



U.S. Army Corps of Engineers Proposes Remediation and Requests Public Comments

South Beach Munitions Response Area
Formerly Used Defense Site (FUDS)

Martha's Vineyard, Massachusetts

June 11, 2015

*Text in **bold italics** indicates that a word/phrase is included in the glossary at the end of this Proposed Plan.*

MARK YOUR CALENDAR!

The U.S. Army Corps of Engineers will hold a **public meeting** to explain the preferred remedial alternative and proposed plan with an opportunity to ask questions.

Public Meeting

Date: June 24, 2015

Time: 6:30 – 8:00 p.m.

Place: Whaling Church Edgartown, MA

We invite questions and comments at the public meeting or in writing during the public comment period.

Public Comment Period

15 June to 17 July, 2015

Comments must be postmarked or e-mailed by midnight 17 July, 2015. Comments can also be submitted orally at the meeting or in writing by mail or e-mail to:

Amec Foster Wheeler Environment & Infrastructure, Inc.

ATTN: Ms. Donna Sharp

9725 Cogdill Road

Knoxville, Tennessee 37932

donna.sharp@amecfw.com

Questions regarding this project can be directed to the U.S. Army Corps of Engineers Project Manager, Ms. Carol Ann Charette at 978-505-2918.

Project Information Repository

This Proposed Plan is available in the project **information repository**, at the **Edgartown Public Library** (58 North Water Street, Edgartown, MA 02539). This repository contains technical reports and community outreach material prepared for the Former South Beach Moving Target Machine Gun and Katama Rocket Range.

This Proposed Plan is presented by the USACE to facilitate public involvement to review and comment in the remedy selection process at the South Beach **Munitions Response Area (MRA)** which covers approximately 4,431 acres. This MRA is a Formerly Used Defense Site (FUDS), Project Number D01MA048600, located on Martha's Vineyard, Massachusetts (see Figure 1). The MRA is further divided into two **Munitions Response Sites (MRSs)**, the:

- Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS (695 acres)
- Remaining Ocean MRS (3,736 acres)

The United States Army Corps of Engineers (USACE) is proposing **Land Use Controls (LUCs)** as the preferred alternative for the Former South Beach Moving Target Machine Gun and Katama Rocket Range and No Action is proposed for the Remaining Ocean MRS (where no risk was identified). The proposed remediation is designed to protect people from coming in contact with **munitions**.

The FUDS program addresses the potential explosives safety, health, and environmental issues resulting from past munitions use at former defense sites under the Department of Defense (DoD) **Military Munitions Response Program**, established by the U.S. Congress under the **Defense Environmental Restoration Program**. The FUDS program only applies to properties that transferred from DoD before October 17, 1986. The Army is the executive agent for the FUDS program, and USACE is the program's lead agency with Massachusetts Department of Environmental Protection (MassDEP) as the regulatory agency. In fulfilling its obligations under FUDS, the first priority of USACE is the protection of human health, safety, and the environment.

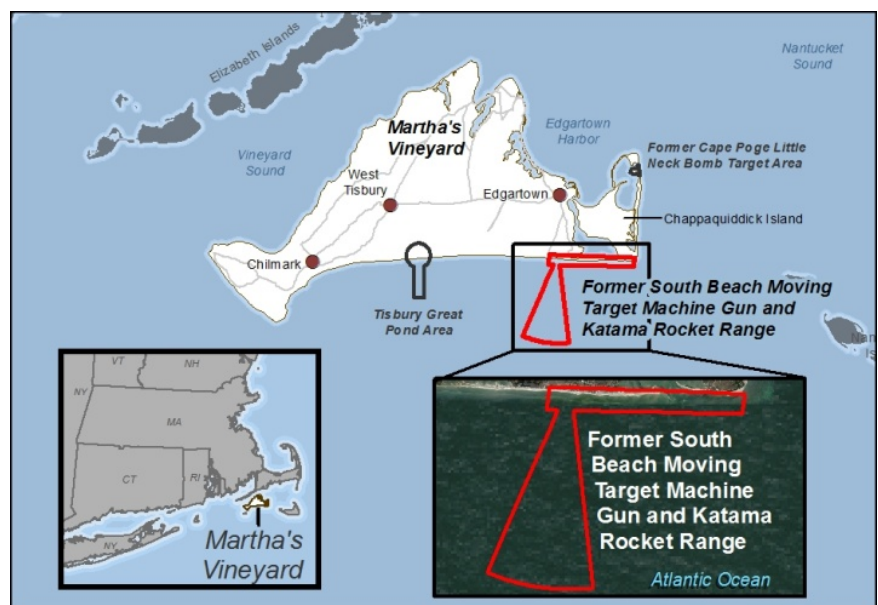


Figure 1. South Beach MRA Location Map

USACE will select a final remedy for the South Beach MRA after considering all state and public comments. The public is also encouraged to review supporting technical documents and community outreach material that are available in the project **information repository**, located at the Edgartown Public Library. This project information repository provides copies of documentation included in the **Administrative Record file** for the MRA. The official Administrative Record file for the South Beach MRA is located at the USACE, New England District 696 Virginia Road, Concord, Massachusetts 01742-2751, and is maintained by USACE. The selected remedy will be announced in a local newspaper public notice and in the final **Decision Document (DD)**.

The FUDS program follows the requirements of the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)*** and the **Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)** of 1980 and its amendments of 1986. This **Proposed Plan** is prepared to be consistent with the requirements of Section 117(a) of CERCLA, Title 40 Code of Federal Regulations (CFR) Section 300.430(f)(2) of the NCP, and the U.S. Environmental Protection Agency (EPA) guidance.

This Proposed Plan describes the remedial alternatives considered for the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS (Figure 2) and identifies the remedial alternatives.

No action is recommended for the Remaining Ocean MRS following the **Remedial Investigation (RI)** since the insignificant amount of **Munitions Debris (MD)** (2 practice rockets) within the MRS and the lack of exposure to receptors due to the lack of finds at these deeper areas indicates that munitions will not be encountered at this site in the future. The MRS primarily consists of ocean 300 to 600 feet beyond the mean low water mark.

The public has until 17 July 2015 to comment on the Proposed Plan. See the **Mark Your Calendar** box on Page 1 to find out how to submit your opinion.

ABOUT THE SOUTH BEACH MRA

Between 1943 and 1947, the MRA was used as a gunnery and rocket firing range for the 1st Naval District flight training program at Naval Air Station Quonset Point, Rhode Island and Navy Auxiliary Air Station Martha's Vineyard, Massachusetts. Military practice ordnance potentially used at the MRA include 0.30 and 0.50 caliber ammunition, 2.25 to 5 in. sub-caliber aircraft rockets, 5 in. rocket warheads, 1 to 3.5 in. rocket warheads, 3 to 3.25 in. rockets with warheads, and 3 to 3.25 in. rockets with 5 in. warheads. Since the end of military operations in 1947, numerous discoveries of munitions have been identified at the MRA by local residents, Town of Edgartown employees, and visitors.

In the Time Critical Removal Action (TCRA) and RI, no **Munitions and Explosives of Concern (MEC)** was identified at the Former South Beach Machine Gun and Katama Rocket Range MRS or the Remaining Ocean MRS. However, within the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS, large quantities of MD were found which confirms the past usage of the site by the military as a

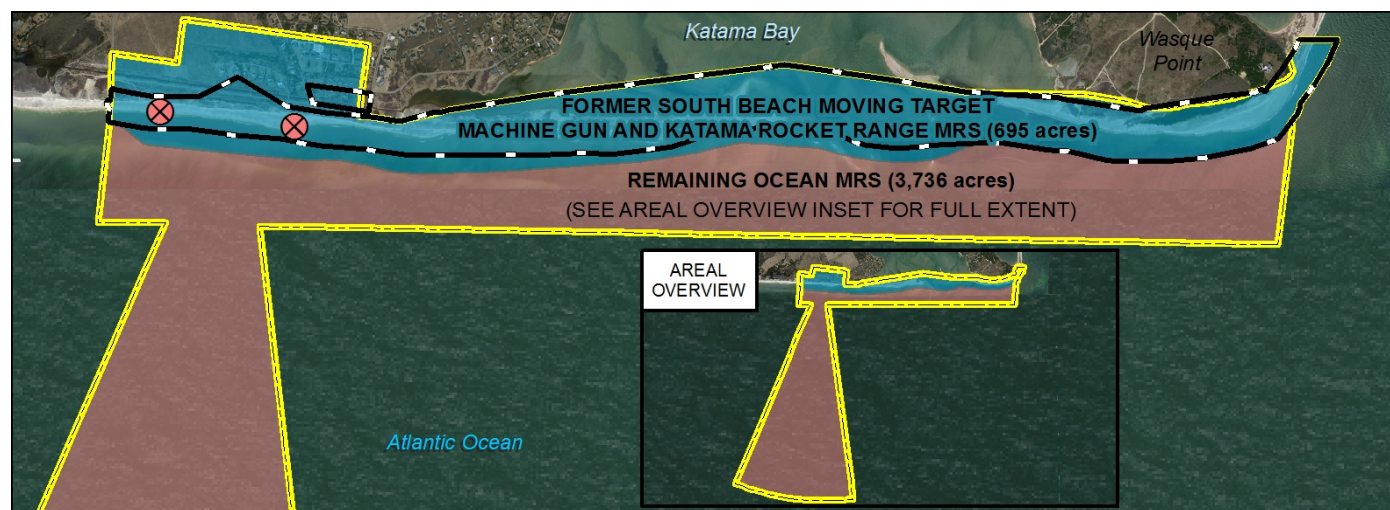


Figure 2. MRA Site Map

*Section 300.430(f)(1)(ii) and 300.430(f)(4)(i) of the NCP requires public participation in the process of approving a proposed decision document. This Proposed Plan summarizes the technical documents available in the project information repository located at the Edgartown Public Library.

rocket target area. Practice rockets that have been identified and documented on site include 5-inch MK6 warheads that have been plaster filled; however, there is an explosive counterpart that looks similar to the practice rocket warhead. Explosive Ordnance Disposal (EOD) and/or the State Bomb Squad have and will continue to respond to munitions finds at this site. Their reports are inconclusive in the findings as to whether there was any contribution to the detonation of these rocket motor bodies and warheads. Therefore, based on the history of the site, related sites, results of previous actions and the RI, coupled with the large volume of munitions items found and large volume of receptors at the site, there remains a small risk of encountering MEC in at this site.

During the TCRA, approximately 1,655 MD items were successfully recovered with approximately 99 of those items being inert/dummy warheads. Between 18 April and 25 September 2009, a TCRA was conducted within the Ocean portion of the MRS. During clearance operations, 617 MD items and 933 pounds of non-MD were removed. Prior to the RI, two suspected 100 lb bombs, were reported at Wasque Point, however, the source is unknown and there is no supporting evidence that they were associated with historical operations at South Beach.

USACE conducted the RI in 2010-2011 to collect data necessary to determine the nature and extent of potential MEC, MD, and **Munitions Constituents** (MC) resulting from historical military activities conducted within the MRA. To achieve the RI goals, various field investigative activities were conducted including: geophysical surveying, intrusive investigations, and environmental sampling for analysis of MCs (explosives and metals).

During the RI, two MD items were observed on land and beach and 96 MD items were recovered in the ocean portion of the 695-acre MRS. The RI included a finding that there remains a low statistical potential for MEC to be present in the MRS. The significant amount of MD within the MRS does indicate that property users will likely continue to encounter munitions in the future.

As part of the RI, environmental sampling for MC was conducted at the MRA, which included the collection of discrete, biased surface and subsurface soil samples and groundwater samples. Samples were analyzed for MCs, including antimony, copper, lead, nickel, and zinc, and explosive compounds previously identified as components of munitions identified within the MRA. Analytical results indicated that lead is present at concentrations exceeding ecological screening criteria at 3 soil sample locations, but below the human health screening criteria at all locations. All other detections of metals and explosives in soil and groundwater were

below human health and ecological screening criteria.

A Human Health Risk Assessment (HHRA) and a Screening-Level Ecological Risk Assessment (SLERA) were performed during the RI. In accordance with CERCLA related HHRA guidance, no contaminants of potential concern were identified within the MRS. Therefore, no further human health risk evaluation is required. There is no unacceptable risk to human health due to MC. All detected concentrations are less than the applicable Method 1 standards. Although concentrations of lead in surface soil exceeded the USEPA Ecological Screening Soil Level (Eco-SSL) for that metal, its potential for risk was found to be negligible based on the 95% upper confidence level (UCL) concentration for the 2-12 in. soil depth interval and a refinement of the ecological soil screening level based on less conservative exposure assumptions for the 0-2 in. depth interval. Therefore, it can be concluded that none of the MCs evaluated at the MRS pose a potential for unacceptable risk to ecological receptors. Based upon these results, the South Beach MRA was subdivided into the following two MRSs:

- Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS (695 acres)
- Remaining Ocean MRS (3,736 acres)

Currently, the MRA is owned by Dukes County, Massachusetts Department of Conservation and Recreation (MADCR), private landowners, The Trustees of Reservations (TTOR), and the Commonwealth of Massachusetts (some beach property as well as inland and coastal waters). South Beach is managed by the Edgartown Parks and Recreation Department from May through Labor Day of each year. The former range encompasses an area that is currently a popular public beach used for recreational purposes such as hiking, canoeing, kayaking, recreational fishing, clamming, crabbing, wildlife observation, photography, education, and other water-related activities. Land use is not expected to change in the future; however, it is possible that additional upland and beach habitat may be lost due to erosion.

The inland portion of the site is relatively flat at South Beach and slowly rises to the east toward the bluff at Wasque Point. Elevations within the MRS range from 0 ft above mean sea level (msl) along the shore to approximately 32 ft above msl at Wasque Point. Due to the dynamic nature of the beach portion of the site, the landscape of the beach is continuously changing.

The current MRA includes 3 habitat types: 1) upland habitat; 2) beach; and 3) ocean. These areas provide habitat to a variety of terrestrial plants, invertebrates, and wildlife as well as marine organisms. The MRA has been designated as a Priority Habitat of Rare Species

and Estimated Habitats of Rare Wildlife in the Massachusetts Natural Heritage Atlas 13th Edition (effective October 1, 2008). Habitat alteration within areas mapped as Priority Habitats (PH) may result in a take of a state-listed species. Priority habitat maps are based on known occurrence of rare species and habitat considerations. The MRA is mapped as PH 15.

The MRA provides habitat for a variety of plants and animals. Federally-listed threatened and endangered species, state-listed endangered species, state-listed threatened species, and state-listed special species of concern may be present within the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS. Specific species of concern observed within the MRS include Piping Plover (Federal Threatened and Endangered Species), Common Tern and Least Tern (Massachusetts Threatened and Endangered Species).

NATURE AND EXTENT OF MEC, MD, AND MC CONTAMINATION

Munitions and Explosives of Concern

During the Remedial Investigation, teams of experts conducted field investigations in the MRA (both land and water) to determine the absence or presence of items that could cause harm to the public. A total of 195 items were located and investigated. Of the 195, 97 were classified as MD and the remainder were non-MD (cultural debris such as soda cans). Within beach and land portions of the MRA, MD was found between 6 inches and 2 feet below ground surface (bgs). In the ocean portions of the MRA, all MD recovered was discovered within the subsurface up to 4 ft below the ocean floor.

Munitions Constituents

Between October and November 2011, environmental sampling for MC was conducted at the MRA, which included the collection of discrete, biased surface and subsurface soil samples and groundwater samples. Samples were analyzed for MCs, including antimony, copper, lead, nickel, and zinc, and explosive compounds previously identified as components of munitions identified within the Investigation Area. Analytical results indicated that lead is present at concentrations exceeding ecological screening criterion at 3 soil sample locations, but below the human health screening criterion at all locations. All other detections of metals and explosives in soil and groundwater were below human health and ecological screening criteria.

SCOPE OF THE PROPOSED PLAN

This Proposed Plan addresses only the remediation selected by USACE to manage the risks that have been identified specifically at the Former South Beach Moving Target Machine Gun and Katama Rocket Range

MRS. Based on the information and data collected, USACE anticipates that this proposed remediation will be the final action needed.

SUMMARY OF THE RISKS

Based on the results of previous actions and the RI, no MEC has been identified. However, the potential for an *explosive safety hazard* exists at the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS. An explosive safety hazard is the possibility that a MEC item will explode and potentially cause harm if handled or disturbed. A large volume of MD (non-hazardous) was found which confirms the past usage by the military.

The Munitions Response Site Prioritization Protocol (MRSP) ranking was revised during the RI to assign a relative risk (for Governmental Funding Priorities only) for the individual MRSs. This ranking system uses scores of 1 through 8, 1 indicating the highest potential priority and 8 indicating the lowest potential priority. The priorities do not have specific assigned actions.

The Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS received a MRSP priority ranking score of 6 and recommended the *Feasibility Study (FS)*.

The MRSP score for the Remaining Ocean MRS received a priority or ranking of “No Known or Suspected Hazard” and was recommended for no further action.

Based on the lack of a confirmed presence of MEC at the MRA, a *MEC Hazard Assessment (HA)* was not performed for either MRS.

REMEDIAL ACTION OBJECTIVE

A FS was performed for the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS after the RI Report was completed in June 2014. A feasibility study is a detailed analysis that develops viable remediation alternatives and examines the pros and cons of applying the alternatives to a specific MRS to achieve a desired *remedial action objective (RAO)*. The RAO for this project is:

“To reduce the probability of the public from handling munitions encountered during residential, construction/maintenance, and recreational activities performed at ground surface, in subsurface soil to 4 feet below ground surface, and in the area of breaking waves, or the ocean surf zone.”

The FS was finalized in June 2015.

SUMMARY OF REMEDIATION ALTERNATIVES

USACE conducted a detailed analysis of four alternatives for the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS. The alternatives were evaluated against seven of the nine criteria required by CERCLA and the NCP (*see criteria explanation on page 8*). Since criteria 8 and 9 are dependent on state and community acceptance, they will be considered after the public comment period closes. The alternatives for the MRS are summarized below. Additional details are available in the RI and FS reports provided for public information in the project information repository located at the Edgartown Public Library.

Alternative 1 – No Action

CERCLA requires that a “No Action” alternative be evaluated for the purpose of comparison to the other proposed alternatives. This alternative means no action would be taken to locate, remove, and dispose of MEC. In addition, no public awareness or education training would be initiated with regard to the risk of MEC. For the No Action alternative, it is assumed that no change to the current land use of the Land MRS would occur. There would be no *Applicable or Relevant and Appropriate Requirements (ARARs)* associated with this alternative. **Alternative 1 Cost: \$0**

Alternative 2 – Land Use Controls

Alternative 2 would consist of various LUC components to manage risk to people through proper education, signage and other means should they encounter MD remaining at this MRS. This alternative includes 3 types of information for the public:

1. Development and distribution of informational materials to provide awareness to property owners and authorities of the presence of munitions, and the DoD policy referred to as “the 3Rs” (Recognize, Retreat and Report – see the last page of this proposed plan for more information) to be able to recognize, retreat and report any future munitions that is encountered while performing maintenance, improvement, or construction activities on their property.
2. For the general public accessing the MRS for recreational/visiting purposes, installation/maintenance of signage at strategic access points in the MRS would be used to alert users of the MRS

history and nature of munitions present, in addition to public safety information (i.e., 3Rs).]

3. An educational program is considered under Alternative 2 including providing periodic training on-island for the local community to provide awareness on the munitions characterized at the MRS, and the 3Rs policy that would be used for future discoveries at the MRS and displayed on signage posted in and around the MRS. Attendance would be open to the public.

Although legal mechanisms of control cannot be imposed by the federal government on the privately-owned parcels included within the MRS boundary, the implementation of a LUC alternative based on public awareness and education components would provide a means for USACE to coordinate an effort to reduce munitions handling by private residents, TTOR personnel, contractor/maintenance personnel, and recreational users/visitors (i.e., unqualified/untrained personnel). Alternative 2 would achieve the RAO (to protect recreational users, visitors, and workers at the MRS from explosive hazards associated with MEC exposure in the top 4 feet of subsurface soil during intrusive activities through exposure controls as long as the LUCs remain in place. The LUC components can be readily implemented as there are no associated technical difficulties, and the materials and services needed to implement this alternative are available. There are no ARARs associated with Alternative 2 and since this alternative reduces the exposure to MEC rather than the amount of MEC, it is contingent upon the cooperation and active participation of the local government with the existing property owners (TTOR, Dukes County, Massachusetts Department of Conservation and Recreation, private land owners, and the Commonwealth of Massachusetts) and the major stakeholder, the Town of Edgartown), local responders, and the public using the MRS. Approximately 6 months would be required to establish LUCs associated with Alternative 2. Since this remedial alternative would not allow for unlimited use and unrestricted exposure, a Five-Year Review is required by the NCP (40 CFR 300.430(f)(4)(ii)). Five-Year Reviews would continue until any contaminants remaining on-site are at levels at or below those allowing for unlimited use and unrestricted exposure. **Alternative 2 Costs = \$369,000 (Alternative) + \$42,000 x 6 (Five-Year Reviews) = \$621,000.**

Alternative 3 – Land Area Only Subsurface Clearance with LUCs (309 acres)

Alternative 3 includes removal of subsurface munitions to approximately 4 feet below ground surface on the land and beach areas within the MRS (309 acres), Figure 3. LUCs would also be implemented as described in Alternative 2. The RAO would be achieved to a high degree of certainty and would allow recreation activities that could involve intrusive activities to occur. The

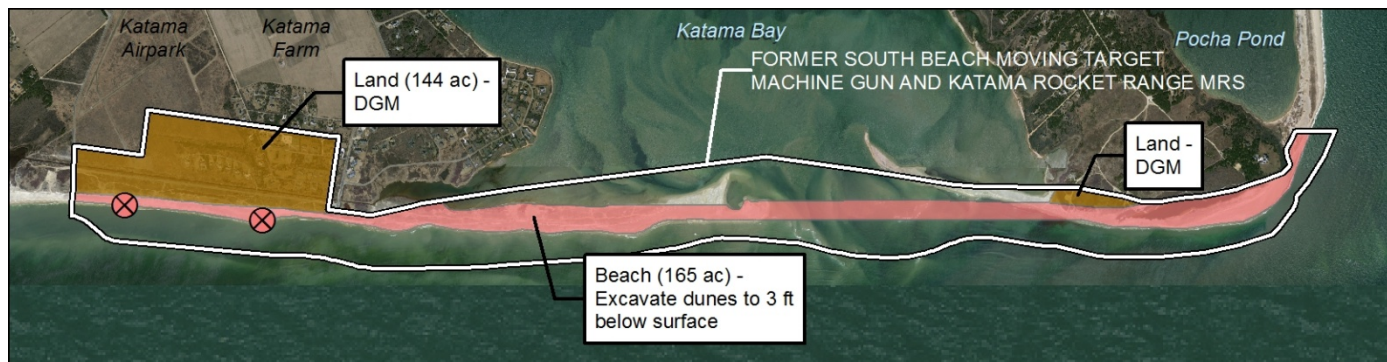


Figure 3: Alternative 3 Land Area Only Sub-Surface Clearance

RAO would also be achieved through exposure control utilizing LUCs.

MD remains at the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS and it is statistically possible for MEC to remain in the MRS. Based on the historical reports of munitions-related discoveries within the MRS and quantity of munitions estimated to remain, property owners and MRS users will likely continue to encounter munitions in the future which should be handled by qualified/trained personnel and managed appropriately.

Detection of MEC would be performed using digital detection instrumentation, proven to work effectively at the site during the RI. Once identified, intrusive activities would be performed using both mechanized equipment and hand-tools and restoration of disturbed areas would be required. Mechanized equipment would be used to remove the dunes in the vicinity of the rocket targets and in areas of high anomaly densities. All munitions would require inspection prior to removal to determine if they present an explosive hazard or if they are safe to move. If potentially explosive, the munitions would be detonated in place using EOD standard operating procedures to minimize risks to workers. Items identified as safe would be removed and taken off-site for recycling. After completion of the subsurface clearance, the site would be re-vegetated with native grasses and post-construction monitoring of re-vegetated areas would occur until vegetation has been successfully restored.

Since sensitive species are known to exist within the MRS, the USACE would coordinate with MA National Heritage and Endangered Species Program (NHESP),

United States Fish and Wildlife, and TTOR; and a rare plant and wildlife habitat evaluation would be conducted during development of the work plan. A botanical and wildlife survey and habitat evaluation would be conducted prior to fieldwork. The fieldwork would be scheduled to avoid sensitive species as much as possible. Work would also be coordinated with the Massachusetts Historical Commission and the Wampanoag Tribal Historic Preservation Office.

Twenty two ARARs were identified for the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS Alternative 3. Alternative 3 would comply with all ARARs and procedures for ensuring compliance would be developed in the Remedial Action Work Plan.

This alternative would also include LUC components and would require Five-Year Reviews (however the Five-Year Reviews are not considered part of the Alternative). It is estimated that partial clearance under Alternative 3 would require approximately 12 months of fieldwork to implement. Approximately 6 months would be required to establish LUCs associated with Alternative 3. **Alternative 3 Costs - \$8,634,000 (Alternative) + \$42,000 x 6 (Five-Year Reviews) = \$8,886,000.**

Alternative 4 – Complete Subsurface Clearance, Land and Water (695 acres)

Alternative 4 includes all the activities in Alternative 3 (subsurface remediation of MEC on the land and beach) and adds MEC detection and removal in the surf zone waters (386 acres) of the MRS, Figure 4.

MD remains at the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS and it is statistically possible for MEC to remain in the MRS. Based on the historical reports of munitions-related discoveries within the MRS and quantity of munitions estimated to remain, property owners and MRS users will likely continue to encounter munitions in the future which should be handled by qualified/trained personnel and managed appropriately.

As with Alternative 3, detection of MEC would be performed using digital detection instrumentation and intrusive activities would be performed using both mechanized equipment and hand-tools. Restoration of disturbed areas would be required. Mechanized equipment would be used to remove the dunes in the vicinity of the rocket targets and in areas of high anomaly densities. Intrusive activities are anticipated to occur within the top 4 feet of soil. However, if anomalies are detected below 4 feet, they would be removed. All munitions would require inspection prior to removal to determine if they present an explosive hazard or if they are safe to move. If potentially explosive, the munitions would be detonated in place using EOD standard operating procedures to minimize

coordinated with the Massachusetts Historical Commission and the Wampanoag Tribal Historic Preservation.

Twenty five ARARs were identified for the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS Alternative 4. Alternative 4 would comply with all ARARs and procedures for ensuring compliance would be developed in the Remedial Action Work Plan.

It is estimated that Alternative 4 would require approximately 24 months of fieldwork to implement (with shut downs in winter months). After all clearance operations are complete, a review of the site would be made (similar to a CERCLA Five Year Review) that will

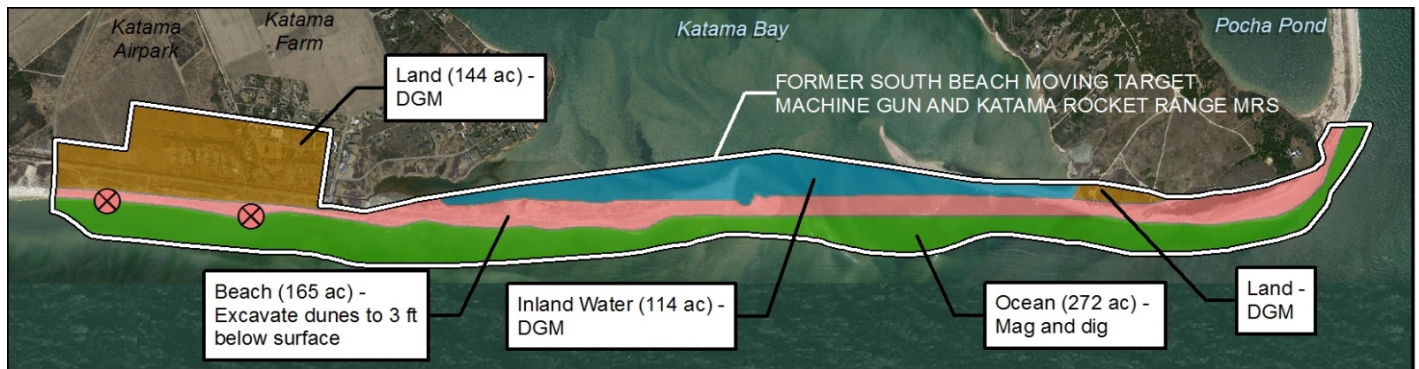


Figure 4: Alternative 4 Sub-Surface Clearance

risks to workers. Items identified as safe would be removed and taken off-site for recycling. After completion of the subsurface clearance, the site would be re-vegetated with native grasses and post-construction monitoring of re-vegetated areas would occur for 3 years.

Ocean surf zone activities: due to the dynamic nature of the ocean surf zone, a “Mag and Dig” technique would be used for ocean clearance activities. Divers would identify anomalies on transects using underwater hand-held analog instruments and excavate each anomaly as it is found. Rocket motor bodies can be reliably detected to 4 ft bgs, however, if anomalies are detected below a dug anomaly, they will be investigated, removed, and properly disposed of.

The RAO would be achieved to a high degree of certainty.

Coordination with MA Division of Marine Fisheries, the National Oceanic and Atmospheric Administration (NOAA), US Fish and Wildlife Service, MA NHESP, and TTOR would be required due to the sensitive species known to exist within the MRS, and a rare plant and wildlife habitat evaluation would be conducted during development of the work plan in accordance with MA NHESP guidelines. Work would also be

ensure the effectiveness of the remedial actions for unlimited use and unrestricted exposure. **Alternative 4 Costs - \$16,006,000 (Alternative) + \$42,000 x 1 (Review) = \$16,048,000**

EVALUATION OF ALTERNATIVES

USACE evaluated the various remediation alternatives individually for each MRS in a detailed analysis against seven of the nine CERCLA/NCP evaluation criteria (*see Explanation of the Nine Evaluation Criteria*).

Remedial alternatives were developed during the FS in accordance with the NCP, 40 CFR 300.430(e). The nine NCP criteria were used to evaluate the different remedial alternatives individually and against each other in order to select a Preferred Alternative for each MRS. The nine criteria fall into 3 groups: threshold criteria, primary balancing criteria, and modifying criteria. The detailed screening of alternatives can be found in the FS Report. A description and purpose of the 3 groups follow:

EXPLANATION OF THE NINE EVALUATION CRITERIA		
CERCLA and NCP [40 CFR 300.430(e)(9)(iii)(A)-(I)] require the evaluation of each alternative to address the following nine criteria :		
Criteria	Threshold	1. Overall Protection of Human Health and the Environment – Evaluates whether a cleanup alternative provides protection and evaluates how risks are eliminated, reduced, or controlled through treatment, engineering controls, or local government controls.
		2. Compliance with Applicable or Relevant and Appropriate Requirements – Evaluates whether a remedial alternative meets cleanup standards, standards of control, or other requirements related to the contaminant found in other federal and state environmental laws or regulations, or justifies any waivers.
	Primary Balancing	3. Long-Term Effectiveness and Permanence – Considers any remaining risks after cleanup is complete and the ability of a cleanup option to maintain reliable protection of human health and the environment over time once cleanup goals are met.
		4. Reduction of Toxicity, Mobility, or Volume through Treatment – Evaluates a cleanup option's use of treatment to reduce the harmful effects of the contaminants, their ability to move in the environment, and the amount of contamination present.
		5. Short-Term Effectiveness – Considers the time needed to clean up a site and the risks and adverse effects a cleanup option may pose to workers, the community, and the environment until the cleanup goals are met.
		6. Implementability – The technical and administrative feasibility of implementing a cleanup option, including factors such as the relative availability of goods and resources.
		7. Cost – Includes estimated capital and annual operations and maintenance costs.
	Modifying	8. State Acceptance – Considers whether the state (Massachusetts) agrees with USACE's analyses and recommendations as described in the proposed plan.
		9. Community Acceptance – Considers whether the local community agrees with USACE's analyses and proposed cleanup plan. The comments USACE receives on its preferred alternative are important indicators of community acceptance.

- *Threshold criteria* are requirements that must be met in order for an alternative to be eligible for selection.
- *Primary balancing criteria* are used to weigh major trade-offs among alternatives.
- *Modifying criteria* are considered to the extent that information is available, but cannot be fully evaluated until after public comments are received on this Proposed Plan.

In the final balancing of tradeoffs among proposed alternatives, modifying criteria are of equal importance as the balancing criteria. More detailed information about the evaluation can be found in the *Feasibility Study Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS Formerly Used Defense Site (FUDS) Project Number D01MA048600, Martha's Vineyard, Massachusetts*.

The degree to which the considered alternatives meet the evaluation criteria is shown in Table 1 and is summarized in the following sections.

Threshold Criteria

For the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS:

- Alternative 1 does not meet the threshold criterion of overall protectiveness.
- Alternative 2 includes managing risk through establishing LUCs and would achieve protectiveness for the public who use the MRS.
- Alternative 3 would achieve protectiveness over the long term, and some level of LUCs and LTM would be conducted following a partial clearance. During implementation, environmental protection would be required to maintain short-term effectiveness due to vegetation removal and intrusive activities that would be performed.
- Alternative 4 would be protective of human health because MEC would be removed.

A total of twenty five ARARs were identified for the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS (alternatives 3 and 4): 40 CFR 264.601 and 16 U.S.C. §1538(a)(1). Work would be scheduled to comply with 16 U.S.C. §1538(a)(1) by avoiding impacts to threatened and endangered species. Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS Alternatives 3 and 4, if implemented, would comply with the identified ARARs.

Primary Balancing Criteria

The long-term effectiveness and permanence along with the short-term effectiveness were evaluated for each Alternative.

- Alternative 1 does not meet long or short term effectiveness, nor does it reduce the potential contaminants. It is easy to implement. The cost for this alternative is the cheapest.
- Alternative 2 is effective in both the long and short term assuming the cooperation and active participation of the property owners and stakeholders. It does not reduce the potential hazard (of which none were found in the RI). The cost for this alternative is most favorable.
- Alternative 3 is moderately favorable in its long and short term effectiveness. It also moderately favorable in reduction of potential contaminants on the land areas where the public might be. The cost is moderately favorable. There is the potential for some impacts to the environment because of the vegetation clearance required to conduct subsurface activities. Fieldwork would be scheduled to avoid sensitive species and habitats. Impacts to human health would also be mitigated by following an explosives safety plan.
- Alternative 4 is favorable in long term effectiveness and reduction of potential hazard. The short term effectiveness is moderately favorable as it would take longer to implement (~2 years). It is moderately favorable in implementability and cost (it is the highest cost).

Table 1 presents a summary of the alternative evaluation versus CERCLA's nine evaluation criteria.

PREFERRED ALTERNATIVE

For the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS, Alternative 2: LUCs is the Preferred Alternative because it most favorably meets all of the evaluated detailed analysis criteria as compared to Alternatives 1, 3, or 4. Alternative 2 can be readily implemented and would provide a high level of effectiveness over the long-term compared to its cost, whereas Alternatives 3 and 4 are more difficult to implement and would incur a much greater cost for only a slightly higher level of effectiveness over the long term. The USACE expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA Subsection 121 (b): 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) satisfy the preference for treatment as a principal element. Alternative 2 can be readily implemented to achieve the RAO and provide safe current and future use of the MRSs. USACE expects the Preferred Alternative to

meet regulatory requirements and to satisfy the statutory requirements under CERCLA §121(b).

NEXT STEPS

USACE will evaluate the public's opinion regarding the Preferred Alternative during the public meeting and public comment period before deciding on the final remedy for the MRS. Based on new information or public comments that are received, USACE may modify its proposed remediation or select another alternative outlined in this Proposed Plan. USACE encourages you to review and comment on the alternatives evaluated. More technical details on the Proposed Alternative are available in the documents provided for the public in the project information repository located at the Edgartown Public Library. USACE's responses to comments will be in writing and included in a responsiveness summary that will be part of the final DD for the Former South Beach Moving Target Machine Gun and Katama Rocket Range MRS. Once finalized, USACE will announce the selected remedy in a public notice in a local newspaper and will place a copy of the final DD in the project information repository.

Table 1: Comparative Summary of the Detailed Analysis of Remedial Alternatives					
Evaluation Criteria			<i>**Preferred**</i>		
		Alternative 1: No Action	Alternative 2: LUCs	Alternative 3: Partial Subsurface Clearance with LUCs	Alternative 4: Complete Subsurface Clearance Land and Water – 695 Acres
Threshold	1. Overall Protection of Human Health and Environment	■	●	●	●
	2. Compliance with ARARs	●	●	●	
Balancing	3. Long-Term Effectiveness	■	□	□	●
	4. Reduction of TMV through Treatment	■	■	□	●
	5. Short-Term Effectiveness	■	●	□	□
	6. Implementability	●	●	□	□
	7. Cost ¹	\$0	\$621,000	\$8,855,000	\$16,048,000
Modifying ²	8. State Acceptance	TBD	TBD	TBD	TBD
	9. Community Acceptance	TBD	TBD	TBD	TBD

Notes: ¹ Costs for the preferred alternatives are provided in Appendix D. Costs provided here include Remedial Alternative Costs plus review costs (\$42,000 per review) to provide a meaningful comparison.

² The modifying criteria will be evaluated after the Proposed Plan following review and input from these parties.

- Favorable (Pass for threshold criteria)
- Moderately Favorable
- Not Favorable (Fail for threshold criteria)

REFERENCES

- EPA (U.S. Environmental Protection Agency). 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*, Office of Emergency and Remedial Response, EPA/540/G-89/004, OSWER Directive 9355.3-01. October 1988.
- EPA. 1999. *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*. EPA 540-R-98-031. OSWER 9200-1-23P.
- U.S. Army, 1989. *After Action Report – Ordnance Clearance Operation on Martha’s Vineyard, MA; 14 March 1989 – 12 May 1989*. Final May 1989
- U.S. Army. 2009. *Final Munitions Response Remedial Investigation/Feasibility Study Guidance*. Military Munitions Response Program. November 2009.
- USACE, 1999. *Archives Search Report for the former Tisbury Great Pond, Martha’s Vineyard Massachusetts*. Final, November 1999
- USACE, 2008. *Finding and Determination of Eligibility, South Beach at Martha’s Vineyard (Moving Target Machine Gun Range), FUDS Property Number D01MA0486, Edgartown, Massachusetts*. Final July 2008
- UXB, 2014. *Remedial Investigation Report, Former Moving Target Machine Gun Range at South Beach Area of Investigation*, Final. June.2014.
- UXB, 2014a. *Feasibility Study, Former South Beach Moving Target Machine Gun and Katama Rocket Range Munitions Response Site*, Final, June 2015

**The U.S. Army proposes Land Use Controls (Alternative 2) for the
Former South Beach Moving Target Machine Gun and Katama Rocket Range
Munitions Response Site
Important public meeting scheduled for
June 24, 2015**

PROPOSED PLAN
Former South Beach Moving Target Machine Gun and Katama Rocket Range
Munitions Response Site
MARTHA'S VINEYARD, MASSACHUSETTS
GLOSSARY FOR SPECIALIZED TERMS

Administrative Record file	A collection of documents that form the basis for the selection of a response action compiled and maintained by the lead agency. This file is to be available for public review and a copy maintained near the site (i.e., information repository). The official Administrative Record file for the South Beach MRA is located at USACE, New England District, and is maintained by USACE. The point of contact for the file is Carol A. Charette (696 Virginia Road, Concord, Massachusetts, 01742).
Applicable or Relevant and Appropriate Requirements (ARARs)	<p><i>Applicable requirements</i> means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.</p> <p><i>Relevant and appropriate requirements</i> means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not “applicable” to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.</p>
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, commonly known as Superfund, and modified in 1986 by the <i>Superfund Amendments and Reauthorization Act</i> (SARA), to investigate and clean up hazardous substances.
Decision Document (DD)	The Department of Defense has adopted the term Decision Document (DD) to refer to a legal public document, similar to a Record of Decision completed for National Priorities List sites, that: certifies that the cleanup plan selection process was carried out in accordance with CERCLA, and to the extent practical, the NCP; provides a substantive summary of the technical rationale and background information in the Administrative Record file; provides information necessary in determining the conceptual engineering components to achieve the remedial action objective (RAO) established for a site; and serves as a key communication tool for the public that explains the identified hazards that the selected cleanup will address and the rationale for cleanup plan selection. The DD will be maintained in the Administrative Record file.
Discarded Military Munitions (DMM)	Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded ordnance (UXO) , military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of, consistent with applicable environmental laws and regulations [10 USC 2710(e)(2)].

Explosive Safety Hazard	The probability for a MEC item to detonate (explode) and potentially cause harm to people, property, or the environment as a result of human activities. An explosive safety hazard exists if a person can come into contact with a MEC item and act upon it to cause it to detonate or explode. The potential for an explosive safety hazard depends on the presence of 3 critical elements: a source (presence of MEC), a receptor or person, and an interaction between the source and the receptor (such as picking up the item or disturbing the item by plowing). There is no explosive safety hazard if any one element is missing.
Feasibility Study (FS)	A study undertaken by the lead agency to develop and evaluate options for remedial action. The RI data are used to define the objectives of the response action, to develop remedial action alternatives, and to undertake an initial screening and detailed analysis of the alternatives. The term also refers to a report that describes the results of the study.
Information Repository (IR)	A file containing current information, technical reports, and reference documents duplicated from the Administrative Record file maintained for a site. The information repository is usually located in a public building that is convenient for local residents, such as a public school, city hall, or library. The project information repository is located at the Edgartown Public Library [58 North Water Street, Edgartown, MA 0253].
Land Use Controls (LUC)	Physical, legal, or administrative mechanisms that restrict the use of, or limit access to, real property, to prevent or reduce risks to human health and the environment. Physical Mechanisms encompass a variety of engineered remedies to contain or reduce contamination and physical barriers to limit access to real property, such as fences or signs. The legal mechanisms used for LUCs are generally the same as those used for institutional controls as discussed in the NCP.
Munitions and Explosives of Concern (MEC)	Specific categories of military munitions that may pose unique explosives safety risks, specifically composed of (a) unexploded ordnance, (b) discarded military munitions, or (c) munitions constituents present in high enough concentrations to pose an explosive hazard.
Munitions and Explosives of Concern (MEC) Hazard Assessment	A tool developed to qualitatively assess the potential explosive hazards to human receptors associated with complete MEC exposure pathways.
Munitions Constituents (MC)	Any materials originating from UXO, discarded military munitions (DMM) , or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.
Munitions Debris (MD)	Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal.
Munitions Response Area (MRA)	Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges and munitions burial areas. A munitions response area is comprised of one or more munitions response sites.
Munitions Response Site (MRS)	A discrete location within a MRA that is known to require a munitions response.
National Oil and Hazardous Substances Pollution Contingency Plan (NCP)	The plan revised pursuant to 42 USC 9605 and found at 40 CFR 300 that sets out the plan for hazardous substance remediation under CERCLA.
Proposed Plan (PP)	A document that presents a proposed cleanup alternative, including rationale for selection, and requests public comments regarding the proposed alternative.
Receptor	Receptors include both humans and biota (plants or animals) that may come into contact with a hazardous substance, including munitions and munitions constituents, either directly (e.g., picking an item up) or indirectly (e.g., through ingestion).
Remedial Action	Those actions consistent with permanent remedy taken instead of or in addition to removal actions in the event of a release or threatened release of a hazardous substance into the

environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment. The term includes, but is not limited to, such actions at the location of the release as storage, confinement, perimeter protection using dikes, trenches, or ditches, clay cover, neutralization, cleanup of released hazardous substances and associated contaminated materials, recycling or reuse, diversion, destruction, segregation of reactive wastes, dredging or excavations, repair or replacement of leaking containers, collection of leachate and runoff, onsite treatment or incineration, provision of alternative water supplies, and any monitoring reasonably required to assure that such actions protect the public health and welfare and the environment.

Remedial Action Objective (RAO)	Objectives established for remedial actions to guide the development of cleanup alternatives and focus the comparison of acceptable alternatives, if warranted. RAOs also assist in clarifying the goal of minimizing risk and achieving an acceptable level of protection for human health and the environment.
Remedial Investigation (RI)	A process undertaken by the lead agency to determine the nature and extent of the problem presented by the release. The RI emphasizes data collection and site characterization, and is generally performed concurrently and in an interactive fashion with the feasibility study. The RI includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for remedial action and to support the evaluation of remedial alternatives.
Superfund Amendments and Reauthorization Act (SARA)	In addition to certain free-standing provisions of law, it includes amendments to CERCLA, the Solid Waste Disposal Act, and the Internal Revenue Code. Among the free-standing provisions of law is Title III of SARA, also known as the "Emergency Planning and Community Right-to-Know Act of 1986" and Title IV of SARA, also known as the "Radon Gas and Indoor Air Quality Research Act of 1986." Title V of SARA amending the Internal Revenue Code is also known as the "Superfund Revenue Act of 1986."
Unexploded Ordnance	<p>Military munitions that:</p> <ul style="list-style-type: none">(a) Have been primed, fuzed, armed, or otherwise prepared for actions;(b) Have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and(c) Remain unexploded whether by malfunction, design, or any other cause.. <p>(10 USC 101(e)(5)).</p>

USE THIS SPACE TO SUBMIT COMMENTS

Name _____

Affiliation _____

Address _____

City, State, Zip _____

Follow the 3Rs

Recognize

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 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.

Practice rocket found on South Beach



Retreat

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, leaving the same way you entered. Once safely away from the munition, mark the path (e.g., with a piece of clothing or global positioning system (GPS) coordinates) so response personnel can find the munition.



Call 911!

Report

Immediately notify the police.

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

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

If you believe you may have encountered a munition, call and report the following:

- 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

Same practice rocket found on South Beach with rust and barnacles removed

