actions, no additional remedial work has been conducted to date. As stated in the Decision Document (USACE, October 2015), the USACE determined that land use controls (LUCs), including public notification and education measures, are necessary to protect human health, safety, and the environment for Buckroe Beach.

This FYR, conducted by the USACE, Baltimore District, concludes that the current remedy at Buckroe Beach is short-term protective of human health and the environment. Two signs are currently in place along public access points, and the 3Rs (Recognize, Report, Retreat) Explosives Safety Education video and brochure are currently available to permitted metal detector users. To ensure long-term protectiveness of the remedy, several actions are recommended. At least one pair of signs (two signs total) should be installed at the northern end of Buckroe Beach, and ensure that moving forward, recommendations noted in the FYR are implemented in a timely manner. Additional 3Rs Explosives Safety Education flyers and brochures should be provided to the City of Hampton for public distribution. The 3Rs Explosives Safety Education video should be updated to include current Public Affairs Office (PAO) contact information for individuals seeking to conduct metal detecting on the beach. Additionally, annual site inspections should be performed, and the LUCIP should be revised to incorporate O&M activities. LUCIP revisions should also address magnet fishing as an exposure pathway. These updates are necessary to support the long-term effectiveness of the remedy and protect human health and the environment.

**2025 FIVE-YEAR REVIEW, DRAFT
MILITARY MUNITIONS RESPONSE PROGRAM
BUCKROE BEACH
FORMERLY USED DEFENSE SITE (PROPERTY No. C03VA1011)
HAMPTON, VIRGINIA**

1.0 INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports, such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The United States Army Corps of Engineers (USACE), Baltimore District (NAB) is preparing this FYR, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) [40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii)], and United States Environmental Protection Agency (EPA), Department of Defense (DOD) and Formerly Used Defense Sites (FUDS) policy.

This is the second FYR for Buckroe Beach FUDS (here in referred to as ‘the Site’). The Site is listed in FUDS as Property No. C03VA1011 and in the Military Munitions Response Program (MMRP) as Munitions Response Site (MRS) C03VA101101. The triggering action for this review is the signature date of the first FYR (USACE, 2020) on 7 August 2020. This FYR has been prepared because hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The FYR for Buckroe Beach was led by Mr. Brent Graybill, Project Manager with the USACE, Baltimore District. Participants from the USACE, Baltimore District included: Marty Holmes (Chief of the USACE, Baltimore Ordnance and Explosive Safety Section), Kimberly Berg (Environmental Engineer) and Kristin Sherlock (Geologist). The Virginia Department of Environmental Quality (VADEQ) is the regulatory supporting agency. The review began on 7 August 2024.

1.1 Site Background

1.1.1 Site Description

The Site is comprised of 26 acres (USACE, October, 2015), located on the western shore of the Chesapeake Bay approximately 3 miles north from the mouth of the James River and Fort Monroe (**Figure 1**). The geographic coordinates for the Site are latitude 37° 2' 20" and longitude 76° 17' 30". The Site is a public beachfront consisting of approximately 0.75 mile of flat, sandy beach, from Pilot Avenue in the north to the Buckroe Beach fishing pier (also known as the James T. Wilson Fishing Pier) in the south.

The Site is backed by a concrete boardwalk and seawall, the landward side of which is bordered by Buckroe Beach Park (to the south) and private housing (to the north). Along the beach, there are eight stone groins, a breakwater, the James T. Wilson Fishing Pier, and a second, abandoned pier approximately 500 feet north of the Fishing Pier. The Site is located within the downtown section of the

City of Hampton, Virginia, an independent city of the Commonwealth of Virginia. Most of the land use within the City of Hampton is residential; however, the city center is mostly commercial businesses (USACE, October 2015).

1.1.2 Land and Resource Use

The current and anticipated future use of Buckroe Beach is recreational. The City of Hampton owns the beach and has designated it for permanent recreational use in its zoning and its land use plan (**Figure 2**). The City of Hampton requires a license for any metal detection activity at the Site. Small-scale, short-term construction work may also occur to preserve the beach (e.g. erosion control jetties) or enhance recreational use (e.g., piers, small buildings) (USACE, October 2015).

1.1.3 History of Contamination

In July and August 1990, the City of Hampton, Virginia, conducted a beach replenishment project at Buckroe Beach, after which approximately 55 MEC items were recovered (USACE, October 2015). The sand material was dredged from the borrow area at the bottom of Chesapeake Bay approximately 2 miles offshore to a depth of 8 feet. The available range fan charts were checked, and it appeared the borrow area was outside the impact area of nearby Fort Monroe, located just south of Buckroe Beach. There was no screening for Munitions and Explosives of Concern (MEC) during the dredging project. Material Potentially Presenting an Explosive Hazard (MPPEH) found on the beach was reported to the local Explosive Ordnance Disposal (EOD) unit. **Figure 3** shows the locations where MEC was recovered.

Initially, the EOD response to MPPEH that had been found was coordinated directly between the Hampton Fire Department in Buckroe Beach and Langley Air Force Base (AFB) EOD. Other City offices or the USACE were not notified of the potential MEC finds (USACE, 2015). By November 1990, USACE, North Atlantic Division (NAD), determined that Buckroe Beach was eligible to be managed under the Defense Environmental Restoration Program-Formerly Used Defense Sites (DERP-FUDS) based on the military origin of the MEC.

In 1996, the City of Hampton conducted a second beach replenishment project, during which further MPPEH items were recovered (USACE, October 2015).

Table 1: Five-Year Review Summary Form

Five-Year Review Summary Form		
SITE IDENTIFICATION		
Site Name: Buckroe Beach		
Formerly Used Defense Site (FUDS) Project Number: C03VA1011		
Region: 3	State: VA	City/County: Hampton
SITE STATUS		
National Priority List (NPL) Status: Non-NPL		
Multiple OUs? No	Has the site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: Other Federal Agency		
If “Other Federal Agency” was selected, enter Agency name: U. S, Army Corps of Engineers (USACE), Baltimore District (NAB)		
Author name (Federal or State Project Manager): Brent Graybill		
Author affiliation: USACE, Baltimore District		
Review period: 7 August 2024 – 7 August 2025		
Date of site inspection: 29 October 2024		
Type of review: Statutory		
Review number: 2		
Triggering action date: 7 August 2020		
Due date (five years after triggering action date): 7 August 2025		

2.0 RESPONSE ACTION SUMMARY

2.1 Basis for Taking Action

MEC items such as 75-mm MK-1 shrapnel projectiles, 76-mm projectiles, 40-mm practice projectiles and projectile fuzes have been found at the Site. There are two potentials in a hazards assessment for MEC: consequence and human interaction. The consequence potential involves the severity and sensitivity of munitions and the behavior of the people interacting with those munitions. The consequence potential was deemed low overall due to the lack of munitions items found that were sensitive (i.e., unexploded ordnance: UXO) or severe (USACE, October 2015).

The human interaction potential involved the type of sources for munitions as well as interaction and access potential. The human interaction potential was high because the Site is a public access beach with many visitors daily during the summer season. Overall, a finding of low safety risk was found due to a combination of each of the primary hazard factors that are presented above. Even though there is a high potential pathway, the six past removal actions (between 1990 and 2004), in combination with the low consequence potential, combine to give a finding of low overall safety hazard (USACE, October 2015).

However, there remains the possibility of MEC in the near shore areas that may potentially move to the surface because of erosion or migration, especially during storm events. The risk to encounter MEC in this scenario is low, but poses an unacceptable risk (USACE, October 2015).

2.2 Response Actions

Since the first beach replenishment in 1990, MPPEH continued to be found on the beach several times a year, especially after storm events. The MPPEH often consisted of expended 76-mm munitions debris (MD). Between 1990 and 1994, USACE-Huntsville conducted an initial removal action of MEC on the beach, and subsequent yearly sweeps of the beach until MEC was no longer being recovered. The removal effort by USACE-Huntsville detected and removed MEC items to a depth of 24 inches, covering the dry beach, the intertidal zone between the mean high and low tide water, to knee deep water at low tide (UXB, 1990; EHS, 1991; UXB, 1992; UXB, 1993).

In May 2003, NAB conducted a Time Critical Removal Action (TCRA) that discovered and disposed of 11 MD items with a handheld magnetometer survey on as much of the dry beach as possible, concentrating on the areas heavily used by the public. Seven of these MD were 75-mm MK-1 shrapnel projectiles; two were 40-mm practice projectiles and two were projectile fuzes. All the MD items were found greater than 12 inches below ground surface.

The response area included the stretch of Buckroe Beach affected by past replenishment efforts, that is, from Pilot Avenue in the north to the Buckroe Beach fishing pier in the south (i.e., the Buckroe Beach MRS), from the dry beach extending out to the Mean Low Tide level, to a depth of 18 inches below ground surface. During the TCRA, no confirmed live MEC items were found (USACE, October 2015). All known munitions were removed during the TCRAs in 2003 to 2004 (USACE, October 2015).

2.3 Remedial Action Objective

The remedial action objective (RAO) for the Site is to minimize or eliminate the explosive safety risk to the public and site personnel (USACE, October 2015).

2.4 Remedy Selection

As detailed in the October 2015, Decision Document (DD) the selected remedy for the Site are LUCs, including public notification and education measures to protect human health and the environment. The remedy is intended to increase public awareness and reduce risk associated with MEC (USACE, October 2015).

Per the DD, engineering controls in the form of signage provided by the USACE, are recommended to limit public access and/or exposure to residual contamination that remains on site to an acceptable level (USACE, October 2015). Educational programs are a component of LUCs and are intended to inform the public of (1) the types of hazards that might remain at the Site, (2) identification of hazards and safety precautions, and (3) how to inform authorities. The DD specifies topics to be address in the educational program will include, but are not limited to, the following education and outreach activities (USACE, October 2015):

- *Distribution of informational brochures/fact sheets.*
- *Distribution of visual and audio educational and training media.*
- *Performance of classroom education and training as needed.*

In addition to the above, the DD selected remedy specifies the following:

- *USACE will provide munitions safety training to the City planning and zoning division personnel upon request.*
- *USACE will provide the City of Hampton with site specific munitions safety flyers for presentation, distribution, or mailing to residential properties. The USACE Point of Contact much be provided on munitions safety training flyers.*
- *In the event of future munitions findings, after the City of Hampton has arranged for safe removal through its police department and local DOD EOD, USACE requests that all munition findings be reported to USACE for further evaluation. Any findings should be reported to:*

Norfolk District, Public Affairs Office, 803 Front Street, Norfolk, VA 23510, Tel: 757-201-7500, Email: cenao-pa@usace.army.mil¹

AND

Baltimore District Corporate Communication Office, City Crescent Building, 10 South Howard Street, Baltimore, MD 21201, Tel: 1-800-434-0988, Email: cenab-pa@usace.army.mil¹

2.5 Status of Implementation

A LUCIP was developed to provide information on the implementation of LUCs at Buckroe Beach (USACE, May 2019). A summary of the LUCs is included in Table 2 and further discussed below.

¹ For completeness the information noted was taken directly from the October 2015, Decision Document for Buckroe Beach and does not currently reflect the most up to date contact information.

Institutional Control (IC) Summary Table

Table 2: Summary of Land Use Controls

LUC	Responsible Party
Safety Advisory Signs	Signs are furnished by the USACE. The City of Hampton is responsible for placement and maintenance on the beach. Signs may be modified by the USACE in coordination with the City of Hampton and VADEQ.
3Rs Explosives Safety Guide Brochure (Appendix E)	Brochures are provided by the USACE for distribution by the City of Hampton and to accompany their “dig permits.”
3Rs Explosives Safety Guide for Maritime Industry (Appendix F)	Guides are provided by the USACE for distribution by the City of Hampton and to accompany their “dig permits.”
3Rs Explosives Safety Training Video	Video is provided by the USACE, and used by the City of Hampton for educational purposes, and permitting of metal detector users on the beach.

To be protective of human health, safety, and the environment, the Buckroe Beach DD determined the implementation of LUCs in the form of notification and educational measures will be used to increase public awareness and reduce the risk associated with MEC. These LUCs will support the City of Hampton and the Buckroe Beach Civic Association (BCA), who have been active participants in coordination of public communication efforts and enhanced safety at Buckroe Beach (USACE, May 2019).

Notifications consist of safety advisory signs furnished by the USACE to the City of Hampton for placement and maintenance on the beach. The City of Hampton has posted these safety advisory signs since 2004. The informational signs warn of the possibility of encountering munitions, and what actions to take upon discovery. The LUCIP notes the placement of three signs located at the north-end, middle, and south-end of the beach. Per the LUCIP, the USACE will provide fifteen signs for the City of Hampton to manage for the next five years. The USACE, in consultation with the City of Hampton and Virginia Department of Environmental Quality (VADEQ), may modify the signs as required to effectively communicate information in a manner that maintains protectiveness.

In accordance with the LUCIP, the USACE is responsible for furnishing safety advisory signs to the City of Hampton for placement and maintenance on the Beach. The USACE, in consultation with the City of Hampton and VADEQ, may modify the signs as required to effectively communicate information in a manner that maintains protectiveness. The USACE is also responsible for providing the 3Rs Explosives Safety Guide Brochure (Appendix E), and the 3Rs Explosives Safety Guide for Maritime Industry (Appendix F) to accompany the “dig permits” issued by the City of Hampton. The

City of Hampton may distribute the tri-fold brochures at community education and outreach activities, place the brochures in containers on the safety advisory signs, and/or mail the brochures to local property owners. A safety training video will be produced by the USACE for the City of Hampton to show at public meetings and classroom presentations (USACE, May 2019). The City of Hampton also uses this video to educate permitted metal detector users.

In 2019, the USACE provided the City of Hampton with seven (7) digital video disks (DVDs) and a YouTube link to for the safety training videos; 1,500 pamphlets, and 300 posters and stickers to be placed on signs to correct the phone number for the Buckroe Beach Park. Since receipt in 2019, no additional materials have been provided to the City of Hampton by the USACE.

While not a component of the LUCs, the single method for reporting suspected munitions is dialing 9-1-1. The 9-1-1 emergency response system is a proven and known system that will be activated to process a report of suspected munitions. The City of Hampton Fire Department will respond by securing an area reported to contain suspected munitions. When called by the fire department, a local DoD EOD team will respond, in accordance with their standard policies and procedures. As an additional coordination measure, the VADEQ has prepared a Memorandum of Understanding (MOU) with the City of Hampton regarding the reporting and notification of munitions related incidents. The MOU is outside the responsibility of the USACE.

2.6 Systems Operations/Operations and Maintenance

No Systems Operations or Operations and Maintenance (O&M) has occurred since the DD was signed, October 23, 2015, as O&M activities are not included in the LUCIP.

3.0 PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determination and statement from the last five-year review as well as the recommendations from the last five-year review and the status of those recommendations.

Table 3: Protectiveness Determination/Statement from the 2020 FYR

Munitions Response Site (MRS)	Protectiveness Determination	Protectiveness Statement
Buckroe Beach FUDS Site	Short-term Protective	The remedy at the Site currently protects human health and the environment because: 1) there are “Public Safety Advisory” MEC signs installed between the sidewalk and the boardwalk approximately near the middle and southern ends of the Site, 2) an educational “MEC awareness ² ” video is shown to beachgoers who want to ‘prospect’ in the sand using metal detecting equipment, before they can detect and 3) the metals prospectors are given an educational “MEC awareness ² ” brochure.

Table 4: Status of Implementation of Issue and Recommendation Identified in the 2020 FYR

MRS	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
Buckroe Beach FUDS Site	A Land Use Controls provision (three signs) of the Decision Document is not currently being implemented.	As a prudent measure, install a back-to-back sign pair at the northern boundary of the Site.	Under Discussion	Currently there are two sets of back-to-back signs installed in high traffic locations at the south and central entrances of the Site. The USACE is actively working on providing Buckroe Beach with one additional back-to-back sign (2 additional signs total).	7 August 2026

In addition, the following are recommendations that were identified during the 2020 FYR that may improve performance of the remedy, but do not affect current and/or future protectiveness: 1) Install a rack at James T. Wilson Fishing Pier to hold “MEC awareness” flyers and brochures for all members of the public to take and view; and 2) Develop a more current “MEC awareness²” video for people who wish to survey the Site with metal detectors.

² “MEC Awareness” has since been updated to 3Rs Explosives Safety Education.

4.0 FIVE-YEAR REVIEW PROCESS

4.1 Community Notification and Involvement

A public notice was published in The Daily Press, Hampton, Virginia on 23 May 2025. The notice stated that the USACE was conducting a Five-Year Review of Buckroe Beach. A copy of the legal notice is in **Appendix D**. Also, a public notice of Five-Year Review completion will be placed in local area newspapers, when the document has been finalized. A copy of the notices, initial and final, will also be placed on the USACE Baltimore District Public Affairs website. The results of the second Buckroe Beach Five-Year Review will be made available electronically on the USACE Baltimore District Public Affairs website and the Hampton Public Library website.

4.1.1 Site Interviews

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. The interviews were conducted in person with Ms. Lynn Waldrop (Buckroe Beach Park, Co-manager, and James T. Wilson Fishing Pier, Manager), and Mr. Adam Lipscomb (Buckroe Beach Park, Co-manager) during the site inspection on October 29, 2024. The interview with Mr. Lipscomb was completed informally during the site inspection. The completed interview record for Ms. Waldrop is included in **Appendix B**, after the Site Inspection checklist. The results of these interviews are summarized below.

Ms. Waldrop expressed that the remedy (signs, brochures, and USACE created informational “MEC” video for people who want to operate a metal detector at the beach), were working satisfactorily. Ms. Waldrop believes the educational efforts have had a positive effect – people now know what to do if they encounter known or suspected MD/MEC at Buckroe Beach.

Ms. Waldrop expressed that the possibility of encountering MEC and MD was adequately conveyed to the beach-going public via the educational methods of the remedy. Ms. Waldrop also agreed that the park and pier managers knew of no public concerns regarding the remedy.

Mr. Lipscomb noted that the City of Hampton, VA plans to update the children’s park on-site, which will include the installation of a splash pad and a putt-putt golf and games area. Additionally, he mentioned that a storm event in May 2024 prompted an assessment of the shoreline. A storm drain on the Site also requires repair by public works.

4.2 Data Review

There have been no instances of MEC found at Buckroe Beach between August 2020 and the present (August 2024). During the site visit, Ms. Waldrop stated that she does not recall any munitions being found at Buckroe Beach in the past five years. Marty Holmes, Chief of the USACE, Baltimore Ordnance and Explosive Safety Section, confirmed through review of the Joint Explosive Ordnance Disposal (JEOD) portal that no incidents were reported in the past five years (2019 – March 14, 2025) for the Buckroe Beach area.

4.3 Site Inspection

The inspection of Buckroe Beach took place on October 29, 2024. The inspection team included Kristin Sherlock and Kimberly Berg from the USACE. The purpose of the visit was to observe and document site conditions, as well as to assess the protectiveness of the remedy.

At the time of the site visit, the two informational signs previously placed at the beach were removed to accommodate the construction of the new boardwalk and the beach replenishment project, both of which were completed approximately 18 months prior to the conducted site inspection. The exact start date of the boardwalk construction and the duration the signs have been absent from the site remain unknown. The beach replenishment involved the addition of non-native sand brought to the site from an off-site source. The USACE-provided signs were stored in a fenced area on-site and were not accessible to the public during the visit.

Limited brochures were readily available at the site during the inspection. Ms. Waldrop shared that a total of 923 people had received the informational video and educational munitions response brochure of metal detecting activities. She also inquired whether brochures and the video should be made available for magnet fishing, which has recently gained popularity at the fishing pier.

An informative approximately 6-minute video of MEC that might be encountered while metal detecting at Buckroe Beach and a 'license' for prospecting with metal detectors at Buckroe Beach was readily available and showed to potential 'prospectors' and the USACE representative during the site inspection.

5.0 TECHNICAL ASSESSMENT

5.1 Question A: Is the Remedy Functioning As Intended By The Decision Documents?

No. While there have been no reports of MEC found at Buckroe Beach during this FYR period, the selected remedy of LUCs in the form of public notification and education measures is not currently functioning as intended by the DD and detailed in the LUCIP.

As identified Section 2.4, signage is a component of the LUCs to increase public awareness of the types of hazards that may remain at the Site and offer guidance on what actions to take. At the time of the site inspection, two double-sided informational signs had been removed due to the construction of a new boardwalk and beach replenishment project, which was completed approximately 18 months prior to the site inspection. The exact duration of the signs' absence is unclear. The third sign identified in the LUCIP as located at the north-end of the beach was additionally missing from this location. As noted in Table 4, this sign has been missing since the 2020 FYR and a recommendation to replace the sign was not implemented. In coordination with Mr. Lipscomb, the two double-sided informational signs were reinstalled at the center and southern-public access points on November 14, 2024.

The DD intended for the USACE to provide the City of Hampton with informational brochures and audio/video educational materials to inform the public of ordnance hazards and safety precautions. An approximately 6-minute video on MEC hazards related to metal detecting was available during the site inspection. The City of Hampton requires metal detector users to watch this video to obtain a permit to metal detect at Buckroe Beach. A brochure was available for metal detector users to review; however, no additional informational brochures were available to the public.

The 2015 DD stated that USACE will provide munitions safety training to the City planning and zoning division personnel upon request. Since the last FYR, no personnel from the city planning and zoning division have requested munitions safety training from USACE.

5.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels and Remedial Action Objectives Used at the Time of the Remedy Selection Still Valid?

Yes. The exposure assumptions and RAOs used at the time of the remedy are still valid. No COCs were identified in the Risk Assessment and DD; therefore, no clean up levels were established for this site. There are no Applicable or Relevant and Appropriate Requirements (ARARs) for the selected remedy.

Land use for the Site is expected to remain a City of Hampton public beach for recreational use. However, during the site inspection Ms. Waldrop raised a question regarding beachgoers using the pier for magnet fishing. Similar to metal detecting on the sands, magnet fishers intentionally seek out submerged metal items in the water. The LUC remedy, as established, currently offers protectiveness by means of a safety training video tailored to metal detection but does not currently address receptors seeking metal items (e.g., potential MEC or MD) offshore. No munitions or munitions debris have been reported as being found at Buckroe Beach over the past five year (2019-2024), and informational signs currently warn of the possibility of encountering munitions and what actions to take upon discovery. However, additional LUC measures, similar to those of receptors using metal detectors at the Site may be required to achieve RAOs for this new exposure pathway.

5.3 Question C: Has Any Other Information Come To Light That Could Call Into Question the Protectiveness Of the Remedy?

No. No additional information has come to light that could call into question the protectiveness of the remedy.

6.0 ISSUES/RECOMMENDATIONS

Table 5: 2025 FYR Issues and Recommendations

Issues/Recommendations				
Projects without Issues/Recommendations Identified in the Five-Year Review:				
None.				
Issues and Recommendations Identified in the Five-Year Review:				

Buckroe Beach	Issue Category: Institutional Controls			
	Issue: One of the three signs identified in the LUCIP was missing during the site inspection and not reinstalled in November 2024 with the other two signs. This sign has been missing since the 2020 FYR and the previous recommendation to replace the sign was not implemented.			
	Recommendation: Ensure that moving forward recommendations noted in the FYR are implemented in a timely manner. Install at least 1 more pair of signs (2 additional signs, total) at the northern-end of Buckroe Beach along the public access way.			
Affect Current Protectiveness	Affect Future Protectiveness	Implementing Party	Oversight Party	Milestone Date
Yes	Yes	Other; USACE, NAB	State	7 August 2026

Buckroe Beach	Issue Category: Institutional Controls			
	Issue: The City of Hampton does not currently have enough brochures for the public to inform them of possible ordnance hazards and safety precautions at Buckroe Beach.			
	Recommendation: Provide the City of Hampton with additional 3Rs Explosives Safety Education flyers and brochures”.			
Affect Current Protectiveness	Affect Future Protectiveness	Implementing Party	Oversight Party	Milestone Date
Yes	Yes	Other; USACE, NAB	State	7 August 2026

Buckroe Beach	Issue Category: Institutional Controls			
	Issue: A Land Use Controls provision to update the 2004 safety training video has yet to be implemented.			
	Recommendation: Update the contact information of the PAO in the 3Rs Explosives Safety Education” video for people who wish to survey Buckroe Beach sands with metal detectors.			
Affect Current Protectiveness	Affect Future Protectiveness	Implementing Party	Oversight Party	Milestone Date
Yes	Yes	Other; USACE, NAB	State	7 August 2026

Buckroe Beach	Issue Category: Institutional Controls			
	Issue: No remedy O&M efforts are included in the LUCIP			
	Recommendation: Perform annual site inspections and update the LUCIP to include these O&M activities.			
Affect Current Protectiveness	Affect Future Protectiveness	Implementing Party	Oversight Party	Milestone Date
Yes	Yes	USACE, NAB	State	7 August 2026

Buckroe Beach	Issue Category: Institutional Controls			
	Issue: Magnet fishing activities have created a new exposure pathway.			
	Recommendation: Update the LUCIP to include magnet fishing as an exposure pathway.			
Affect Current Protectiveness	Affect Future Protectiveness	Implementing Party	Oversight Party	Milestone Date
Yes	Yes	USACE, NAB	State	7 August 2026

6.1 Other Findings

The following recommendations were identified during the FYR and may improve the performance of the LUCs, public notification and education measures, but do not affect current and/or future protectiveness:

- For consistency, all future 3Rs Explosive Safety Education material (i.e., signage, brochures, etc.) should contain the updated 3Rs logo and branding.

7.0 PROTECTIVENESS STATEMENT

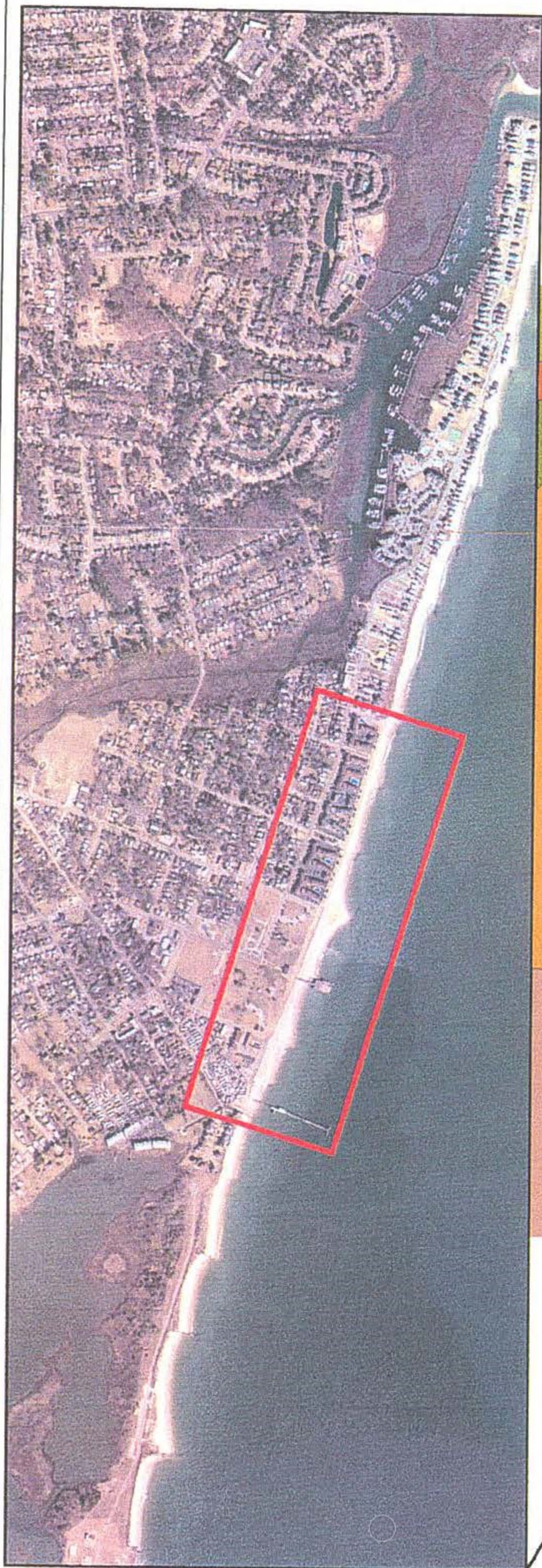
Table 6: 2025 Protectiveness Statement

Munitions Response Site	Protectiveness Determination	Protectiveness Statement
Buckroe Beach FUDS Site	Short-term Protective	The remedy at Buckroe Beach is short-term protective of human health and the environment. Two signs are currently in place along public access points, and the 3Rs Explosives Safety Education video and brochure are currently available to permitted metal detector users. To ensure long-term protectiveness of the remedy, several actions are recommended. At least one pair of signs (two signs total) should be installed at the northern end of Buckroe Beach, and ensure that moving forward, recommendations noted in the FYR are implemented in a timely manner. Additional 3Rs Explosives Safety Education flyers and brochures should be provided to the City of Hampton for public distribution. The 3Rs Explosives Safety Education video should be updated to include current Public Affairs Office (PAO) contact information for individuals seeking to conduct metal detecting on the beach. Additionally, annual site inspections should be performed, and the LUCIP should be revised to incorporate O&M activities. LUCIP revisions should also address magnet fishing as an exposure pathway. These updates are necessary to support the long-term effectiveness of the remedy and protect human health and the environment.

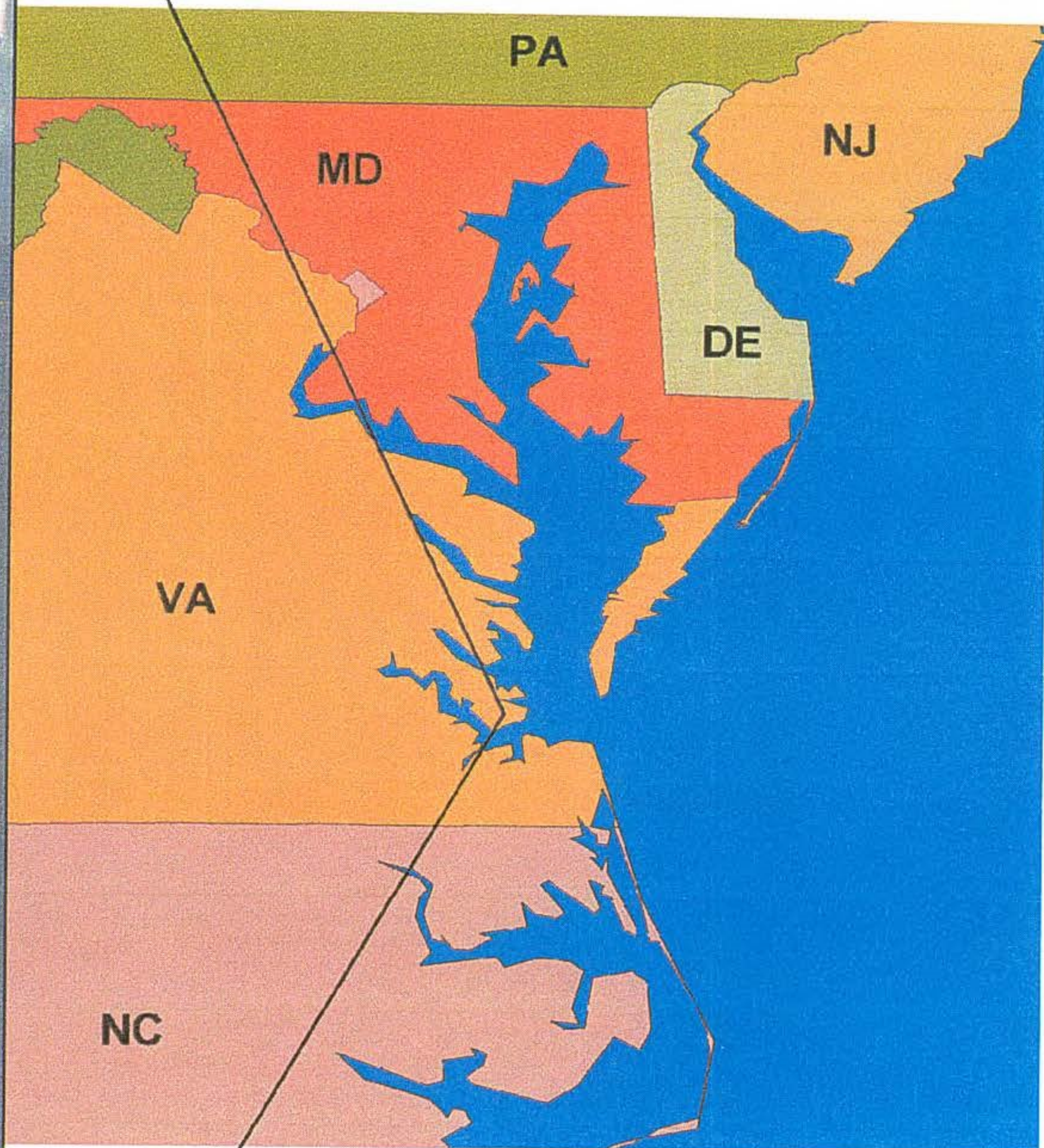
8.0 NEXT REVIEW

The next Five-Year Review report for Buckroe Beach, is required within five years from the completion date of this review.

Figures



Buckroe Beach Site Location Map



Regional Location Map

FIGURE 1
Figure is extracted from
Site-Specific Final Report
for TCRA, Prepared by
WESTON on February 2004

Figure 1
Buckroe Beach Site Location Map

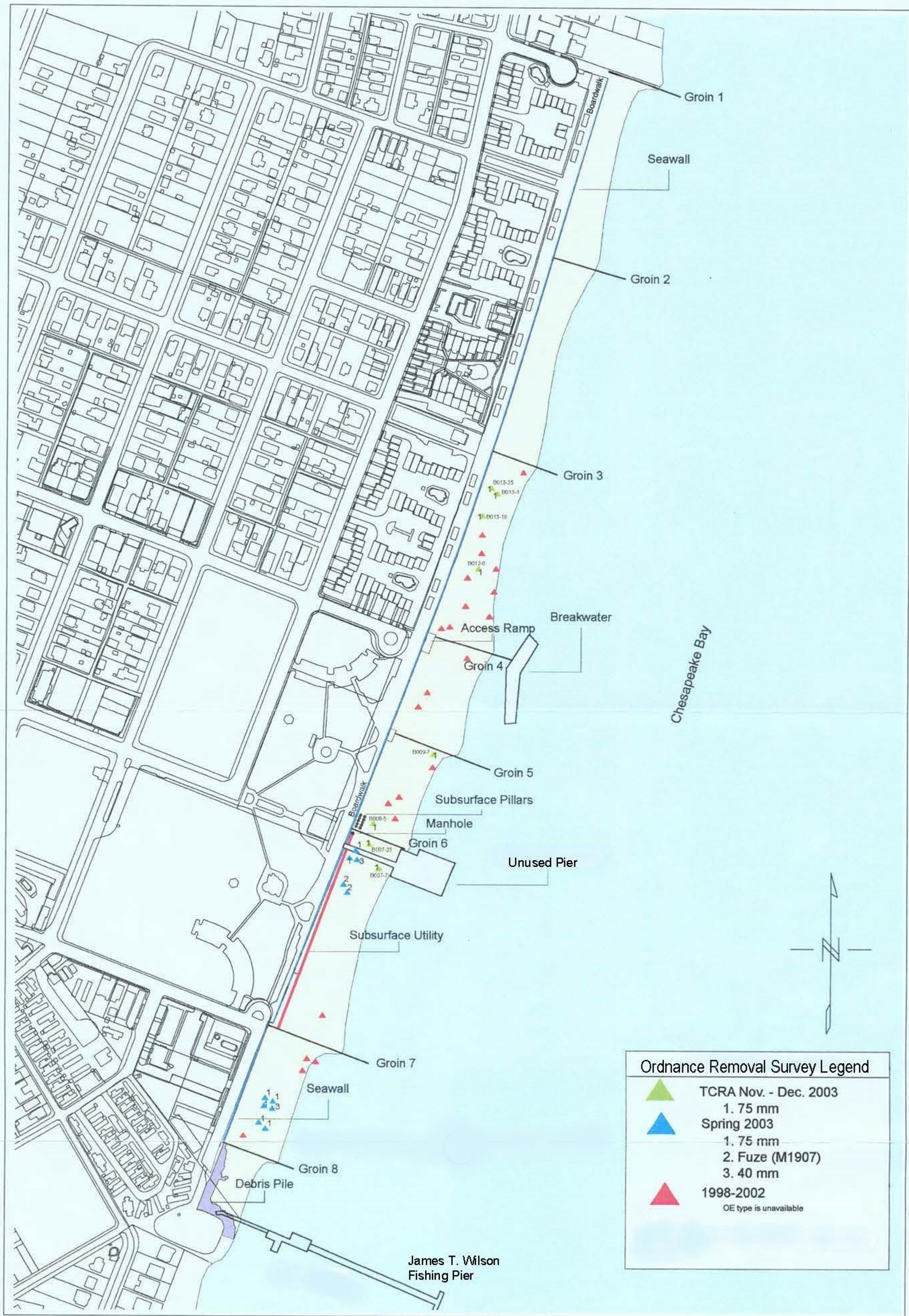


FIGURE 3
 Figure is extracted from
 Site-Specific Final Report
 for TCRA, Prepared by
 WESTON on February 2004

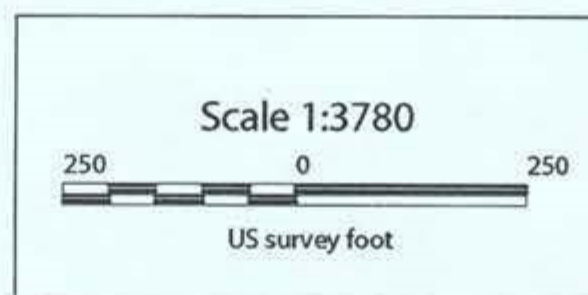


Figure 3
 Buckroe Beach TCRA
 Figure 3 Locations of Recovered MEC

Appendix A

References List

APPENDIX A -- REFERENCES

U.S. Army (Army), November 28, 1990. Defense Environmental Restoration Program, Formerly Used Defense Sites Program, Findings of Fact and Determination of Eligibility Buckroe Beach, Hampton, Virginia, Site No. C03VA101100

Hampton Roads Planning District Commission (HRPDC), 2011. Hampton Roads Regional Water Supply Plan, HRPDC, July 2011 (available at <http://www.hrpdc.org/departments/water-resources/download-theplan/>) (Section 1 and Appendix A, Peninsula Data Tables)

USACE, NAB, May 2019. Final, Military Munitions Response Program, Formerly Used Defense Sites Program, Land Use Control Implementation Plan, Buckroe Beach, FUDS Property No. C03VA1011, Hampton, Virginia

USACE, NAB, July 2020. Final, First Five-Year Review Military Munitions Response Program Buckroe Beach Formerly Used Defense Site (Property No. C03VA1011) Hampton, Virginia

USACE, NAB, October 2015. Final, Military Munitions Response Program, Formerly Used Defense Sites Program, Decision Document, Buckroe Beach, FUDS Property No. C03VA1011, Hampton, Virginia

USACE, NAB, March 2012. Final, Remedial Investigation and Feasibility Study for Munitions and Explosives of Concern, Buckroe Beach, Hampton, Virginia

USACE Engineering Pamphlet (EP) 200-1-18, September 30, 2011. Five-Year Reviews of Military Munitions Response Projects.

United States Environmental Protection Agency (USEPA), January 20, 2016. Transmittal of the Five-Year Review Recommended Template, OLEM--9200.0-89.

United States Environmental Protection Agency (USEPA), June 2001. Comprehensive Five-Year Review Guidance, EPA 540-R-01-007; OSWER No. 9355.7-03B-P.

APPENDIX A -- REFERENCES

U.S. Army (Army), November 28, 1990. Defense Environmental Restoration Program, Formerly Used Defense Sites Program, Findings of Fact and Determination of Eligibility Buckroe Beach, Hampton, Virginia, Site No. C03VA101100

Hampton Roads Planning District Commission (HRPDC), 2011. Hampton Roads Regional Water Supply Plan, HRPDC, July 2011 (available at <http://www.hrpdc.org/departments/water-resources/download-theplan/>) (Section 1 and Appendix A, Peninsula Data Tables)

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USACE, NAB, March 2012. Final, Remedial Investigation and Feasibility Study for Munitions and Explosives of Concern, Buckroe Beach, Hampton, Virginia

USACE Engineering Pamphlet (EP) 200-1-18, September 30, 2011. Five-Year Reviews of Military Munitions Response Projects.

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United States Environmental Protection Agency (USEPA), June 2001. Comprehensive Five-Year Review Guidance, EPA 540-R-01-007; OSWER No. 9355.7-03B-P.

Appendix B

Memorandum for Record of
Site Inspection, October 29, 2024

STAFF OFFICIALS: Kimberly Berg (Environmental Engineer) and Kristin Sherlock (Geologist),
CENAB-EN-HT

PROJECT VISITED: Buckroe Beach, Hampton, Virginia

DATE OF VISIT: 29 October 2024: 1230 to 1430

PRINCIPAL CONTACT for Buckroe Beach: Lynn Waldrop, Buckroe Beach Park, Co-Manager
and James T. Wilson Fishing Pier Operations Manager (757-727-1486).

PURPOSE OF VISIT: To perform a site inspection of Buckroe Beach

FINDINGS:

Berg and Sherlock met with Adam Lipscomb (Buckroe Beach Park Co-Manager) and Lynn Waldrop (Buckroe Beach Co-Manager and James T. Wilson Fishing Pier Operations Manager) at approximately 1230 on 29 October 2024. The site visit began with a meeting between Ms. Berg, Ms. Sherlock, Mr. Lipscomb, and Ms. Waldrop to discuss the site conditions.

The inspection of Buckroe Beach took place on 29 October 2024, from approximately 1230 to 1430. The weather was mostly sunny, with a temperature of 75°F. The inspectors were Kristin Sherlock (USACE-NAB Geologist), Kimberly Berg (USACE-NAB Environmental Engineer), Adam Lipscomb, and Lynn Waldrop. The purpose of the inspection was to observe and document the site conditions and assess the protectiveness of the remedy.

During the inspection, Ms. Sherlock and Ms. Berg walked along the boardwalk and beach, covering the area between the northern border and the Fort Monroe Beachfront at the southern border. The new concrete boardwalk runs nearly the full length of Buckroe Beach, separating the sandy beach from the grassy, park area of Buckroe Beach Park. Buckroe Beach is bordered to the north by a private beach.

Private townhomes are located landward of the boardwalk along the northern third of Buckroe Beach, while the southern two-thirds, west of the boardwalk, is known as Buckroe Beach Park. This section includes grassy fields, two or three roofed picnic shelters, a park office/administration building, restrooms/changing areas, and a small, well-maintained lighthouse. Concrete sidewalks connect the parking lots to the boardwalk, with the sandy beach located to the east of the concrete boardwalk.

There are eight stone rip-rap breakwaters (groins) along Buckroe Beach, leading into the water. Erosion occurs between the groins, creating narrower beach areas not protected by the breakwaters.

Vegetation at the site is limited to sparse dune grasses near the northern end of the boardwalk and near the storm fence at the southern end, close to the James T. Wilson Fishing Pier. The storm fence at the southern end was partially pulled down due to a recent storm.

Visitors were present at Buckroe Beach during the site visit. It is estimated that during the summer months, approximately 3,000 visitors per day visit Buckroe Beach (USACE, October 2015). The James T. Wilson Fishing Pier is in use, while the Observation Pier, located at the midpoint of the beach, is abandoned and fenced off, with no access allowed.

At the James T. Wilson Fishing Pier, brochures are available, and there is staff present. However, "MEC awareness" brochures are only provided to individuals who wish to metal detect at Buckroe Beach, after viewing the "MEC awareness" video. The names of those who watch the video are recorded, and they are issued a badge authorizing their use of metal detecting equipment on the beach.

Mr. Lipscomb stated that a new boardwalk had been constructed within the past five years. He also mentioned that a beach replenishment project occurred approximately two years ago, during which non-native sand was brought onto the site, though the source of the sand is unknown.

Ms. Waldrop noted an increase in magnet fishing activity on the pier, although no munitions have been found in the past five years.

Concerns were raised regarding the full implementation of the Land Use Controls. At the time of the site visit, only two pairs (back-to-back) of "Public Safety Advisory" signs were stored on-site in a shed, and none were accessible to the public. The Land Use Controls Implementation Plan specifies signs at the northern and southern borders of the Buckroe Beach FUDS site.

Photos taken during the site visit are attached to this memo. The EPA Five-Year Review Site Inspection Checklist and interview records can be found in Appendix C.

CONTACT INFORMATION: If there are any questions concerning this Resume of Staff Visit, please contact Kristin Sherlock at (410) 819-9792 or at Kristin.E.Sherlock@usace.army.mil.

Buckroe Beach, FUDS Site, Site Inspection, October 29, 2024, Photo Log

Photo 1 Buckroe Beach at James T. Wilson Fishing Pier, Looking North

Photo 2 and Photo 3: Public Awareness signs stored in fenced-in storage area (during site visit on 29 October 2024).

Photo 4: MEC Awareness Video available at the James T. Wilson Fishing Pier for visitors who wish to use metal detectors on site.

Photo 5: Northern boundary public access area where a third Public Awareness sign (two signs back-to-back) will need to be installed, looking northeast.

Photo 6: Public park located in the central portion of Buckroe Beach, looking southeast.



Photo 1 Buckroe Beach at James T. Wilson Fishing Pier, Looking North. Clear definition between the color of non-native soil from beach replenishment (outline with red line).



Photo 2 and 3: Public Awareness signs stored in fenced-in storage area (during site visit on 29 October 2024).



Photo 4: MEC Awareness Video available at the James T. Wilson Fishing Pier for visitors who wish to use metal detectors on site.



Photo 5: Northern boundary public access area where a third Public Awareness sign (two signs back-to-back) will need to be installed, looking northeast.



Photo 6: Public park located in the central portion of Buckroe Beach, looking southeast.

Appendix C

Five-Year Review, Site Inspection Checklist and Interview Record

5 Year Review, Site Inspection Checklist

I. SITE INFORMATION			
Site name: Buckroe Beach		Date of inspection: 29 October 2024	
Location and Region: Hampton, VA		EPA ID: N/A	
Agency, office, or company leading the five-year review: US Army Corps of Engineers (USACE), Baltimore District (NAB)		Weather/temperature: Sunny/ ~75°F	
Remedy Includes: Check all that apply ☐ Access controls ☐ Institutional controls ☒ Land Use Controls ☐ Landfill cover/containment ☐ Munitions Removal Action ☐ Monitored natural attenuation ☐ Groundwater containment ☐ Vertical barrier walls ☐ Groundwater pump and treatment ☐ Surface water collection and treatment Other _____ _____			
Attachments: Site map in Figures and Interview attached.			
II. INTERVIEWS (Check all that apply)			
1.	<u>Adam Lipscomb</u> Name	<u>Buckroe Beach Park, Co-Manager</u> Title	<u>29 October 2024</u> Date
Interviewed in person at site Phone no. Problems, suggestions: <u>USACE did not receive a completed interview questionnaire, however dicussion of Mr. Lipscomb interview can be found in Section 4.3 Site Inspection.</u>			
2.	<u>Lynn Waldrop</u> Name	<u>Buckroe Beach Park, Co-Manager</u> Title	<u>29 October 2024</u> Date
Interviewed at site Phone no. <u>757-727-1486</u> Problems, suggestions: Interview record attached.			

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	O&M Documents O&M manual As-built drawings Maintenance logs Remarks _____	Readily available Readily available Readily available	Up to date Up to date Up to date	X N/A X N/A X N/A
2.	Site-Specific Health and Safety Plan Contingency plan/emergency response plan Remarks _____	Readily available Readily available	Up to date Up to date	X N/A X N/A
3.	O&M and OSHA Training Records Remarks _____	Readily available	Up to date	X N/A
4.	Permits and Service Agreements Air discharge permit Effluent discharge Waste disposal, POTW Other permits _____ Remarks _____	Readily available Readily available Readily available Readily available	Up to date Up to date Up to date Up to date	X N/A X N/A X N/A X N/A
5.	Gas Generation Records N/A			
6.	Settlement Monument Records Remarks _____	Readily available	Up to date	X N/A
7.	Groundwater Monitoring Records Remarks _____	Readily available	Up to date	X N/A
8.	Leachate Extraction Records Remarks _____	Readily available	Up to date	X N/A
9.	Discharge Compliance Records Air Water (effluent) Remarks _____	Readily available Readily available	Up to date Up to date	X N/A X N/A
10.	Daily Access/Security Logs Remarks _____	Readily available	Up to date	X N/A

IV. O&M COSTS																																													
1.	O&M Organization State in-house PRP in-house X Federal Facility in-house Other _____ Contractor for State Contractor for PRP Contractor for Federal Facility																																												
2.	O&M Cost Records X Readily available X Up to date X Funding mechanism/agreement in place Original O&M cost estimate _____ Total annual cost by year for review period if available <table style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 30%;">From ___ 10/13/15 ___</td> <td style="width: 30%;">To ___ 10/22/16 ___</td> <td style="width: 40%;"></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: right;">Total cost</td> </tr> <tr> <td>From ___ 10/23/16 ___</td> <td>To ___ 10/22/17 ___</td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: right;">Total cost</td> </tr> <tr> <td>From ___ 10/23/17 ___</td> <td>To ___ 10/22/18 ___</td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: right;">Total cost</td> </tr> <tr> <td>From ___ 10/23/18 ___</td> <td>To ___ 10/22/19 ___</td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: right;">Total cost</td> </tr> <tr> <td>From ___ 10/23/19 ___</td> <td>To ___ 10/22/20 ___</td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: right;">Total cost</td> </tr> <tr> <td>From ___ 10/23/23 ___</td> <td>To ___ 10/22/24 ___</td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: right;">Total cost</td> </tr> <tr> <td>From ___ 10/23/24 ___</td> <td>To ___ 10/22/25 ___</td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: right;">Total cost</td> </tr> </table>			From ___ 10/13/15 ___	To ___ 10/22/16 ___		Date	Date	Total cost	From ___ 10/23/16 ___	To ___ 10/22/17 ___		Date	Date	Total cost	From ___ 10/23/17 ___	To ___ 10/22/18 ___		Date	Date	Total cost	From ___ 10/23/18 ___	To ___ 10/22/19 ___		Date	Date	Total cost	From ___ 10/23/19 ___	To ___ 10/22/20 ___		Date	Date	Total cost	From ___ 10/23/23 ___	To ___ 10/22/24 ___		Date	Date	Total cost	From ___ 10/23/24 ___	To ___ 10/22/25 ___		Date	Date	Total cost
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Date	Date	Total cost																																											
3.	Unanticipated or Unusually High O&M Costs During Review Period Describe costs and reasons: _____ None. _____ _____ _____ _____ _____ _____																																												
V. ACCESS AND INSTITUTIONAL CONTROLS Applicable X N/A																																													
A. Fencing																																													
1.	Fencing damaged Remarks _____ _____ Location shown on site map Gates secured X N/A																																												
B. Other Access Restrictions																																													

1.	Signs and other security measures	Location shown on site map	N/A
	Remarks: During the site investigation, two pairs (back-to-back signs) were observed in the storage shed on site. They were moved there approximately a year and a half ago during the construction of the new boardwalk. These signs were returned to their original locations at the center and southern beach entrances on 14 November 2024. Per the Land Use Control Implementation Plan (LUCIP), an additional pair of signs is needed at the northern entrance of the beach.		
	The James T. Wilson Fishing Pier has a snack bar and an office area with staff and a brochure/flyer rack, but no “MEC awareness’ brochures are present for the general public. The USACE inspector was told that the “MEC awareness’ brochure is given to the people who wish to do metal detecting at Buckroe Beach, after they see the “MEC awareness’ video. A record of the names of the persons who have seen the “MEC awareness” video are kept and they are given a badge authorizing their use of metal detecting equipment on the beach. However, the current “MEC awareness” video is somewhat dated.		

C. Institutional Controls (ICs)			
1.	Implementation and enforcement Site conditions imply ICs not properly implemented Yes X No N/A Site conditions imply ICs not being fully enforced Yes X No N/A Type of monitoring (<i>e.g.</i> , self-reporting, drive by) _____ None. _____ Frequency _____ N/A _____ Responsible party/agency _____ Buckroe Beach Park _____ Contact _____ Lynn Waldrop _____ Buckroe Beach Park Co-Manager _____ 757-727-1486 _____ Name Title Phone no. Reporting is up-to-date Yes No X N/A Reports are verified by the lead agency Yes No X N/A Specific requirements in deed or decision documents have been met Yes X No N/A Violations have been reported Yes X No N/A Other problems or suggestions: <u>See Section 6, Issues and Recommendations in the Five-Year Review.</u>		
2.	Adequacy ICs are adequate X ICs are inadequate N/A Remarks: <u>The site visit did not observe as many MEC hazard/warning signs as described in the LUCIP. Nor were any MEC educational brochures/flyers evident for the general public. Mr. Jim Seward (Buckroe Beach Park, Co-Manager), when interviewed, stated that such flyers are only given to people applying for a metal detection license at Buckroe Beach (sandy portions). Also, the “MEC Awareness” video which all persons wishing to obtain a metal detection license for Buckroe Beach must view, is somewhat outdated.</u>		
D. General			
1.	Vandalism/trespassing Location shown on site map X No vandalism evident Remarks _____ _____		
2.	Land use changes on site X N/A Remarks _____ _____		
3.	Land use changes off site X N/A Remarks _____ _____		
VI. GENERAL SITE CONDITIONS			
A. Roads [X] Applicable			
1.	Roads damaged X Roads adequate Remarks _____ _____		

VII. LANDFILL COVERS Applicable N/A

A. Landfill Surface

1. **Settlement** (Low spots) Location shown on site map Settlement not evident

Areal extent _____ Depth _____

Remarks _____

2. **Cracks** Location shown on site map Cracking not evident

Lengths _____ Widths _____ Depths _____

Remarks _____

3. **Erosion** Location shown on site map Erosion not evident

Areal extent _____ Depth _____

Remarks _____

4. **Holes** Location shown on site map Holes not evident

Areal extent _____ Depth _____

Remarks _____

5. Vegetative Cover

Remarks _____

6. **Alternative Cover (armored rock, concrete, etc.)** N/A

Remarks _____

7. **Bulges** Location shown on site map Bulges not evident

Areal extent _____ Height _____

Remarks _____

8. **Wet Areas/Water Damage** Wet areas/water damage not evident

Wet areas Location shown on site map Areal extent _____

Ponding Location shown on site map Areal extent _____

Seeps Location shown on site map Areal extent _____

Soft subgrade Location shown on site map Areal extent _____

Remarks _____

9. **Slope Instability** Slides Location shown on site map No evidence of slope instability

Areal extent _____

Remarks _____

B. Benches Applicable X N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** Location shown on site map N/A or okay

Remarks _____

2. **Bench Breached** Location shown on site map N/A or okay

Remarks _____

3. **Bench Overtopped** Location shown on site map N/A or okay

Remarks _____

C. Letdown Channels Applicable N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** Location shown on site map No evidence of settlement

Areal extent _____ Depth _____

Remarks _____

2. **Material Degradation** Location shown on site map No evidence of degradation

Material type _____ Areal extent _____

Remarks _____

3. **Erosion** Location shown on site map No evidence of erosion

Areal extent _____ Depth _____

Remarks _____

4. **Undercutting** Location shown on site map No evidence of undercutting

Areal extent _____ Depth _____

Remarks _____

5. **Obstructions** Type _____ No obstructions

Location shown on site map Areal extent _____

Size _____

Remarks _____

6. **Excessive Vegetative Growth** Type _____

No evidence of excessive growth

Vegetation in channels does not obstruct flow

Location shown on site map Areal extent _____

Remarks _____

D. Cover Penetrations Applicable N/A

1. **Gas Vents** Active Passive

Properly secured/locked Functioning Routinely sampled Good condition

Evidence of leakage at penetration Needs Maintenance

N/A

Remarks _____

2. **Gas Monitoring Probes**

Properly secured/locked Functioning Routinely sampled Good condition

Evidence of leakage at penetration Needs Maintenance N/A

Remarks _____

3. **Monitoring Wells** (within surface area of landfill)

Properly secured/locked Functioning Routinely sampled Good condition

Evidence of leakage at penetration Needs Maintenance N/A

Remarks _____

4. Leachate Extraction Wells

Properly secured/locked Functioning Routinely sampled Good condition

Evidence of leakage at penetration Needs Maintenance N/A

Remarks _____

5. Settlement Monuments Located Routinely surveyed N/A

Remarks _____

E. Gas Collection and Treatment Applicable N/A

1. Gas Treatment Facilities

Flaring Thermal destruction Collection for reuse

Good condition Needs Maintenance

Remarks _____

2. Gas Collection Wells, Manifolds and Piping

Good condition Needs Maintenance

Remarks _____

3. Gas Monitoring Facilities (*e.g.*, gas monitoring of adjacent homes or buildings)

Good condition Needs Maintenance N/A

Remarks _____

F. Cover Drainage Layer Applicable N/A

1. Outlet Pipes Inspected Functioning N/A

Remarks _____

2. Outlet Rock Inspected Functioning N/A

Remarks _____

G. Detention/Sedimentation Ponds Applicable N/A

1. Siltation Areal extent _____ Depth _____ N/A

Siltation not evident

Remarks _____

2. Erosion Areal extent _____ Depth _____

Erosion not evident

Remarks _____

3. Outlet Works Functioning N/A

Remarks _____

4. Dam Functioning N/A

Remarks _____

H. Retaining Walls Applicable N/A

1. Deformations Location shown on site map Deformation not evident

Horizontal displacement _____ Vertical displacement _____

Rotational displacement _____

Remarks _____

2. Degradation Location shown on site map Degradation not evident

Remarks _____

I. Perimeter Ditches/Off-Site Discharge Applicable N/A

1. Siltation Location shown on site map Siltation not evident

Areal extent _____ Depth _____

Remarks _____

2. Vegetative Growth Location shown on site map N/A

Vegetation does not impede flow

Areal extent _____ Type _____

Remarks _____

3. Erosion Location shown on site map Erosion not evident

Areal extent _____ Depth _____

Remarks _____

4. Discharge Structure Functioning N/A

Remarks _____

VIII. VERTICAL BARRIER WALLS Applicable N/A

1. Settlement Location shown on site map Settlement not evident

Areal extent _____ Depth _____

Remarks _____

2. Performance Monitoring Type of monitoring _____

Performance not monitored

Frequency _____ Evidence of breaching

Head differential _____

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. Pumps, Wellhead Plumbing, and Electrical

Good condition All required wells properly operating Needs Maintenance N/A

Remarks _____

2. Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances

Good condition Needs Maintenance

Remarks _____

3. Spare Parts and Equipment

Readily available Good condition Requires upgrade Needs to be provided

Remarks _____

B. Surface Water Collection Structures, Pumps, and Pipelines Applicable N/A

1. Collection Structures, Pumps, and Electrical

Good condition Needs Maintenance

Remarks _____

2. Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances

Good condition Needs Maintenance

Remarks _____

3. Spare Parts and Equipment

Readily available Good condition Requires upgrade Needs to be provided

Remarks _____

C. Treatment System Applicable N/A

1. Treatment Train (Check components that apply)

Metals removal Oil/water separation Bioremediation

Air stripping Carbon adsorbers

Filters _____

Additive (e.g., chelation agent, flocculent) _____

Others _____

Good condition Needs Maintenance

Sampling ports properly marked and functional

Sampling/maintenance log displayed and up to date

Equipment properly identified

Quantity of groundwater treated annually _____

Quantity of surface water treated annually _____

Remarks _____

2. Electrical Enclosures and Panels (properly rated and functional)

N/A Good condition Needs Maintenance

Remarks _____

3. Tanks, Vaults, Storage Vessels

N/A Good condition Proper secondary containment Needs Maintenance

Remarks _____

4. Discharge Structure and Appurtenances

N/A Good condition Needs Maintenance

Remarks _____

5. Treatment Building(s)

N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored

Remarks _____

6. Monitoring Wells (pump and treatment remedy)

Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A

Remarks _____

D. Monitoring Data

1. Monitoring Data

Is routinely submitted on time Is of acceptable quality

2. Monitoring data suggests:

Groundwater plume is effectively contained Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. Monitoring Wells (natural attenuation remedy)

Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A

Remarks _____

3. **Bench Overtopped** Location shown on site map N/A or okay

Remarks _____

C. Letdown Channels Applicable N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** Location shown on site map No evidence of settlement

Areal extent _____ Depth _____

Remarks _____

2. **Material Degradation** Location shown on site map No evidence of degradation

Material type _____ Areal extent _____

Remarks _____

3. **Erosion** Location shown on site map No evidence of erosion

Areal extent _____ Depth _____

Remarks _____

4. **Undercutting** Location shown on site map No evidence of undercutting

Areal extent _____ Depth _____

Remarks _____

5. **Obstructions** Type _____ No obstructions

Location shown on site map Areal extent _____

Size _____

Remarks _____

6. **Excessive Vegetative Growth** Type _____

No evidence of excessive growth

Vegetation in channels does not obstruct flow

Location shown on site map Areal extent _____

Remarks _____

D. Cover Penetrations Applicable X N/A

1. Gas Vents Active Passive

Properly secured/locked Functioning Routinely sampled Good condition

Evidence of leakage at penetration Needs Maintenance

N/A

Remarks _____

2. Gas Monitoring Probes

Properly secured/locked Functioning Routinely sampled Good condition

Evidence of leakage at penetration Needs Maintenance N/A

Remarks _____

3. Monitoring Wells (within surface area of landfill)

Properly secured/locked Functioning Routinely sampled Good condition

Evidence of leakage at penetration Needs Maintenance N/A

Remarks _____

4. Leachate Extraction Wells

Properly secured/locked Functioning Routinely sampled Good condition

Evidence of leakage at penetration Needs Maintenance N/A

Remarks _____

5. Settlement Monuments Located Routinely surveyed N/A

Remarks _____

E. Gas Collection and Treatment Applicable X N/A

1. Gas Treatment Facilities

Flaring Thermal destruction Collection for reuse

Good condition Needs Maintenance

Remarks _____

2. Gas Collection Wells, Manifolds and Piping

Good condition Needs Maintenance

Remarks _____

3. Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings)

Good condition Needs Maintenance N/A

Remarks _____

F. Cover Drainage Layer Applicable ☒ N/A

1. **Outlet Pipes Inspected** Functioning ☒ N/A

Remarks _____

2. **Outlet Rock Inspected** Functioning ☒ N/A

Remarks _____

G. Detention/Sedimentation Ponds Applicable ☒ N/A

1. **Siltation** Areal extent _____ Depth _____ N/A

Siltation not evident

Remarks _____

2. **Erosion** Areal extent _____ Depth _____

Erosion not evident

Remarks _____

3. **Outlet Works** Functioning ☒ N/A

Remarks _____

4. **Dam** Functioning ☒ N/A

Remarks _____

H. Retaining Walls Applicable ☒ N/A

1. **Deformations** Location shown on site map Deformation not evident

Horizontal displacement _____ Vertical displacement _____

Rotational displacement _____

Remarks _____

2. **Degradation** Location shown on site map Degradation not evident

Remarks _____

I. Perimeter Ditches/Off-Site Discharge Applicable ☒ N/A

1. **Siltation** Location shown on site map Siltation not evident

Areal extent _____ Depth _____

Remarks _____

2. **Vegetative Growth** Location shown on site map N/A

Vegetation does not impede flow

Areal extent _____ Type _____

Remarks _____

3. **Erosion** Location shown on site map Erosion not evident

Areal extent _____ Depth _____

Remarks _____

4. **Discharge Structure** Functioning N/A

Remarks _____

VIII. VERTICAL BARRIER WALLS Not Applicable X N/A

1. **Settlement** Location shown on site map Settlement not evident

Areal extent _____ Depth _____

Remarks _____

2. **Performance Monitoring** Type of monitoring _____

Performance not monitored

Frequency _____ Evidence of breaching

Head differential _____

Remarks _____

IX. AIR SPARGING Applicable X N/A

A. Air Sparging Wells Applicable N/A

1. **Wells**

Good condition

All required wells properly operating

All required wells located

Properly secured/locked

Routinely sampled

Needs Maintenance

Remarks _____

2. **Delivery System** **Pumps, Pipelines, Valves, Valve Boxes, Wellhead Plumbing, and Electrical**

Good condition

Needs Maintenance

Not Applicable

Remarks _____

3. **Spare Parts and Equipment**

Readily available

Good condition

Requires upgrade

Needs to be provided

Remarks _____

B. Air Sparging Performance Monitoring Applicable

1. **Performance Monitoring** Type of monitoring _____

Performance not monitored

Frequency _____

Head differential _____

Remarks _____

C. Monitoring Data

1. Monitoring Data

Is routinely submitted on time

Is of acceptable quality

2. Monitoring data suggests:

Groundwater plume is effectively contained

Contaminant concentrations are declining

Remarks _____

IX. GROUNDWATER/SURFACE WATER REMEDIES Applicable X N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable N/A

1. Pumps, Wellhead Plumbing, and Electrical

Good condition All required wells properly operating Needs Maintenance N/A

Remarks _____

2. Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances

Good condition Needs Maintenance

Remarks _____

3. Spare Parts and Equipment

Readily available Good condition Requires upgrade Needs to be provided

Remarks _____

B. Surface Water Collection Structures, Pumps, and Pipelines Applicable X N/A

1. Collection Structures, Pumps, and Electrical

Good condition Needs Maintenance

Remarks _____

2. Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances

Good condition Needs Maintenance

Remarks _____

3. Spare Parts and Equipment

Readily available Good condition Requires upgrade Needs to be provided

Remarks _____

C. Treatment System Applicable X N/A

1. Treatment Train (Check components that apply)

Metals removal Oil/water separation Bioremediation

Air stripping Carbon adsorbers

Filters _____

Additive (*e.g.*, chelation agent, flocculent) _____

Others _____

Good condition Needs Maintenance

Sampling ports properly marked and functional

Sampling/maintenance log displayed and up to date

Equipment properly identified

Quantity of groundwater treated annually _____

Quantity of surface water treated annually _____

Remarks _____

2. Electrical Enclosures and Panels (properly rated and functional)

N/A Good condition Needs Maintenance

Remarks _____

3. Tanks, Vaults, Storage Vessels

N/A Good condition Proper secondary containment Needs Maintenance

Remarks _____

4. Discharge Structure and Appurtenances

N/A Good condition Needs Maintenance

Remarks _____

5. Treatment Building(s)

N/A Good condition (*esp.* roof and doorways) Needs repair

Chemicals and equipment properly stored

Remarks _____

6. Monitoring Wells (pump and treatment remedy)

Properly secured/locked Functioning Routinely sampled Good condition

All required wells located Needs Maintenance N/A

Remarks _____

D. Monitoring Data X Not Applicable

1. Monitoring Data

Is routinely submitted on time Is of acceptable quality

2. Monitoring data suggests:

Groundwater plume is effectively contained Contaminant concentrations are declining

E. Monitored Natural Attenuation X Not Applicable

1. **Monitoring Wells** (natural attenuation remedy)

Properly secured/locked Functioning Routinely sampled Good condition

All required wells located Needs Maintenance N/A

Remarks _____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

The Decision Document's selected remedy was Educational LUCs. The Land Use Control Implementation Plan (LUCIP) described these as: 1) "Public Safety Advisory" signs, between the sidewalk and the board walk at high visibility areas, 2) "MEC awareness" brochures/flyers, present for the general public and 3) a "MEC awareness" video shown to the people who wish to do metal detecting at Buckroe Beach. Using LUCs provide a means for the landowners and their representatives to coordinate in an effort to reduce MEC exposure risk through behavior modification.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The use of LUCs at a FUDS property is primarily to produce public awareness. The LUCIP which is the framework of implementing the LUCs, has been created. USACE has distributed "Public Safety Advisory" signs, "MEC Educational" brochures/flyers and a "MEC Awareness" video to Buckroe Beach Park. But they are not displayed/available to their full extent.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

The site visit did not observe as many MEC hazard/warning signs as described in the LUCIP. Nor were any MEC educational brochures/flyers evident for the general public. Mr. Jim Seward (Buckroe Beach Park, Co-Manager), when interviewed, stated that such flyers are only given to people applying for a metal detection license at Buckroe Beach (sandy portions). Also, the "MEC Awareness" video which all persons wishing to obtain a metal detection license for Buckroe Beach must view, is somewhat outdated.

C. Early Indicators of Potential Remedy Problems
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. <u>One of the previously installed “Public Safety Advisory” MEC signs, mentioned in the Land Use Control Implementation Plan (LUCIP), near the northern and southern boundaries of Buckroe Beach FUDS, were not observed during the site inspection. The Buckroe Beach Park also does not have the “MEC awareness flyers available for the general public. Also, the “MEC awareness” video needs to be updated.</u>
D. Opportunities for Optimization
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. <u>The LUCIP mentions “Public Safety Advisory” MEC signs at the northern boundary of Buckroe Beach FUDS site. The sign should be reinstalled at those the previous locations. Install a rack to hold “MEC awareness” flyers/brochures for all members of the public, suggested at the Wilson Fishing Pier. Use a more current “MEC awareness” video. Check that the signs are present, annually, replacing them if necessary.</u>

See interviews following this page, with:

- 1) Lynn Waldrop, Buckroe Beach Park Co-Manager and James T. Wilson Fishing Pier Manager

Five-Year Review Questionnaire
Buckroe Beach Hampton, VA
Formerly Used Defense Site (FUDS) Site # C03VA1011
Interview of Lynn Waldrop title: Pier Operation Manager

U.S. Army Corps of Engineers (USACE), Baltimore District is doing a Five-Year Review of Buckroe Beach. Part of the Five-Year Review process is to seek information on the remedy from interested parties, hence this questionnaire. There have been several (six) removal actions for Buckroe Beach soil/sand, at various depths for Munitions and Explosives of Concern (MEC) and munitions debris (MD). The remedy, given in the Decision Document of October 23, 2015 was Land Use Controls (LUC) such as warning signs, educational brochures, community outreach activities (video and presentations/ training).

Please answer the questions below, for the period of this Five-Year Review [2015 to the present (October 2024)], for us.

1. What is your overall impression of the project? **Positive, getting the potential dangers of items founded, is being proactive.**
2. Is the remedy functioning as expected? How well is the remedy performing? **YES**
3. What effects have removal operations and the distribution of educational brochures and signs at Buckroe Beach, had on the surrounding community? **No negative response**
4. Do you feel that the land-use controls and the dangers of munitions at Buckroe Beach, are adequately communicated to the public? **YES**

5. Are you aware of any community concerns about Buckroe Beach operation and administration? If so, please give details. **NO**
6. Are you aware of any events, incidents, or activities at Buckroe Beach such as vandalism, trespassing or emergency responses from local authorities, in the last five years? (This Five-Year Review period is October 2015 to October 2020.) If so, please give details. **The information signs have been vandalized in the past**
7. Have there been any complaints, violations, or other incidents related to the Site (Buckroe Beach), requiring a response by Virginia Department of Environmental Quality (VADEQ) in the last five years? If so, please give details of the events and results of the responses. **NO**
8. What is the incidence data of Buckroe Beach visitors or personnel encountering military ordnance? Are there any trends that show that such incidents are increasing or decreasing? **Decreasing , no items have been found , that we know in resent years**
9. Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines in the last five years? Please describe changes and impacts, if there are any. **NO**
10. Have there been unexpected O&M difficulties or operational difficulties or costs at the Site due to MEC/MD, in the last five years? If so, please give details. **NO**
11. Do you feel well informed about munitions location instances and regular Buckroe Beach activities to prevent the location of military ordnance? **YES**

12. Do you have any comments, suggestions, or recommendations regarding Buckroe Beach's management or operation? **NO**

13. Please write your contact information – name, title, address, phone # and e-mail. **Lynn Waldrop Pier Operation Manager, 330 South Resort Blvd. Hampton, VA. 23664 #757-592-6736 lwaldrop@hampton.gov**

Appendix D

Newspaper Notice For Five-Year Review

Order ID: 7706420

* Agency Commission not included

GROSS PRICE * : \$545.87**PACKAGE NAME:** DP Legal Notices

Product(s): Daily Press, dailypress.com, dailypress_VApublicnotices.com**AdSize(s):** 1 Column**Run Date(s):** Friday, May 23, 2025**Zone:** Full Run**Color Spec.** 4C

Preview

**BUCKROE BEACH FORMERLY
USED DEFENSE SITE
NOTIFICATION OF
FIVE-YEAR REVIEW**

This Public Notice is to inform the community of the U. S. Army Corps of Engineers' (USACE) intent to conduct the 2025 Five-Year Review (FYR) for the Buckroe Beach Formerly Used Defense Site (FUDS Project # C03VA1011), in Hampton, Virginia. It is being addressed under the Military Munitions Response Program (MMRP) as Munitions Response Site (MRS) C03VA101101. Specifically, the FYR will determine if the remedy selected in the Decision Document (DD) for Buckroe Beach that was implemented to reduce risks to the human health and the environment is, and will continue to be, protective of human health and the environment. The Army is required to evaluate the protective-ness of the remedy at least every five years because the selected remedy has left hazardous substances, pollutants or contaminants remaining in the soil or groundwater. Work Previously Completed: USACE contracted for six Munitions and Explosives of Concern (MEC) detection and removal efforts between 1990 and 2004. The 2014 Remedial Investigation/ Feasibility Study found that sufficient MEC remained at Buckroe Beach to pose a low explosive safety risk. Because of this potential risk the DD, signed October 23, 2015, called for the establishment of Land Use Controls (signs and educational videos), to further reduce risk. The initial 5YR was completed August 2020, which evaluated the selected remedy in the DD, and its effectiveness. Contact Information: The date of completion of this 2025 Buckroe Beach FYR,

Order ID: 7706420

* Agency Commission not included

GROSS PRICE * : \$545.87**PACKAGE NAME: DP Legal Notices**

Final is anticipated to be August 7, 2025. If you have any questions or comments about the FYR, or wish to view the Buckroe Beach DD, please contact the U. S. Army Corps of Engineers Public Affairs Office, 2 Hopkins Plaza, Baltimore, Maryland. USACE welcomes your comments and questions. The point of contact for further information is:

U.S. Army Corps of Engineers, Baltimore District
Public Affairs Office
Attn: Public Affairs Office
2 Hopkins Plaza, Room 10-F-22-CC
Baltimore, MD 21201-2526
NAB-PAO@usace.army.mil
5/23/2025 7706420

Appendix E

3Rs Explosives Safety
Education Brochure

Follow the 3Rs



Recognize when you may have encountered a munition.

Recognizing when you may have encountered a munition is the most important step in reducing the risk of injury or death. Munitions may be encountered on land or in the water. They may be easy or hard to identify.

To avoid the risk of injury or death:

- ▶ Never move, touch or disturb a munition or suspect munition
- ▶ Be aware that munitions do not become safer with age, in fact they may become more dangerous
- ▶ Don't be tempted to take or keep a munition as a souvenir

Munitions come in many sizes, shapes and colors. Some may look like bullets or bombs while others look like pipes, small cans or even a car muffler. Whether whole or in parts, new or old, shiny or rusty, munitions can still explode. The easiest way to avoid injury or death is to heed warnings and follow the 3Rs if you suspect you have encountered a munition.



Do not touch, move or disturb it, but carefully leave the area.

Avoid death or injury by recognizing that you may have encountered a munition and promptly retreating from the area.

If you encounter what you believe is a munition, do not touch, move or disturb it. Instead, immediately and carefully leave the area by retracing your steps—going out the way you entered. Once safely away from the munition, mark the path (e.g., with a piece of clothing) so response personnel can find the munition.



Immediately notify local authorities by calling 911.

Protect yourself, your family, your friends and your community by immediately reporting suspected munitions to the police.

Help us by providing as much information as possible about what you saw and where you saw it. This will help the police and military or civilian explosive ordnance disposal personnel find, evaluate and address the situation.

If you believe you may have encountered a munition, **call 911** and report:

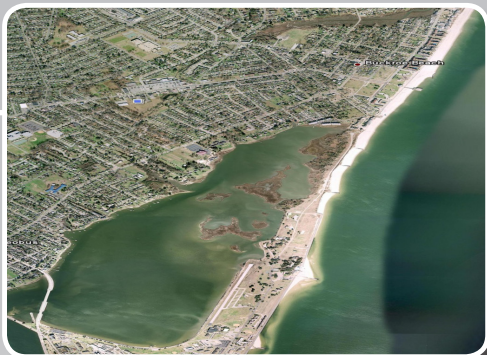
- ▶ The area where you encountered it.
- ▶ Its general description. Remember, do not approach touch, move or disturb it.
- ▶ When possible, provide:
 - Its estimated size
 - Its shape
 - Any visible markings, including coloring

Background

Buckroe Beach is located in Hampton, Virginia, north of Fort Monroe. It consists of approximately 13 acres of gently sloping beachfront and 4 acres of tidal area. Buckroe Beach is owned by the City of Hampton and serves as a recreation area for the general public.

In 1990 and 1996, two beach replenishment projects dredged offshore sand from the Fort Monroe coastal artillery ranges (located a few miles offshore) onto Buckroe Beach. These sand replenishment efforts inadvertently placed military munitions such as 40mm, 75mm, and 76mm practice rounds onto the beach.

The U.S. Army Corps of Engineers has completed several removal actions over the years to clear the beach of munitions. The investigation equipment they used can reliably detect items down to 30 inches. Despite the safety measures in place and beach inspections, there is still a small possibility of munitions being found at the beach due to erosion or sand movement from major storm events. Therefore, it is important to learn and follow the 3Rs of explosives safety.



Buckroe Beach Formerly Used Defense Site Hampton, Virginia

Buckroe Beach Information

3Rs Safety Guide

Emergency Contact

If you suspect a munition

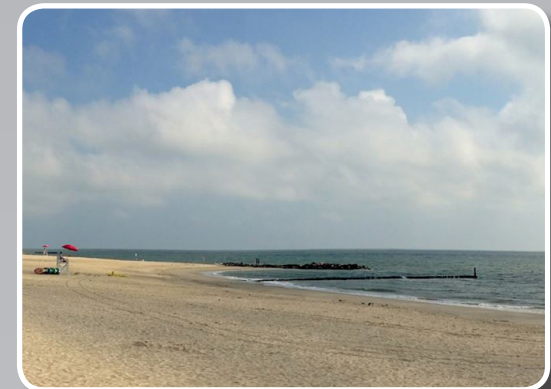
Call 911

For additional information contact the
U.S. Army Corps of Engineers,
Corporate Communication Office at:
1-800-434-0988 or
cenab-cc@usace.army.mil

Learn and follow the 3Rs
of explosives safety



Visit the US Army's Explosive Safety Education website:
www.denix.osd.mil/uxo



US Army Corps
of Engineers®



Appendix F

3Rs Explosives Safety Guide for Maritime Industry

Maritime Industry



During maritime operations (e.g., fishing, clamming or dredging), nets, bottom tending gear, and dredges may catch or dredge munitions from the ocean. Munitions pose a potential, but real danger to vessels and crews as well as to commercial and recreational divers.

Vessel crews often tell tales about catching suspicious items in a net or dredging gear. Lucky crews live to spin their own tales, while others become the subject of a tragic tale.

In July 1965, such a tragedy took place aboard the fishing vessel (FV) *Snoopy*. The FV *Snoopy* was trawling for scallops off the coast of North Carolina when it caught a large cylinder in her net. A witness said he could clearly see a long round object swaying in the net amidships, over the deck.

What happened next is unclear, but an explosion caused the loss of the FV *Snoopy* and eight of her crew.

What went wrong? Was it preventable? Could something have been done to save the FV *Snoopy* and her crew?

While all these questions were asked, no one but the FV *Snoopy*'s crew actually knows what happened. However, this tale is meaningful if others learn from it.

If you encounter or suspect you have encountered a munition at sea, follow the 3Rs of explosives safety (Recognize, Retreat, Report).



Unexploded ordnance recovered during dredging



A new torpedo (top) and a heavily corroded torpedo on the sea floor (bottom).



Recognize

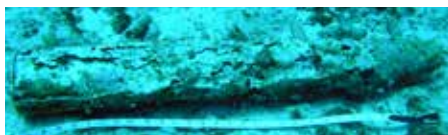
The military has conducted live-fire training and combat operations at sea for centuries. Prior to 1970, the U.S. military and the militaries of other nations sea-disposed excess, obsolete and unserviceable munitions either en route to port or as part of a planned disposal. In 1970, militaries of the United States and other countries stopped the practice, now allowing it only during an emergency. Mariners should be prepared for an encounter with munitions during commercial operations, such as fishing, clamming or dredging. By following the 3Rs and using common sense, mariners will know what to do if they inadvertently recover a munition.

Munitions may be encountered anywhere, not just in charted hazard areas. Munitions that may be encountered include mines, torpedoes, depth charges, artillery shells, bombs and missiles. Munitions may contain explosives or chemical agents, both potentially posing serious dangers to a vessel and her crew.

- All munitions, including those that have been in the sea or fresh water for many years, should be considered extremely dangerous.
- In some cases, munitions that have been in water for a long time have become more sensitive.
- Whether encountered at sea or on land, munitions might explode when moved, disturbed, or handled.
- Munitions submerged in sea or fresh water for any length of time may:
 - Look new and be easy to identify;
 - Be heavily rusted or encrusted with sea growth and be difficult to identify.



Various recovered projectiles



Projectile and cartridge case on sea floor

MUNITIONS ARE DESIGNED TO BE DANGEROUS

In support of its mission, the Department of Defense (DoD) designs military munitions to kill or seriously injure people, or destroy equipment (e.g., vessels). To protect yourself from the potential hazards associated with munitions, avoid

known disposal areas by heeding warnings on nautical charts and following the 3Rs of explosives safety (Recognize, Retreat, Report). (Note: This guide includes drawings and photos of some munitions to help crews recognize suspect munitions.)

CHEMICAL MUNITIONS AND CHEMICAL AGENTS

In the early 1900s, the Department of War, now DoD, developed chemical munitions to kill, seriously injure, or incapacitate an enemy. In the past, the United States and other countries sea-disposed chemical munitions and chemical agents in bulk containers, such as 55-gallon drums. As a result, some munitions or containers recovered from the sea may contain chemical agents.

Vessel crews should be alert for following signs that a chemical munition or chemical agents are present:

- Unusual odor from equipment or fish;
- Stinging sensations in the eyes;
- Burning or irritated skin;
- Presence of an oily liquid;
- Corroded containers or suspicious clay-like lumps.



Recovered chemical munition



Chemical munition recovered from clambed

IF YOU SUSPECT A CHEMICAL MUNITION OR AGENT IS PRESENT, ACT IMMEDIATELY TO PROTECT THE CREW AND VESSEL.

- Move all crew members upwind;
- Steam into the wind to carry any contaminants away from the crew;
- Close all doors and hatches;
- Shut down all ventilation systems;
- Flush the area thoroughly with water to wash suspect chemical agent overboard;
- Contact the U.S. Coast Guard (USCG) for immediate assistance;
- Do not steam into port, unless the USCG advises you to do so.



An aerial bomb prepared for shipping (above). An aerial bomb on the sea floor (below).



IF YOU SUSPECT CONTAMINATION BY CHEMICAL AGENTS

If you suspect a crew member has come in contact with a chemical agent, immediately:

- Remove any contaminated or potentially contaminated clothing and place it in a plastic bag (double bag, if possible) and seal it or just throw the clothing overboard. (Similar actions should be taken with contaminated or potentially contaminated tools.)
- Rinse the crew and the immediate area with large amounts of water. (If possible, use warm soapy water.)



Munitions on the sea floor

Every effort should be made to prevent the spread of chemical contamination. Chemical agent-contaminated clothing and tools may expose other crew members to chemical agent and spread the contamination to other areas on the vessel. Crew members should not work in areas known or suspected to be contaminated by chemical agent. Vessels that may have come in contact with chemical agents should not bring their catch ashore until the state's department of environmental health has determined it is safe to do so.

Retreat

Because munitions present a potential explosive or chemical agent hazard, they should not be moved, disturbed or handled. However at sea, and depending on the circumstances, specific action may be required to protect the vessel and her crew.

- Avoid bringing munitions (or suspect munitions) onboard, whenever possible.
- If a munition is ensnared or fouled in gear, retreat by carefully returning the munition to the water or by cutting away the gear.
- If the munition cannot be carefully returned to the water, secure it onboard, and move the crew upwind and as far away from the munition as possible.
- Limit the number of crew members securing the munition, and avoid bumping or dropping the munition. Remember that each action carries some risk!



A new 5-inch 38 caliber projectile (above). Recovered 5-inch 38 caliber projectiles (below).



Munitions Recovered, but Not Yet Onboard

- Immediately stop all operations;
- Do not bring the munition or gear containing it onboard, if possible;
- Do not allow the munition to come or remain alongside the vessel where wave action could cause the munition to contact the hull;
- If a munition is caught in the gear, but has not been brought onboard, try to lower it safely back into the water, note the position and report it to the USCG. In:
 - Shallow water (less than 130 feet), lower the munition to the bottom, buoy off the net or dredge recovery lines and remain in the area while awaiting assistance.
 - Deep water, stream the munition as far aft as possible, maintain steerageway, as necessary and remain in the immediate area while awaiting assistance.

Munitions Recovered and Brought Onboard

If gear is brought over the deck with a munition or suspected munition, but it remains suspended and it can be safely secured in place or nearby, immediately:

- Secure the munition with guy lines to prevent movement;
- Keep the crew upwind and away from the area.

If a suspect munition is brought onboard:

- Keep crew members upwind and as far away as possible.
- Minimize handling, and decide whether it is safest to:
 - Carefully return it to the water, or
 - Retain it onboard.

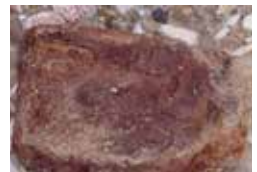
If returned to the water, note and report position to USCG.

If retained onboard:

- Keep the crew upwind and away from the munition.
- Minimize handling, and avoid disturbing (hitting, dropping or bending) any part of the munition;
- Secure the munition on deck with lines and/or by chocking it to prevent movement, but do this as far away as possible from heat sources, vibrations and the crew;
- Cover the munition with a tarp or wet cloth to reduce the potential for:
 - Deterioration of metal parts and release of its fill;
 - Explosives to dry out and become sensitive to shock.
- Request assistance (Channel 16 - 156.800 MHz).



A new rifle grenade (above). A recovered grenade (below). Item is about four inches long.



NEVER BRING A MUNITION INTO PORT, UNLESS DIRECTED TO DO SO

Report

Careful observation and accurate reporting of the situation is necessary, so that proper instructions and assistance can be provided. However, never attempt to clean or open a munition to get a better description or tamper with a munition in any way. Information you provide may be combined with other reports to produce a Notice to Mariners and/or update nautical charts.

When a munition or suspect munition is encountered, the vessel's captain should notify the USCG (Channel 16 - 156.800 MHz) and provide the below information, as soon as possible. (Note: If a munition is encountered while in port, call 911.) Report:



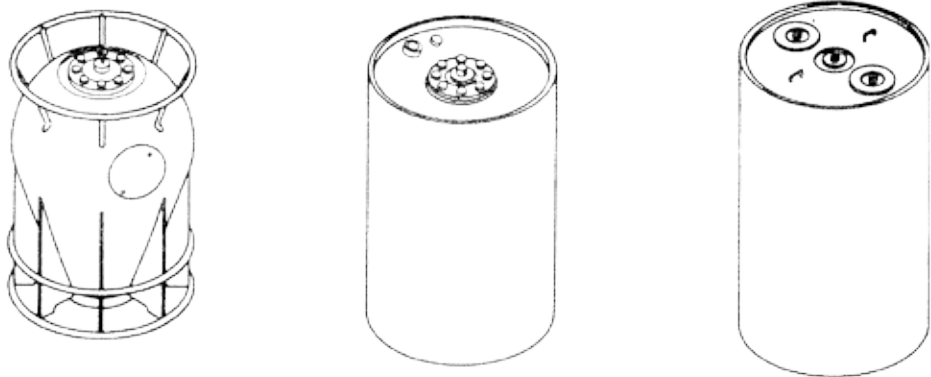
Floating mine washed ashore

- The vessel's position (use World Geodetic System 1984 [WGS-84] for reporting). If the exact position is unknown, give approximate coordinates, or a range and bearing from a charted feature.
- The activity (e.g., fishing, clamming, dredging) being conducted when the munition was encountered.
- A general description of the munition's key features (i.e., size, shape, fins, markings) and overall condition, if observed or known.
- Any unusual odors.
- The action taken (e.g., secured munition on deck, munition carefully returned to water, washed off deck where munition was placed) to protect the crew.
- If the munition was returned to the water, provide:
 - The position where it was returned to the water: the water depth, buoys or markings used, if any; and whether the location is near or within a charted disposal area;
 - A description, if appropriate, of any entanglement (e.g., net, dredge);
 - A description of surface or sub-surface structures within 1,000 yards.

THE US COAST GUARD WILL NOTIFY AN EXPLOSIVE ORDNANCE DISPOSAL UNIT TO ARRANGE FOR SUPPORT.

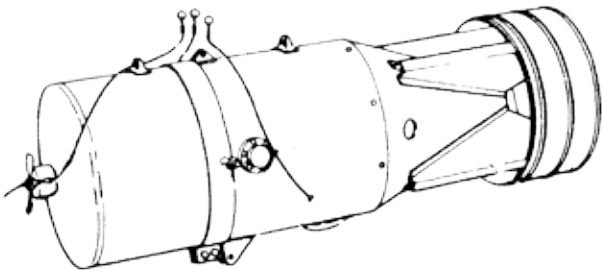
DEPTH CHARGES

Length 28" / Diameter 18" to 25"

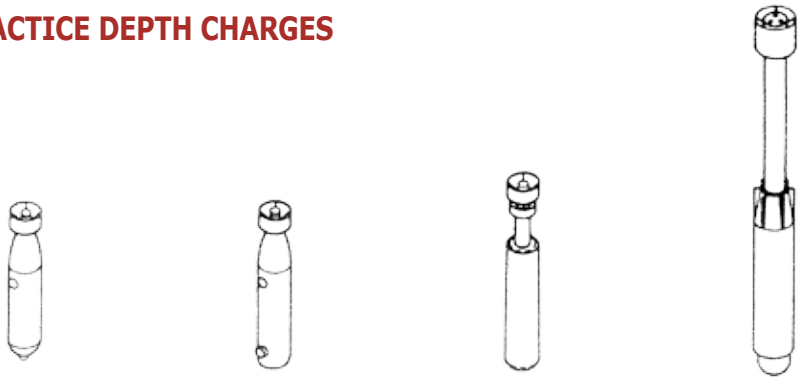


DEPTH BOMB

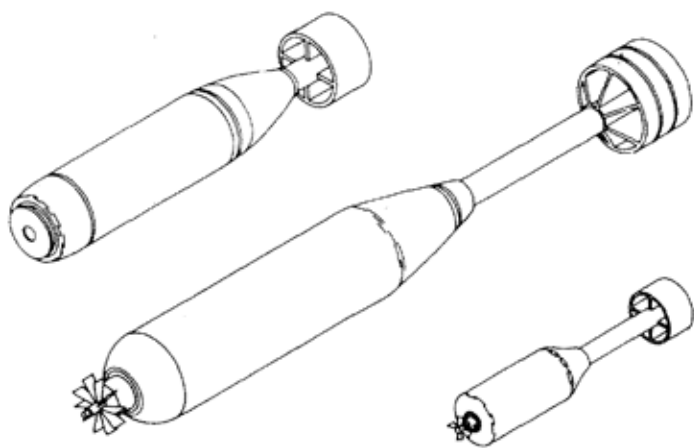
Length 50" to 59" / Diameter 15" to 18"



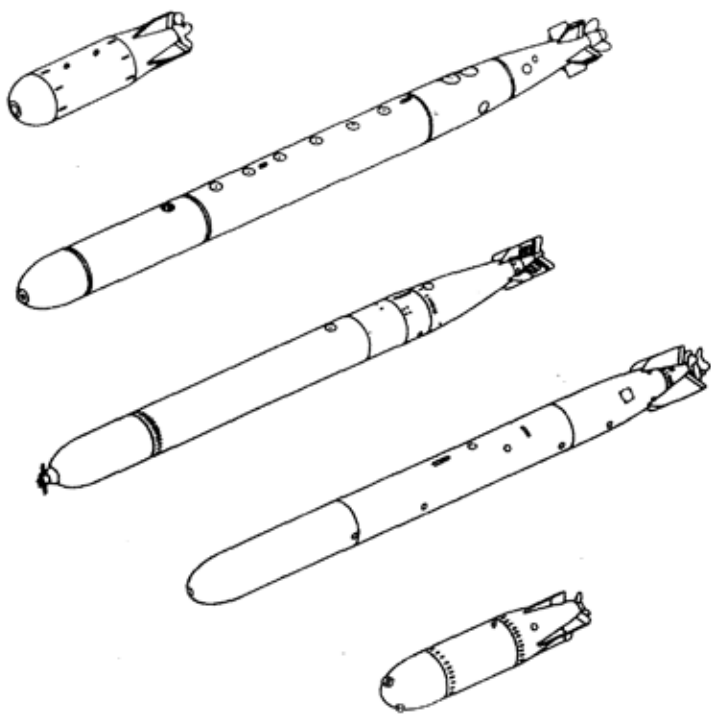
PRACTICE DEPTH CHARGES



PROJECTED ANTI-SUBMARINE-WARFARE WEAPONS



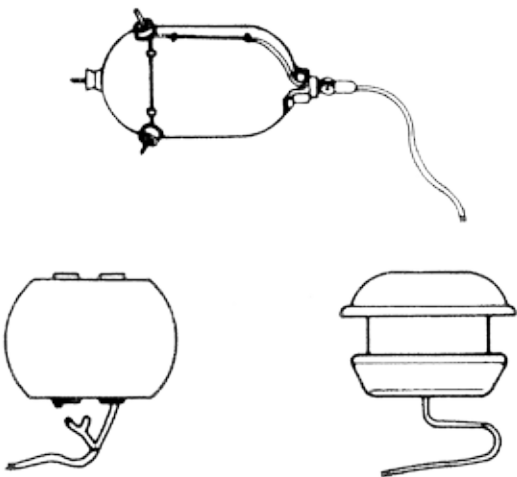
REPRESENTATIVE TORPEDOES



MISCELLANEOUS MINE FLOATS

Length 10" to 24"

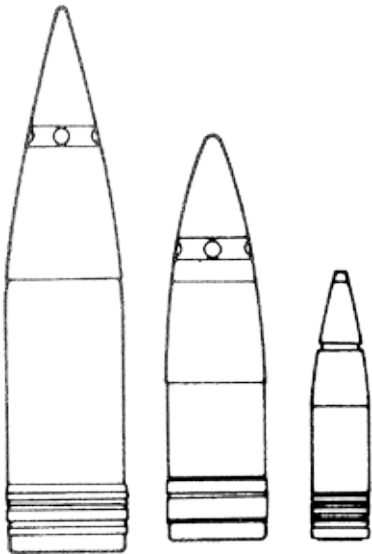
Diameter 12" to 18"



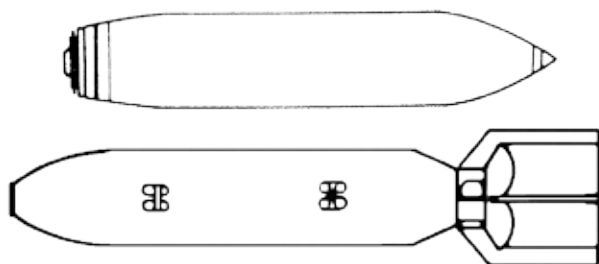
PROJECTILES

Lengths 20 mm to 16"

3" to 5" in Diameter (Typically)

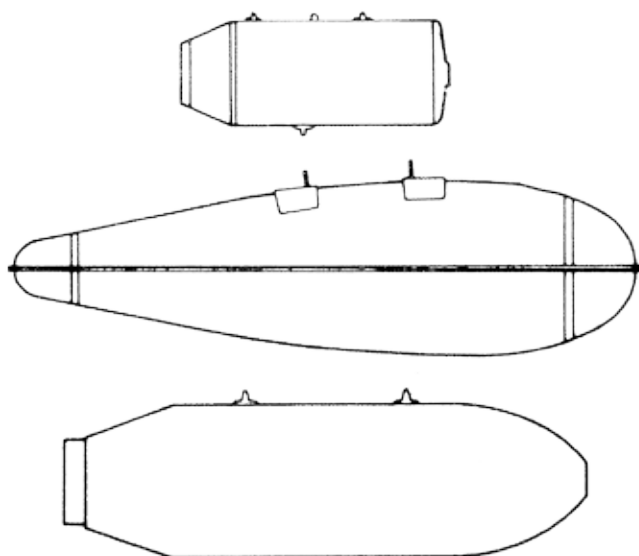


AERIAL BOMBS



Bomb Body Lengths 39" to 97"

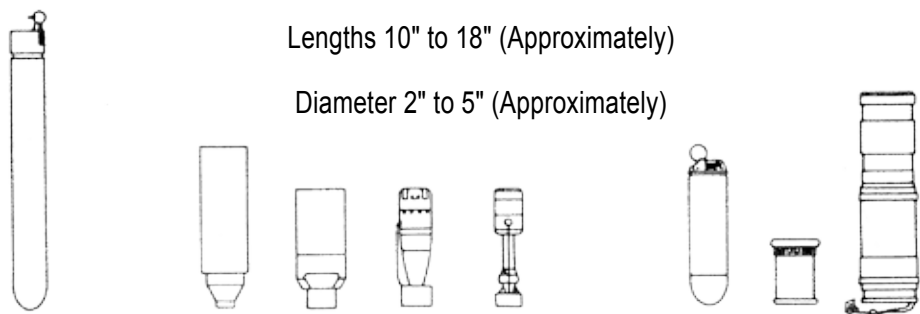
Diameter 7" to 19"



MARKERS AND SIGNALS

Lengths 10" to 18" (Approximately)

Diameter 2" to 5" (Approximately)



Don't Forget

- Munitions are dangerous and may not be easily recognizable!
- Avoid operational and former military ranges, and disposal areas!
- Do not bring munitions on-board!
- Never bring a munition into port, unless directed to do so by USCG!

Follow the 3Rs

Recognize

When you may have encountered a munition and that munitions are dangerous.

Retreat

If you know or suspect you have encountered a munition, carefully return it to the water or secure it and keep the crew away from the immediate area.

Report

Immediately notify the USCG of the vessel's or munition's location and provide a description of the munition.

Emergency contacts:

- In port: Call 911
- At sea: Use Channel 16 (156.800 MHz)



(Insert contact information here)

For additional information call
U.S. Army Technical Center for Explosives Safety
at (918) 420-8919

or see

the US Army's UXO Safety Education website
www.denix.osd.mil/uxo