



**PROPOSED PLAN**  
**FORMER RARITAN ARSENAL**  
**AREA 10**  
**FUDS PROJECT NO. CO2NJ008403**  
**EDISON TOWNSHIP, MIDDLESEX COUNTY, NEW JERSEY**

**The Proposed Plan**

This **proposed plan** presents a no action decision for Area 10 at the Former Raritan Arsenal (FRA) located in Edison and Woodbridge Townships, New Jersey, and summarizes technical documents that demonstrate there are no unacceptable exposure risks for human health or the environment at the site. This proposed plan, prepared by the U.S. Army Corps of Engineers (USACE), provides a review of the investigations conducted of past storage and handling of munitions at Area 10, located within the FRA. This plan summarizes the USACE rationale for recommending no action at Area 10.

**INTRODUCTION**

This proposed plan provides information to the public regarding investigations of munitions storage and handling at Area 10 within the Former Raritan Arsenal (FRA) located in Edison and Woodbridge Townships, New Jersey (the “site”). This plan provides the U.S. Army Corps of Engineers (USACE)’s rationale for selection of the no action decision for Area 10, which is based on investigative and removal actions that demonstrate there are no unacceptable exposure risks for human health or the environment that require remedial action.

USACE, New York District, is the lead agency responsible for managing the project and provides required direction and guidance for its execution. The U.S. Army Engineering and Support Center, Huntsville, and USACE, New England District, provide technical support. The lead regulatory agency is the New Jersey Department of Environmental Protection (NJDEP). Federal environmental laws govern characterization and

response activities at former federal facilities. Investigation and environmental restoration of the FRA has been conducted under the **Defense Environmental Restoration Program (DERP)–Formerly Used Defense Sites (FUDS)**<sup>1</sup>. The overall goal of DERP-FUDS is to achieve environmental restoration of the FRA and address potential human health and environmental risks associated with past Department of Defense (DoD) activities. The **Comprehensive Environmental Response Compensation, and Liability Act of 1980 (CERCLA)**, a federal environmental statute, and the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)** establish procedures for site investigation, evaluation, and remediation. USACE is required by DERP-FUDS to execute the environmental restoration program in accordance with CERCLA and NCP. USACE has been working within the framework of CERCLA to evaluate potential impacts from past activities at the FRA and identify appropriate remedial responses. NJDEP has been involved in this process. In accordance with federal law and regulations, state involvement is sought in the form of reviews and submission of potential Applicable or Relevant and Appropriate Requirements (ARARs) for constituents of concern (COCs) identified by the federal government. USACE has also been conferring with local stakeholders about community concerns regarding the site since 1990.

As the lead agency implementing the environmental response program for the FRA, USACE has prepared this proposed plan in accordance with CERCLA Section 117(a) and Section 300.430(f)(2) of the NCP to continue its community awareness efforts and to encourage public participation. After the public has had the opportunity to review and comment on this proposed plan, USACE will respond to the comments received during the public comment

<sup>1</sup> Please refer to the Glossary of Terms on Page 14.



period, including any comments received during the public meeting. The comments will be included in the responsiveness summary of the **Decision Document**. Information about the **public comment period** and the public meeting is shown below.

### Public Comments Are Requested

#### PUBLIC COMMENT PERIOD

August 12 to September 14, 2019 (33 days, not to include start date)

Written comments on this proposed plan may be submitted to USACE during the comment period. Comment letters must be postmarked no later than September 14, 2019, and may be sent to Mr. Matt Creamer (USACE, New York District, Project Manager):

U.S. Army Corps of Engineers  
Attn: Mr. Matt Creamer  
2890 Woodbridge Avenue  
Edison, NJ 08837

#### PUBLIC MEETING

August 20, 2019

USACE will host an information session from 7:00 to 8:00 p.m. at the Edison Senior Citizen Center, 2963 Woodbridge Avenue, Edison, New Jersey, to provide information and answer questions in an informal setting. This meeting will include a brief introduction and summary by USACE.

USACE will carefully consider all comments received from the public, and responses will be compiled into a responsiveness summary. The decision as to which action is appropriate for the site will be detailed in a decision document, which will include the responsiveness summary.

This proposed plan highlights key information from previous reports prepared for the site, including site characterization details provided in the **remedial investigation (RI)** reports. The **Administrative Record** files and other documents that support this proposed plan are available for review at the information repositories or through the USACE New York District website for the FRA:

<http://www.nan.usace.army.mil/Raritan>

#### Information Repository:

U.S. Army Corps of Engineers, New York District  
2890 Woodbridge Avenue  
Edison, NJ 08837

Central Information Repository  
USACE New York District Office  
26 Federal Plaza  
New York, NY 10278

#### SITE HISTORY AND BACKGROUND

The FRA is located on approximately 3,200 acres on the northern bank of the Raritan River in Middlesex County, New Jersey (Figure 1).

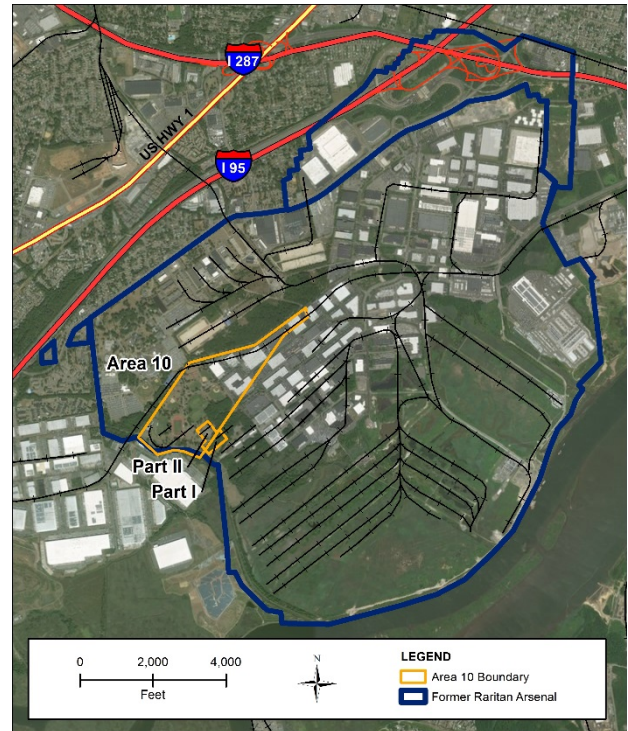


Figure 1. Location of the Former Raritan Arsenal

The majority of the FRA land area lies within Edison Township, with a portion of the site located in Woodbridge Township. It is bordered to the north and northwest by Woodbridge Avenue, to the southwest by Mill Road and the Industrial Land Reclamation Landfill, and to the east by the Raritan River.

The Raritan Arsenal was initially developed to facilitate military shipments during World War I. The initial land purchased for development of the



FRA consisted of tidal marsh, quarries, and farmland. The War Department purchased the land in December 1917, and construction of the Raritan Arsenal was underway by the beginning of 1918. Ordnance was first received at the Raritan Arsenal during the early phases of construction. On May 2, 1918, the Raritan Arsenal contained military facilities that included magazines, a railway network, locomotive houses, docks, warehouses, assembly and process buildings, administration buildings, storage buildings, and living quarters, and was declared operational (Weston, 2007).

The principal function of the Raritan Arsenal was to store, handle, and ship various classes of ordnance and military supplies. Other activities and missions included assembly of automobiles, trucks, tanks, and motorized artillery; preservation, renovation, and manufacture of munitions; salvaging, linking, belting, clipping, packing, demilitarizing, and maintaining ammunition; requisition, research, and development of ordnance; military supply chain management; and troop training.

In March 1961, the DoD announced the proposed disposition of the Raritan Arsenal, and in 1964, the General Services Administration (GSA) began selling the FRA property. At the time of the disposition announcement, the FRA contained approximately 440 buildings and more than 62 miles of roads and railways. Since closure, the site has been redeveloped extensively, primarily for commercial and industrial uses, particularly in the northern portion of the facility.

The FRA currently constitutes one **munitions response site (MRS)** that includes several areas of interest that are in various states of investigation or remediation. Area 10 is in the west-central portion of the FRA, and encompasses approximately 143 acres (see Figure 1). The northeastern portion of Area 10 is part of the heavily developed Raritan Center. The remainder of Area 10 is developed as part of Thomas A. Edison County Park.

Area 10 consists of a portion of the former Arsenal known as the Former Wastewater Treatment and Magazine Areas. During World War II and the postwar period, the magazines in Area 10 were used for storing small arms ammunition, inert material, 20-millimeter (mm) to 105-mm shells, 2,4,6-

trinitrotoluene (TNT), and Composition C explosives (Metcalf & Eddy, 1991). In 1919, an explosion at former Magazine Building E-31 destroyed six magazines and scattered ammunition, various caliber cartridge cases, and miscellaneous components over an area now designated as Area 10, Parts I and II.

Area 10 was also reported to have been used for de-priming cartridge cases within former magazines B5 and B6. Former magazines B5 and B6 were located at the east end of railroad line B, and during initial investigations of the area, the presence of small arms ammunition, cartridge cases, and primers found adjacent to the former A-line railroad track were attributed to the de-priming activity. Another minor source of potential **munitions and explosives of concern (MEC)** release may have occurred during the transport of items along the historical rail lines. This type of release mechanism is not considered to be significant and is evidenced only by several inert ammunition components and 10 to 15 items related to 50-caliber ammunition that were found in areas along the old railroad beds during the 1974 (items classified as **munitions debris [MD]**) construction at Thomas A. Edison County Park.

Area 10 housed a sewage disposal plant that was located between railroad lines B and D. The sewage disposal plant is believed to have been constructed between 1934 and 1943, and is believed to have operated until the Arsenal phase-out in the early 1960s. The treatment plant, including its foundation and adjacent buildings, was removed by Middlesex County in 1991 (Roy F. Weston, 1996a).

A decontamination study of the FRA was conducted in 1963 as part of the decommissioning process. The study was begun under the direction of Raritan Arsenal personnel and was completed under the direction of personnel from Letterkenny Army Depot (LEAD) and the U.S. Army Materiel Command Safety Office. LEAD identified 17 areas within the FRA as potentially contaminated by ordnance-related activities. Standard operating procedures for decontaminating the 17 areas were prepared, approved by the Safety Office, and carried out during closure of the FRA. Based on the LEAD investigation, Parts I and II of Area 10 were recommended for surface use only. The remainder of



Area 10 was recommended to be released for unrestricted use (O'Brien & Gere, 1989).

### SITE CHARACTERISTICS

The northeastern portion of Area 10 lies within the Raritan Center. This portion of Area 10 is heavily developed, and land use is commercial/industrial. The remainder of Area 10 is developed as part of Thomas A. Edison County Park. The park covers approximately 93 acres and consists of open landscaped greens, recreational fields, walkways, and jogging trails. Land use in this portion of Area 10 is recreational.



Figure 2. Area 10 Site Features

### Physical and Environmental Setting

The geology beneath the FRA is characterized by an overburden layer, approximately 10 to 80 feet thick, composed of unconsolidated sediments and underlain by bedrock composed of shales, metamorphosed shales, and an igneous diabase sill. Bedrock is encountered at 18 to 47 feet below mean sea level (Roy F. Weston, 1996a).

Shallow soils beneath Area 10 consist of reworked native soils, classified as poorly graded sand with variable amounts of silt and gravel and ranging up to

8 feet thick. The fill was placed during extensive regrading that occurred during construction of the former Arsenal and later construction of Raritan Center and Thomas A. Edison County Park. The fill is underlain by silty sands containing lenses of silt, clay, and peat (Roy F. Weston, 1996a).

The hydrogeology beneath the FRA is characterized by separate aquifers in the overburden and bedrock. Previous groundwater data indicate that the bedrock aquifer is not affected by activities associated with the FRA (Roy F. Weston, 1996a). Groundwater within both the overburden and bedrock aquifers flows generally southeastward toward the Raritan River. The depth to shallow groundwater in the overburden ranges from 2 to 30 feet below ground surface (bgs), and the saturated portions of this unit are relatively thin and discontinuous (Roy F. Weston, Inc., 1996a).

Groundwater at Area 10 is encountered at depths of approximately 5 to 8 feet bgs and the groundwater flow direction is toward the southeast (Roy F. Weston, 1996b). Currently there is no use of the groundwater on the site. All buildings at the FRA are connected to municipal water, and groundwater is not expected to be used in the future (see Summary of Site Risks section).

### PREVIOUS INVESTIGATIONS AND ACTIVITIES

Previous investigation and removal action activities conducted at Area 10 include the following:

- LEAD Cleanup Operations, 1963
- Construction Activity at Thomas A. Edison County Park, 1974
- Contamination Evaluation, 1987-1988
- Site Visit, Archives Search Report, 1991
- Removal Action, Ordnance Items at Areas 10 Parts I and II, 1991
- Phase I RI, 1992
- Near-surface Soil Sampling at the Middlesex County College (MCC) ballfield area and Thomas A. Edison Park, 1992
- Removal Action, 1992



- Limited Health Risk Assessment, MCC Athletic Field and Thomas A. Edison Park, 1992-1993
- Expedited Phase II RI, 1994
- Sector Density Estimate Investigation, 1998
- Supplemental Phase II RI, 1999
- Baseline Ecological Risk Assessment (BERA), 2005
- RI, 2014

### Munitions and Explosives of Concern Investigations

Eight separate phases of MEC investigations or removal work were performed at Area 10 to address potential contamination. As detailed in the RI, the MEC data indicate that investigations and removal actions performed in Area 10 have removed MEC from this area such that there is no longer an explosive risk at Area 10. The findings are consistent with the conceptual site model (CSM), which suggests that there was one primary MEC release mechanism (the 1919 explosion of Magazine Building E-31). Insignificant additional MEC release mechanisms include the transport of items along the historical rail lines and depriming of cartridge cases within former Magazines B5 and B6. The impacts generated by MEC releases were addressed through subsequent cleanup and construction activities and sampling for **munitions constituents (MC)** in site media.

In 1963, LEAD surface-cleaned Parts I and II of Area 10 by disking to a depth of 6 inches. The LEAD report indicated that there was a likelihood of live ammunition buried beyond the detection capability of the mine detector. Parts I and II were recommended for surface use only, and the remainder of Area 10 was recommended to be released for unrestricted use (O'Brien & Gere, 1989).

During construction of the Thomas A. Edison County Park in 1974, several inert ammunition components and 10 to 15 items related to 50-caliber ammunition (items classified as MD) were found scattered over the entire park, but were concentrated primarily in the area along the old railroad beds. This

debris was considered to be from the former Arsenal operations (Metcalf & Eddy, 1991).

A visual inspection of the undeveloped portion of Area 10 in 1988 revealed no apparent ordnance on the ground surface. Spot checks with an ordnance locator encountered one ordnance fragment (the remains of a 35-mm cartridge base) at a depth of 6 inches adjacent to the rear (north) wall of Magazine Building 447 (O'Brien & Gere, 1989).

One inert 37-mm cartridge casing was found on the surface of a pile of debris generated during demolition of Magazine Building 447 (located within Area 10 Part I) and Magazine Building 448 (located northeast of Area 10 Part I). Subsequently, 13 French rifle grenades and several grenade fuzes within Area 10 Parts I and II were located and removed, and the area was cleared of ordnance under the direction of USACE Huntsville. Fencing was placed around the uncleared area (Part I and a small portion of Part II (IT Corporation, 1992)). In 1992, a removal action was completed in the fenced portions of Parts I and II of Area 10. More than 1,700 ordnance items were recovered, including 178 French rifle grenades, 100 Mk II hand grenades (unfuzed), three 75-mm projectiles, and three large projectiles (type unknown). The items were recovered from within five concrete-capped barrels and destroyed by Army Explosive Ordnance Disposal (EOD). Additional surveys were performed across 29.93 acres of Area 10 in the areas surrounding Parts I and II and in the developed portions of the park. Of the 407 anomalies identified, none were MEC.

A sector density estimate investigation performed in 1998 concluded that MEC density was minimal across most of Area 10 due to historical cleanup efforts and the lack of MEC found during more recent investigations. However, the study identified Area 10C (the marsh area adjacent to the former magazine) as having potential for high density of MEC based on the lack of available magnetometer data. Therefore, in 2001 a mag-and-dig investigation of Area 10C (consisting of a 3.5-acre section of Area 10 adjacent to Thomas A. Edison County Park, northeast of Parts I and II) was conducted and included 11,082 digs to approximately 3 feet bgs, with no MEC discovered (EHSI, 2001).



## Munitions Constituents Investigations

Surface and subsurface soil, soil gas, surface water, sediment, and groundwater samples that were collected at Area 10 between 1992 and 2005 were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls, metals, and explosives. Samples were collected from areas of former magazines, observed debris, and areas planned for recreational use. Analytical results were evaluated primarily against the NJDEP criteria in effect at the time of the investigation.

Potentially complete ecological exposure pathways identified for soil, sediment, and surface water were quantitatively evaluated in the facility-wide BERA (Weston, 2008). No evidence of ecological risks to freshwater or terrestrial habitats representative of conditions present in Area 10 were identified.

The documents associated with the previous investigations are part of the information repository and are available for review at the location identified in this proposed plan. In addition, summaries of data, results, and recommendations associated with these reports were incorporated into an RI report (CH2M, 2017) to provide a comprehensive summary of the site-specific investigation activities conducted at Area 10. Activities and analysis associated with the RI report are summarized in the following section.

## Remedial Investigation

A MEC field investigation was conducted from October 2013 to June 2014, focusing on Area 10 Part I, where Part I is fenced to restrict access due to MEC found during previous investigations. The investigation included conducting digital geophysical mapping (DGM) along 10-meter separated transects. A total of 205 point-source anomalies were identified along the DGM transects. Based on the statistical assessment performed, 135 of the 205 anomalies identified were intrusively investigated to confirm if the anomalies were related to MEC and/or material potentially presenting an explosive hazard. Of the 135 anomalies, nine were identified as MD items. Seven items were classified as expended grenade fuzes, and two items were classified as fragments. The remaining 126 anomalies consisted of construction debris and scrap metal (CH2M, 2017).

Historical records documenting the phases of investigation and removal actions conducted at Area 10 from 1963 to 2005 were used to develop an updated CSM, and analytical data collected from 1992 through 2005 were used to estimate the potential exposure-related risks in an RI specifically focused on Area 10 (CH2M, 2017).

Constituents of potential concern (COPCs) at Area 10 were identified for surface (0 to 2 feet bgs) and subsurface (2 to 10 feet bgs) soil, sediment, and surface water. If a maximum detected chemical concentration exceeded the U.S. Environmental Protection Agency (EPA) *Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites* (EPA, 2014), it was retained as a COPC. Chemicals that were not detected in any of the samples within an environmental medium, as well as commonly occurring essential nutrients such as calcium, magnesium, potassium, and sodium, were not selected as COPCs. At the request of NJDEP, and for informational purposes only, data were also screened separately against the NJDEP soil remediation standards. COPCs identified for Area 10 are summarized as follows:

- Surface Soil (0 to 2 feet bgs) – One pesticide (dieldrin), six inorganic chemicals (antimony, arsenic, cobalt, iron, manganese, and mercury) and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) as benzo(a)pyrene toxic equivalents (BAP TEQs) were identified as COPCs in surface soil.
- Subsurface Soil (2 to 10 feet bgs) – Six inorganic chemicals (aluminum, arsenic, cobalt, iron, thallium, and vanadium) and cPAHs as BAP TEQs were identified as COPCs in subsurface soil.
- Surface Water – Five inorganic chemicals (aluminum, cadmium, cobalt, iron, and manganese) were identified as COPCs in surface water.
- Sediment – Four inorganic chemicals (arsenic, cobalt, copper, and iron) and cPAHs as BAP TEQs.

A baseline **human health risk assessment (HHRA)** was conducted for Area 10 at the FRA. Potential carcinogenic risks and hazards were estimated for



the COPCs within the identified media for various receptors. The estimated risks and hazard indices (HIs) were compared to the acceptable cancer risk range and HI values. The purpose of the HHRA was to estimate the potential risks to human receptors associated with exposures to constituents detected in surface and subsurface soil, surface water, and sediment within Area 10. The potential receptors evaluated under a current land use scenario were recreational users/trespassers, industrial workers, and maintenance workers at the FRA. Under a future land use scenario, the potential receptors evaluated included construction workers and hypothetical residents (although the site is likely to remain mixed industrial/commercial and recreational use for the foreseeable future). COPCs for recreational users/trespassers were within acceptable limits. The estimated HIs from exposure to site soil COPCs for future hypothetical child residents exceeded acceptable limits primarily due to arsenic and cobalt that also are associated with background soils, and are not specific DoD activities. Therefore, no DoD-related constituents of concern were identified for potential receptors under future land use for Area 10.

A “hot spot” analysis was conducted as part of the HHRA for Area 10 and compared the detected site concentrations in soil and sediment to 100 times the EPA RSLs and NJDEP regional background levels. The purpose of the hot spot analysis was to evaluate the presence of a discrete area where concentrations are considerably higher than those present in the surrounding area. Two chemicals (arsenic in several samples and BAP TEQ in one sample) were detected at concentrations exceeding 100 times the adjusted soil residential screening levels. As discussed above, neither arsenic or BAP TEQs are identified as DoD-related or as Area 10-related COCs. A supplemental screening that compared the detected concentrations to 100 times the background values. The hot spot screening results for soil and sediment indicated that none of the detected concentrations in soil was greater than 100 times the background values.

The majority of the calculated cancer risks and HIs were from chemicals that occur both in background and site media. The risk contributions from arsenic and polycyclic aromatic hydrocarbons (PAHs) are likely attributable to anthropogenic background levels and are related to former DoD activities from

areas associated with historical application of arsenical based herbicides and pesticides. The PAHs are likely from nonpoint anthropogenic sources, such as vehicular traffic or asphalt pavements. The arsenic and PAHs detected in site soil were not the result of a CERCLA release during former operations at Area 10, which means that there is no authority to remediate them under the FUDS program. Furthermore, DoD-related constituents do not present an unacceptable risk for any of the exposure scenarios evaluated for current and foreseeable future land use conditions. Therefore, Area 10 was recommended for no action based on the results of the HHRA.

A BERA addendum was completed to evaluate the potential for ecological risk from DoD related activities at Area 10. The site-wide BERA results (Weston, 2008) did not indicate any site-related potential for ecological risk directly associated with Area 10. However, a soil preliminary remediation goal (PRG) was developed as part of the Ecological Risk Management Report as a result of potential impacts to insectivorous birds identified in other areas during the BERA. Three sample location clusters over roughly 30-acre wooded area associated with the Middlesex County Park portion of Area 10 were identified as having concentrations of arsenic greater than the PRG. The RI confirmed that elevated arsenic concentrations were detected downgradient from historical arsenic-based herbicide application areas, and the presence of arsenic was therefore not identified as a CERCLA release (CERCLA § 107[i]; 42 United States Code [U.S.C.] § 9607[i]). Accordingly, no evaluation of arsenic was recommended. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) defines pesticide to include herbicides (see 7 U.S.C. 136). As the arsenic was released in accordance with FIFRA, there is no release of a hazardous substance under CERCLA. If there is no CERCLA release, then there is no authority to act under the FUDS program. Because there was no site-related potential for ecological risk associated with Area 10 DoD-related constituents, no further evaluation was recommended based on the BERA.



## Remedial Investigation Conclusions and Recommendations

Because there is no evidence of an explosive hazard and no unacceptable risks associated with potential exposures to DOD-related COPCs were identified, the RI did not recommend a **Feasibility Study (FS)** for Area 10. Based on the evaluation of data previously collected as presented in the RI, no action was recommended for MEC or MC and hazardous and toxic waste (HTW) associated with Area 10. NJDEP accepted the RI Report as related to MEC in letters dated May 21, 2018 and January 2, 2019.

## SCOPE AND ROLE OF THE ACTION

It was concluded in the RI report (CH2M, 2017) that MEC and DOD-related COPCs in soil, sediment, and surface water do not pose a threat to human health and the environment at the FRA. Therefore, this proposed plan proposes no action for Area 10.

## SUMMARY OF SITE RISKS

### Land Use

Area 10 encompasses approximately 143 acres of land. The northeastern portion of Area 10 is part of the heavily developed Raritan Center. The remainder of Area 10 is developed as part of Thomas A. Edison County Park. Land use within Area 10 is currently primarily commercial/industrial and recreational. Current receptors include maintenance workers, industrial/commercial workers, recreational users/trespassers, and construction/utility workers. Future land use is anticipated to be the same as the current land use (commercial/industrial and recreational).

### Human Health Risks

The findings of the RI and the previous removal actions are consistent with the CSM that suggests there was one primary MEC release mechanism (i.e., the 1919 explosion of magazine Building E-31), and that the impacts generated by that MEC release were addressed through subsequent cleanup and construction activities. The data suggest that the MEC have been removed from this area so there is no longer an explosive risk at Area 10; therefore, a MEC Hazard Assessment is not required.

The HHRA conducted during the RI did not identify an unacceptable risk associated with exposure of current or future receptors at Area 10 for COPCs associated with DoD releases.

### Ecological Risks

The BERA and the addendum to the BERA did not identify any unacceptable risk to ecological receptors from Area 10.

## CONCLUSIONS

Based on the results of the MEC, MC, and HTW characterization activities conducted at Area 10, no investigative or removal actions are necessary for Area 10. Therefore, no action for Area 10 is proposed.

It is USACE's judgment that no action is protective of public health or welfare and the environment from actual or threatened CERCLA releases of DOD-related hazardous substances. NJDEP does not concur with the no action determination based on issues of non-concurrence for the HTW issues described below. It is USACE's judgement that information provided in the RI provides sufficient evaluation of the area to support no action.

USACE issues of non-concurrence with the NJDEP include:

- 1) CERCLA vs. NJDEP Soil Remediation Standards  
NJDEP states that the NJDEP soil remediation standard (SRS) values should be used to trigger remedial actions in various forms. The RI for these areas was prepared in accordance with USACE guidance and uses a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)-based approach to the data evaluation using human health and ecological risk assessments to draw site conclusions. The USACE did perform an evaluation of the data against NJDEP standards and determined that arsenic and PAHs are the constituents that exceed the SRS values. However, these constituents are not attributable to a DoD documented release. The occurrence and distribution of PAHs in excess of the SRS values suggest that they are attributable to ubiquitous Diffuse Anthropogenic Pollution, which NJDEP's own guidance recognizes as a source of pollution. Some of the elevated arsenic levels may be derived from





DoD use of arsenical-based herbicides around the magazine areas but use of such materials does not constitute a CERCLA release.

## 2) Data Evaluation

NJDEP does not concur with how the existing data are being evaluated against background data in the Area 10 RI. The RI does account for uncertainty in the background levels by presenting numerical and graphical representations of the site excess lifetime cancer risks and hazard index values both with and without contributions from the potential background sources. These comparisons consistently show that with the exception of the conservative future residential land use scenarios, the total site risk is within acceptable levels. Regardless of the position on background levels, the fact remains that arsenic and PAHs are the compounds that consistently drive unacceptable risk, typically under very conservative future land use scenarios. These constituents cannot be tied to a DOD-related release and neither of these sources constitutes a CERCLA release.

## 3) Environmental Impacts Associated with Rail Lines

NJDEP contends that HTW releases along the former rail lines associated with the Raritan Arsenal have not been adequately evaluated. No pattern of HTW impacts associated with the rail lines has been identified based on the hundreds of surface and subsurface soil samples have been collected across the entire former magazine area encompassed by Area 10, inclusive of the former rail lines, and no specific pattern of impacts associated with the rail lines has been identified.

The final decision presented in this proposed plan may be modified based on public comments and new information.

## COMMUNITY PARTICIPATION

One of the purposes of this proposed plan is to solicit comments from members of the public. USACE encourages the public to gain a more comprehensive understanding of the site and the activities that have been conducted there. USACE maintains the information repository and Administrative Record file for the FRA. Detailed information about the previous studies and restoration activities can be found in the reports and documents contained in the information repository located at the address below:

### Information Repository

U.S. Army Corps of Engineers, New York District  
2890 Woodbridge Avenue  
Edison, NJ 08837

Central Information Repository  
USACE New York District Office  
26 Federal Plaza  
New York, NY 10278

Information can also be found through the USACE New York District website for the FRA:  
<http://www.nan.usace.army.mil/Raritan>

The **public comment period** for this proposed plan is August 12 to September 14, 2019.

### For further information on the proposed plan for Area 10, please contact:

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## ABBREVIATIONS AND ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
BAP TEQ	benzo(a)pyrene toxic equivalent
BERA	baseline ecological risk assessment
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CH2M	CH2M HILL, Inc. <sup>2</sup>
COC	constituent of concern
COPC	constituent of potential concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSM	conceptual site model
DERP	Defense Environmental Restoration Program
DGM	digital geophysical mapping
DoD	Department of Defense
EHSI	EHS-International, Inc.
EOD	explosive ordnance disposal
EPA	U.S. Environmental Protection Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FRA	Former Raritan Arsenal
FS	feasibility study
FUDS	Formerly Used Defense Sites
GSA	General Services Administration
HHRA	human health risk assessment
HI	hazard index
HTW	hazardous and toxic waste
LEAD	Letterkenny Army Depot
MC	munitions constituents
MCC	Middlesex County College
MD	munitions debris
MEC	munitions and explosives of concern
Metcalf & Eddy	Metcalf & Eddy, Inc.
mm	millimeter

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<sup>2</sup> CH2M HILL, Inc. is a wholly owned subsidiary of Jacobs Engineering Group Inc.



MRS	munitions response site
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NJDEP	New Jersey Department of Environmental Protection
O'Brien & Gere	O'Brien & Gere Engineers, Inc.
PAH	polycyclic aromatic hydrocarbon
PRG	preliminary remediation goal
RI	remedial investigation
Roy F. Weston	Roy F. Weston, Inc.
RSL	regional screening level
Site	Former Raritan Arsenal, Edison and Woodbridge Townships, New Jersey
SVOC	semivolatile organic compound
TBD	to be determined
TNT	trinitrotoluene
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
VOC	volatile organic compound
Weston	Weston Solutions, Inc.



## GLOSSARY OF TERMS

**Administrative Record:** The Administrative Record (file) contains the documents that form the basis for the selection of a CERCLA response action and serves as a vehicle for public participation in selection of a response action. Pursuant to Section 9613(j)(1) of CERCLA, judicial review of any issue concerning the adequacy of any response action is limited to the contents of the Administrative Record. The Administrative Record includes the word file until the decision document is signed.

**Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA):** The U.S. Congress enacted CERCLA, commonly known as Superfund, on December 11, 1980. This law created a tax on chemical and petroleum industries and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

**Defense Environmental Restoration Program (DERP):** Congressionally authorized in 1986, DERP promotes and coordinates efforts for the evaluation and cleanup of contamination at Department of Defense (DoD) installations and Formerly Used Defense Sites (FUDS). The DERP statute [10 U.S.C. 2701(a)] requires that the environmental restoration program be subject to, and in a manner consistent with, CERCLA and the NCP.

**Decision Document:** A generic term used to describe the documentation of the selection of a removal action, remedial action, or other type of environmental restoration action. Examples of decision documents include an action memorandum (i.e., a document describing a removal action selected in accordance with subpart 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan) and a record of decision.

**Feasibility Study (FS):** During the FS, the remedial investigation (RI) data are analyzed and remedial alternatives are identified. The FS serves as the mechanism for the development, screening, and detailed evaluation of alternative remedial actions. The CERCLA process does not require completion of an FS if evaluation of the RI data indicate there is no unacceptable risk to human health or the environment.

**FUDS Property:** Facilities or sites (property) that were under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances. Under DERP policy, the FUDS program is limited to those real properties that were transferred from DoD control prior to October 17, 1986. FUDS property can be located within the 50 states, District of Columbia, Territories, Commonwealths, and possessions of the United States.

**Human Health Risk Assessment (HHRA):** An HHRA evaluates the carcinogenic and noncarcinogenic risks presented by contaminants at a site for current and potential future property uses.

**Information Repository:** A repository, generally located at libraries or other publicly accessible locations in or near the community affected by the FUDS project, which contains accurate and up-to-date documents reflecting ongoing environmental restoration activities. The information repository may contain information beyond the scope of the administrative record because the documents in the administrative record relate to a particular response action selection decision at a site. This may include historical documents, public notices, public comments, and responses to those comments.

**Munitions Constituents (MC):** Any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and nonexplosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.

**Munitions Debris (MD):** Remnants of munitions remaining after munitions use, demilitarization, or disposal.

**Munitions and Explosives of Concern (MEC):** Specific categories of military munitions that may pose unique explosive safety risks, such as unexploded ordnance, discarded military munitions, or MC, that are present in high enough concentrations to pose an explosive hazard.



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**Munitions Response Site (MRS):** A discrete location within a munitions response area that is known to require a munitions response.

**National Oil and Hazardous Substances Pollution Contingency Plan (NCP):** Also referred to as the National Contingency Plan, it is a plan required by CERCLA and codified at 40 *Code of Federal Regulations* § 300 that provides a framework for responding to releases or threats of releases of hazardous substances and oil discharges.

**Proposed Plan:** A public participation requirement of CERCLA Section 117 in which the lead federal agency summarizes the preferred cleanup strategy, the rationale for the preference, the alternatives evaluated in the RI/FS, and any applicable or relevant and appropriate requirement waivers proposed for site cleanup. The proposed plan is issued to the public to solicit public review and comment on all alternatives under consideration.

**Public Comment Period:** A prescribed period during which the public may comment on various documents and actions taken by the government and regulatory agencies.

**Remedial Investigation (RI):** An in-depth study designed to gather data needed to determine the nature and extent of contamination at a CERCLA site.