

# Iona Island Naval Ammunition Depot Formerly Used Defense Site

## Remedial Investigations

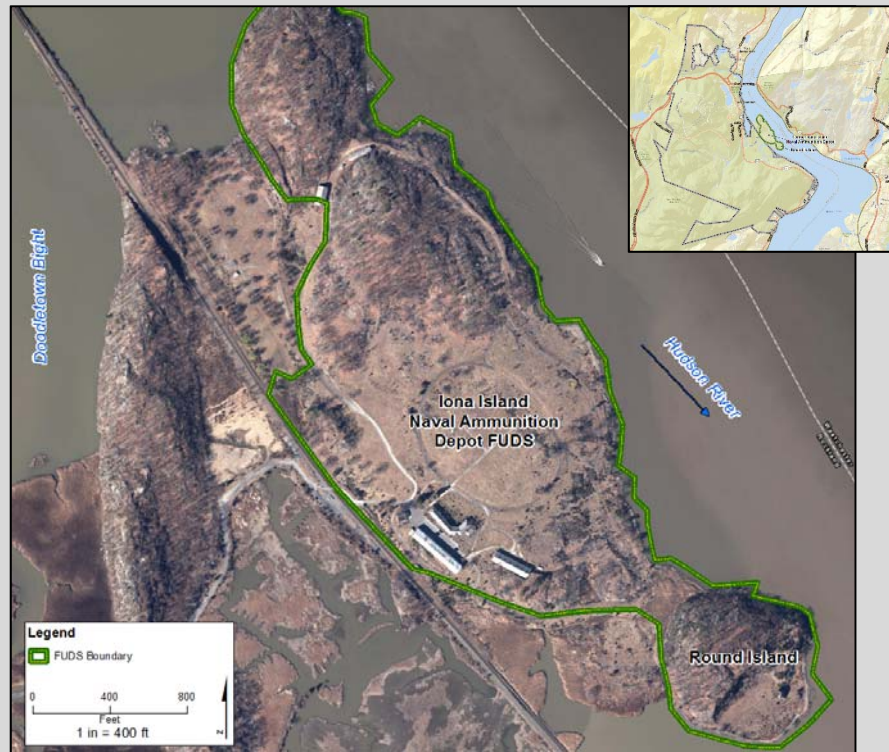
# FACT SHEET

March 2019

### THE ARMY

- Is dedicated to protecting human health and the environment by making MRAs/MRSs safe to reuse.
- Is developing the MMRP by maximizing efficiencies and lessons learned from 20 years of environmental restoration experience.
- Is characterizing the nature and extent of MEC at the Iona Island FUDS MRSs in order to make informed risk management decisions to select the appropriate remedial options.
- Is characterizing the nature and extent of COPCs at the Iona Island FUDS AOCS in order to make informed risk management decisions to select the appropriate remedial options.

### Iona Island Formerly Used Defense Site



### Introduction

The US Army Corps of Engineers (USACE) is conducting work at Iona Island Naval Ammunition Depot Formerly Used Defense Site (FUDS) using the processes under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), which was enacted by Congress in 1980. This law provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. The FUDS program cleans up only Department of Defense (DoD)-generated eligible contamination, which occurred before the transfer of the property to private owners or federal, state or local governments. There are two active FUDS projects at Iona Island: C02NY074402, Hazardous Toxic and Radioactive Waste (HTRW) and C02NY074403, Military Munitions Response Program (MMRP). The USACE contracted with EA Engineering, Science, and Technology, Inc., PBC (EA) to complete Remedial Investigations (RIs) for both the MMRP and HTRW projects to determine whether further response action pursuant to CERCLA and the National Contingency Plan (NCP) is warranted.

The Iona Island Naval Ammunition Depot FUDS consists of approximately 100 acres located on Iona Island along the west side of the Hudson River, in the Town of Stony Point, Rockland County, New York. Round Island, the southeastern part of Iona Island, was once cut off by marshes and was attached to Iona Island with fill in the early 20th century. The Depot was actively used by the U.S. Naval Department for ammunition storage for approximately 50 years, from 1900 to 1947. During Navy use, site activities reportedly included preparing, assembling, maintaining, inspecting, testing, and issuing ammunition, but did not include manufacturing activities.

The FUDS is currently under the administration of the Palisades Interstate Park Commission (PIPC) and maintained by staff of Bear Mountain State Park. Site access is limited to authorized employees of Bear Mountain State Park who use a few of the remaining buildings for storage, and to researchers who work in the marsh areas. Iona Island is part of the much larger Hudson River National Estuarine Research Reserve and Significant Coastal Fish and Wildlife Habitat Area, managed under New York's Coastal Management Program. In addition, the Iona Island Marsh became a registered National Natural Landmark in 1971. The island is also considered a bald eagle sanctuary. There are no current plans to develop the Iona Island for recreational purposes and no anticipated future use of the island other than its current use as a conservation area.



# Iona Island Naval Ammunition Depot Formerly Used Defense Site

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## Acronyms:

<b>AOC</b>	Area of Concern
<b>AGC</b>	Advanced Geophysical Classification
<b>AST</b>	Above Ground Storage Tank
<b>BTEX</b>	Benzene, Ethylbenzene, Toluene, and Xylenes
<b>CERCLA</b>	Comprehensive Environmental Response, Compensation, and Liability Act
<b>COPC</b>	Contaminant of Potential Concern
<b>DGM</b>	Digital Geophysical Mapping
<b>DMM</b>	Discarded Military Munitions
<b>DoD</b>	Department of Defense
<b>EA</b>	EA Engineering, Science, and Technology, Inc., PBC
<b>ERA</b>	Ecological Risk Assessment
<b>FUDS</b>	Formerly Used Defense Site
<b>FS</b>	Feasibility Study
<b>HHRA</b>	Human Health Risk Assessment
<b>HTRW</b>	Hazardous Toxic and Radioactive Waste
<b>MC</b>	Munitions Constituents
<b>MD</b>	Munitions Debris
<b>MEC</b>	Munitions and Explosives of Concern
<b>MMRP</b>	Military Munitions Response Program

## Introduction to the MMRP Remedial Investigation



Iona Island FUDS project C02NY074403, MMRP, addresses munitions and explosives of concern (MEC) issues associated with munitions response sites (MRSs).

### Background

An explosion in 1903, originating from the approximate center of the Depot, is thought to have thrown stored ammunition shells as far as 1,250 feet from the blast. Historical information and previous investigations indicate that potential MEC present at Iona Island includes 1-pounders, 6-pounders, 6-in. and 13-in. ammunition distributed throughout MRS-01 land, water or wetland areas from the 1903 explosion at former Building Numbers 209 and 210. Anecdotal evidence identifies the potential for discarded military munitions (DMM) around and/or downstream of three former loading docks, where munitions may have been dropped into the Hudson River during the loading and unloading of supply vessels. Additionally, several potential MEC items have been reportedly sighted during low-tide conditions in an area between Iona Island and Round Island.

### Summary of Recent Related Studies

Alion Science and Technology and EA conducted a Site Inspection (SI) in 2007, which included sampling for munitions constituents (MC) and magnetometer-assisted site reconnaissance for MEC in MRS-01 and qualitative reconnaissance of the former dock areas using visual observations during low tide. While no MEC was found during the SI field reconnaissance, the SI recommended further action (RI/Feasibility Study [FS]) to focus on MEC and MC given the historical use and munitions debris discoveries and the limited MEC investigation compared to the overall size of the FUDS property.

### RI Data Collection Activities

The primary objective of the MMRP RI at the Iona Island FUDS is to determine the nature and extent of MEC and munitions constituents (MC) with respect to MRS 01 and to assess the potential hazards posed to human health and the environment by MEC and/or MC (if present). MMRP RI field activities will be conducted using a phased approach beginning in 2019:

- *Phase I:* Digital geophysical mapping (DGM) (terrestrial) over accessible portions of MRS-1, Hudson River shoreline
- *Phase II:* Cued advanced geophysical classification (AGC) survey of selected target anomalies
- *Phase III:* Intrusive investigation of targets of interest (terrestrial), portions of MRS-1 not suitable for DGM/AGC (terrestrial), and former loading docks (water).

A MMRP RI report will be prepared to determine appropriate MRS boundaries and identify potential no further action MRS footprints (if any); update the Munitions Response Site Prioritization Protocol (MRSPP) (including public notice of publication), and evaluate MEC hazards and MC risks. If the unacceptable risks are identified during the RI, then a FS will be prepared to evaluate remedial alternatives.



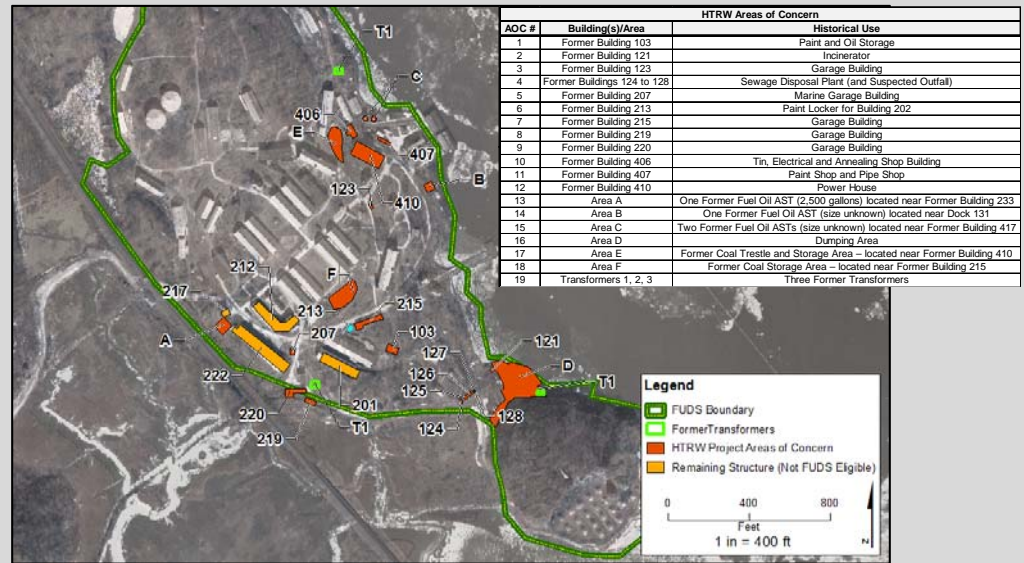
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## Acronyms Continued:

<b>MRS</b>	Munitions Response Site
<b>MRSP</b>	Munitions Response Site Prioritization Protocol
<b>NCP</b>	National Contingency Plan
<b>PAH</b>	Polycyclic Aromatic Hydrocarbon
<b>PCB</b>	Polychlorinated Biphenyl
<b>PIPC</b>	Palisades Interstate Park Commission
<b>RI</b>	Remedial Investigation
<b>RIA</b>	Remedial Investigation Area
<b>SI</b>	Site Inspection
<b>SVOC</b>	Semivolatile Organic Compound
<b>USACE</b>	U.S. Army Corps of Engineers
<b>USEPA</b>	U.S. Environmental Protection Agency
<b>VOC</b>	Volatile Organic Compound

## Introduction to the HTRW Remedial Investigation



Iona Island FUDS project C02NY074402, HTRW, includes environmental response actions at an area of an eligible FUDS property as the result of DoD activities related to hazardous substances, pollutants, and contaminants as defined in CERCLA; petroleum, oil, or lubricants; DoD-unique materials; hazardous wastes or hazardous waste constituents; low-level radioactive materials or low-level radioactive wastes; and explosive compounds released to soil, surface water, sediments, or groundwater as a result of ammunition or explosives production or manufacturing at ammunition plants.

### Background

Historical DoD activities at the former Iona Island Naval Ammunition Depot may have resulted in the release of contaminants to environmental media (surface soil, subsurface soil, sediment, and groundwater) at concentrations that may pose a risk to human health and ecological receptors. 19 AOCs located in the footprints of 26 former structures/site facilities were previously identified as being eligible for further investigation under the HTRW project of the FUDS Program. These AOCs include 17 former buildings (103, 121, 123, 124 to 128, 129, 207, 213, 215, 219, 220, 406, 407, and 410), four former above ground storage tank (AST) areas, a former Dump Area, two Coal Storage Areas, and three former transformers. The former buildings, ASTs, transformers, and structures have been removed, and building foundations were either removed or have been buried/overgrown; therefore, the AOCs have been identified using aerial photographs added to GIS software.

### Summary of Recent Related Studies

Greeley-Polhemus Group, Inc. conducted an investigation in 1996 (data collection activities) during which subsurface soil from 8 AOCs was investigated from 0 to 2 ft bgs. Each sample was analyzed for Semivolatile Organic Compounds (SVOCs), and select locations were sampled for Resource Conservation and Recovery Act metals, volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs). No other media were sampled. Additional sampling was completed as part of the 2007 SI conducted by Alion Science and Technology and EA, with surface soil samples collected at 18 onsite locations across the explosion area for analysis of MC-related metals and explosives. Sediment sampling was limited to two onsite locations along the Hudson River shoreline. Groundwater samples were not collected during either investigation.

Metals (Antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc) and SVOCs (primarily polycyclic aromatic hydrocarbons [PAHs]) were identified as the primary contaminants of potential concern (COPCs) based on previous analytical data at the Iona Island Naval Ammunition Depot. Secondary COPCs were identified based on previous analytical results and/or former use of individual structures, including benzene, toluene, ethylbenzene, and xylenes (BTEX) at former ASTs; PCBs at former transformers; and explosives at the dump site.



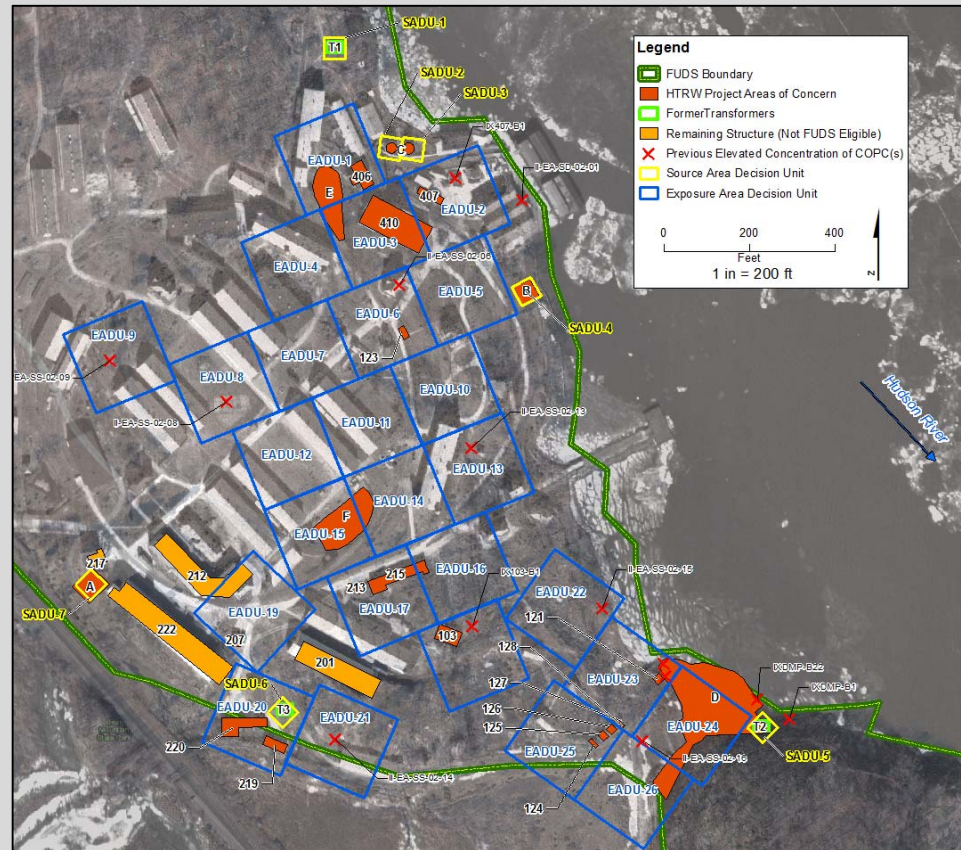
Questions

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Introduction to the HTRW Remedial Investigation



**RI Field Activities**

The primary objective of the HTRW Project RI is to characterize the nature and extent of hazardous substances in environmental media attributable to past DoD activities, and evaluate risk to human health and ecological receptors. 16 areas of concern (AOCs) were determined to be eligible for investigation under the FUDS HTRW and are the focus of the HTRW Project RI.

HTRW Project RI field activities will be conducted using a phased approach beginning in 2019:

- *Phase I:* Delineate COPC concentrations in surface soil and subsurface soil using incremental sampling methodology (ISM); delineate COPC concentrations in shallow groundwater; and conduct background sampling of metals and PAHs in surface and subsurface soil;
- *Phase II:* Additional sampling of surface soil, subsurface soil, and shallow groundwater as necessary to refine impacts to these environmental media; and supplemental sampling of environmental media as necessary to define migration and exposure routes to support development of the human health and ecological risk assessments (i.e. sediment and/or bedrock groundwater);
- *Phase III:* additional investigation if necessary to further evaluate migration pathways (i.e. porewater sampling) and further support development of the ecological risk assessment (i.e. toxicity and/or ecotoxicity testing).

An HTRW Project RI report will be prepared to present RI data. If contaminants are detected in environmental media at concentrations above screening criteria and background, a human health risk assessment (HHRA) and ecological risk assessment (ERA) will be conducted in accordance with U.S. Environmental Protection Agency (USEPA) and USACE guidance for those contaminants. If the unacceptable risks are identified during the RI, then a FS will be prepared to evaluate remedial alternatives.



US Army Corps  
of Engineers