

---

*FINAL*

# Community Relations Plan Former Raritan Arsenal

Prepared for  
**U.S. Army Engineering and Support Center, Huntsville District**

4280 University Square

Huntsville, AL 35807

and

**U.S. Army Corps of Engineers, New York District**

Jacob K. Javits Federal Building, 26 Federal Plaza, Room 1811

New York, NY 10278-0090



March 2013

**CH2MHILL®**

10510 Conference Center Dr.

Suite 200

Chantilly, VA 20151

# Contents

---

<b>Acronyms and Abbreviations.....</b>	<b>v</b>
<b>1 Overview of Community Relations Plan .....</b>	<b>1-1</b>
1.1 Purpose.....	1-1
1.2 Public Involvement Goals .....	1-1
1.3 Contents of the Community Relations Plan.....	1-2
<b>2 Site Description.....</b>	<b>2-1</b>
2.1 Location and Use of the Property.....	2-1
2.1.1 Location .....	2-1
2.1.2 Site History.....	2-1
2.1.3 Current Land Use .....	2-2
2.2 Investigations and Remedial Actions.....	2-3
2.2.1 The CERCLA Process.....	2-3
2.2.2 Munitions Response Program .....	2-5
2.3 Summary of Environmental Investigations .....	2-5
2.3.1 Management Action Plan .....	2-6
2.3.2 Operable Units and Investigation Areas at Former Raritan Arsenal .....	2-6
<b>3 Community Background.....</b>	<b>3-1</b>
3.1 Community Profile.....	3-1
3.2 History of Community Involvement .....	3-2
3.3 Community Concerns .....	3-3
3.3.1 Community Interviews .....	3-3
3.3.2 Key Community Concerns - 1992 .....	3-3
3.3.3 Key Community Concerns - 2012 .....	3-4
3.3.4 Response to Concerns and Communication Needs.....	3-5
<b>4 USACE Community Relations Program .....</b>	<b>4-1</b>
4.1 Keeping the Community Informed .....	4-1
4.1.1 Designate Points of Contact .....	4-1
4.1.2 Maintain Administrative Record File and Information Repository .....	4-1
4.1.3 Maintain Public Website.....	4-2
4.1.4 Maintain a Contact List of Interested Parties .....	4-2
4.1.5 Publish Notices in Local Newspapers .....	4-3
4.1.6 Prepare and Distribute Fact Sheets.....	4-3
4.2 Bringing Issues of Concern to the Attention of the USACE .....	4-4
4.2.1 Discovery of Munitions or Suspected Munitions .....	4-4
4.2.2 Other Issues and Concerns .....	4-5
4.3 Providing Opportunities for Community Involvement .....	4-5
4.3.1 Community Relations Plan.....	4-5
4.3.2 Stakeholders Working Group .....	4-5
4.3.3 Hold Public Meetings.....	4-6
4.3.4 Provide Public Comment Periods .....	4-6
4.3.5 Evaluate Interest in a Restoration Advisory Board.....	4-7
4.4 Projected Schedule for Community Relations Activities .....	4-8
<b>5 References.....</b>	<b>5-1</b>

## **Appendixes**

- A History and Status of Investigation Areas
- B Community Interview Results
- C Stakeholders Working Group
- D Federal, State, and Local Officials
- E Environmental and Civic Groups
- F Media Contacts
- G Example Public Notices and Fact Sheets
- H Locations for Meetings and Information Repository
- I Glossary

## **Tables**

- 3-1 Demographic and Economic Profile
- 4-1 Public Points of Contact
- 4-2 Community Relations Schedule

## **Figures (provided at the end of each section)**

- 1-1 Site Location
  
- 2-1 Operable Decision Units
- 2-2 Investigation Areas
- 2-3 Groundwater Areas of Concern
- 2-4 Munitions Response Sites
  
- 3-1 Minority Populations
- 3-2 Low-Income Populations

# Acronyms and Abbreviations

---

AOC	area of concern
CD	compact disc
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	<i>Code of Federal Regulations</i>
CRP	Community Relations Plan
CWM	chemical warfare materiel
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
EE/CA	Engineering Evaluation/Cost Analysis
EOD	Explosive Ordnance Disposal
EPA	(United States) Environmental Protection Agency
FS	Feasibility Study
FUDS	Formerly Used Defense Site
FY	fiscal year
GSA	General Services Administration
MMRP	Military Munitions Response Program
NFA	No Further Action
NJDEP	New Jersey Department of Environmental Protection
RAB	Restoration Advisory Board
RI	Remedial Investigation
TAPP	Technical Assistance for Public Participation
U.S.	United States
USACE	United States Army Corps of Engineers
UXO	unexploded ordnance

# Overview of Community Relations Plan

---

## 1.1 Purpose

The United States Army Corps of Engineers (USACE) has prepared this **Community Relations Plan (CRP)** for environmental and munitions investigation and cleanup activities at the former Raritan Arsenal located in Edison, New Jersey (**Figure 1- 1**). The former Raritan Arsenal was previously owned by the U.S. Department of Defense (DoD). Because DoD no longer owns this property and the property was transferred prior to October 17, 1986, the property is considered a **Formerly Used Defense Site (FUDS)**.

DoD is responsible for evaluating and cleaning up DoD-generated environmental contamination at FUDS properties under the Defense Environmental Restoration Program (DERP). The USACE manages the evaluation and cleanup of these properties. The USACE, New York District, is responsible for investigating and cleaning up contamination at the former Raritan Arsenal and for implementing the public involvement activities outlined in this plan.

DoD conducts the investigation and cleanup of FUDS properties in accordance with the **Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)**, commonly called **Superfund**, as amended by the **Superfund Amendments and Reauthorization Act of 1986** and the **National Oil and Hazardous Substances Pollution Contingency Plan**, commonly called the National Contingency Plan.

USACE has prepared this CRP as part of its obligations under CERCLA and the National Contingency Plan and in compliance with:

- Engineer Pamphlet 200-3-1, September 2011, Public Participation Requirements for Defense Environmental Restoration Program
- USACE Engineer Regulation 200-3-1, May 2004, Environmental Quality—Formerly Used Defense Sites Program Policy
- U.S. Environmental Protection Agency (EPA), April 2005, Superfund Community Involvement Handbook (EPA 540-K-05-003)

## 1.2 Public Involvement Goals

This CRP identifies issues of community concern regarding the **site**, establishes public involvement goals, and provides a strategy for giving the public accurate and timely information about the cleanup of the former Raritan Arsenal.

USACE will use the activities outlined in this CRP to help ensure that community members are informed about and are provided opportunities to be involved in the environmental cleanup process at the former Raritan Arsenal. USACE intends to be forthright, responsive, clear, and proactive in its communications with stakeholders.

Stakeholders in the environmental restoration process are:

- Current owners of property on the former Raritan Arsenal
- The lead environmental regulatory agency—**New Jersey Department of Environmental Protection (NJDEP)**
- Local residents, officials, interest groups, and other members of the public who express an interest in the site

The goals of the public involvement program for former Raritan Arsenal are to:

- Ensure that stakeholders understand that personal property and public safety is the highest priority
- Serve the community's information needs by keeping property owners, local residents, officials, and other stakeholders informed in a timely manner

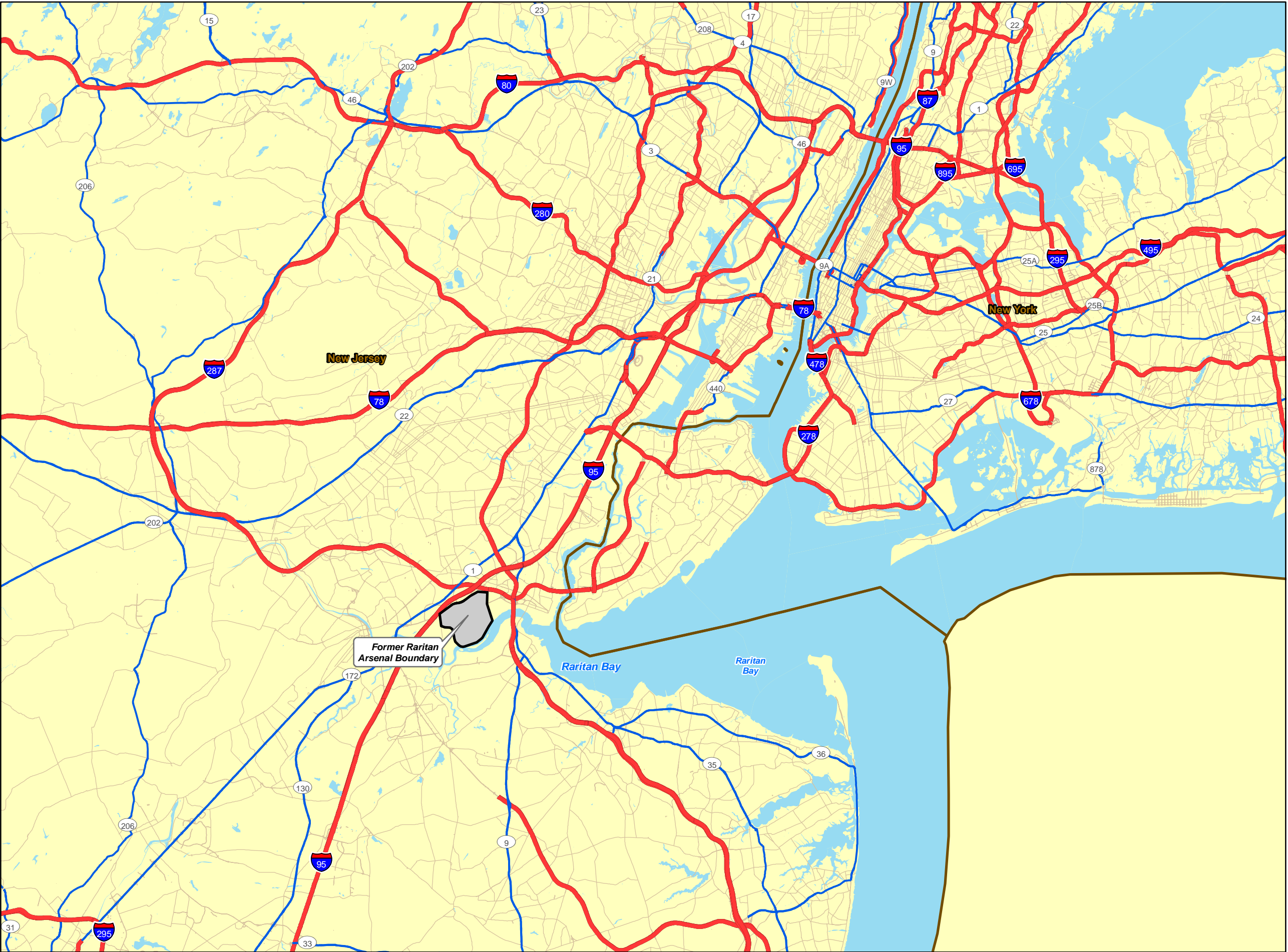
- Provide property owners, local residents, officials, and other stakeholders an opportunity to review and comment on studies being conducted, as well as proposed cleanup alternatives and decisions
- Keep the public informed about ongoing and planned public involvement activities
- Encourage and enable the public to get involved
- Identify and deal responsively with public concerns
- Foster and maintain a climate of understanding and trust between stakeholders and USACE by explaining to stakeholders how USACE considered their comments, what actions USACE plans to take, and why USACE reached its decisions

## 1.3 Contents of the Community Relations Plan

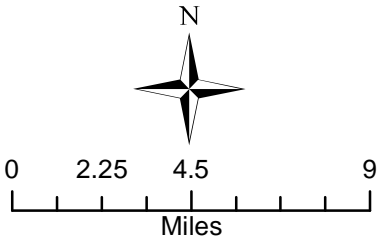
The information included in this CRP is based on demographic research conducted on the surrounding communities, the summary of historical site activities presented in the 2007 Management Action Plan with updates provided by USACE contractors, the 1992 CRP that included community interviews in 1991, and new community input obtained through interviews and questionnaires in spring 2012. Interview participants included local municipal and county officials, residents, and environmental organization members.

The CRP is organized as follows:

- Section 1 presents an overview of the CRP and USACE's public involvement goals and objectives.
- Section 2 describes the site location, description, ownership, and history.
- Section 3 presents community background and profile.
- Section 4 summarizes USACE's public involvement program.
- Section 5 presents the references used in this plan.
- **Appendix A** supplements Section 2, by providing a summary matrix of the history and investigation and remediation status for the individual Investigation Areas.
- **Appendix B** provides a detailed summary of feedback received in the 2012 community interviews
- **Appendix C** provides a contact list of the major property owners' representatives and others who make up the Stakeholders Working Group.
- **Appendixes D through F** provide contact lists of federal, state, and local officials, environmental and civic groups, and media contacts.
- **Appendix G** provides examples of public notices and fact sheets.
- **Appendix H** presents potential public meeting locations and the public **information repository** location.
- **Appendix I** provides a glossary of terms commonly used in the Army's environmental restoration and munitions response programs. Words and phrases in the glossary appear in **bold** in this CRP.



- Legend**
- Interstate
  - State Highway
  - Local Road
  - Railroads
  - Historical Railroads



**Figure 1-1**  
Site Location  
Community Relations Plan  
Former Raritan Arsenal, Edison, NJ



## Site Description

---

This section presents the historical and geographical background of the former Raritan Arsenal, also referred to as the “site.” This section also presents an overview of the previous environmental investigations. Additional details are provided in **Appendix A**.

### 2.1 Location and Use of the Property

#### 2.1.1 Location

The former Raritan Arsenal is located in Middlesex County, New Jersey (Congressional District NJ-6), approximately 20 miles southwest of lower Manhattan. Most of the site is located in the southern portion of Edison Township, with a small portion in Woodbridge Township. The site occupies approximately 3,200 acres and is bordered on the south by the Raritan River, on the north and northwest by Woodbridge Avenue, on the west by Mill Road and Patrol Road, and on the east by Clearview Avenue.

#### 2.1.2 Site History

The Raritan Arsenal was used extensively for U.S. Army operations from 1917 to 1963. Arsenal operations included:

- Receipt, storage, and maintenance of ammunition shipped from other ordnance facilities or returned from overseas
- Renovation of ammunition designated for long-term storage
- Salvage of outmoded or seriously deteriorated ammunition
- Ordnance research and development
- Shipment and receipt of weapons
- Ordnance training for troops stationed at the Arsenal and at other installations in the Mid-Atlantic region

During operations, waste materials, including ordnance, were routinely burned or buried on the site, which was the standard method of disposal at that time. A more detailed history of the site is available in the Raritan Arsenal Management Action Plan (see Section 2.3.1).

Operations at the Raritan Arsenal were phased out between 1961 and 1963. To convert the facility from military to civilian use, a group of local government officials and citizens recommended that two-thirds of the property be targeted for future industrial use. In 1964, the General Services Administration (GSA) sold approximately 2,360 acres to private landowners and transferred approximately 360 acres to Middlesex County, which were developed as Middlesex County College in 1966 and Thomas Edison Park in the 1970s. GSA retained the remaining land.

EPA purchased Building 212 and a 164-acre parcel from GSA in 1988. In 1989, GSA transferred 3.2 acres of land to a local nonprofit organization. This parcel was the first surplus federal property in the nation to be transferred under the Stewart B. McKinney Homeless Assistance Act.

In 1962 and 1963, in preparation for closure, the Army decommissioned the Arsenal grounds and buildings, which resulted in many of the areas being surface-cleared of munitions or partially decontaminated, to the extent practicable and customary at that time. Areas of the site were identified for further study to address the disposal of ordnance and other wastes during former Raritan Arsenal operations.

In 1985, the former Raritan Arsenal was one of the first sites to receive a preliminary assessment under DERP-FUDS. When the potential for ordnance was found, the site was programmed for a large-scale site investigation. When removal actions began in 1991, local community concern about potential health safety effects was high, particularly



in regards to soil contamination at the Middlesex County College baseball field and at Thomas Edison Park. Media coverage was intense and the Congressional representative became involved. In response to public concerns, USACE established a Technical Review Committee and implemented weekly press releases to get accurate and timely information to the public. Currently, the level of community concern is moderate to low, as a result of the established cleanup program and good working relationships with stakeholders.

Sections 3.2.3 and 3.3.3 provide more information about specific community concerns, based on community interviews in 1992 and 2012, and how the USACE community relations program has evolved since that time.

The USACE investigations of the former Raritan Arsenal concluded that contamination was present from conventional, high-**explosive** ordnance, smokeless powder, low explosives, and munitions-related items, and also from hazardous and toxic waste. It is currently uncertain whether the non-munitions-related hazardous and toxic waste contamination identified in some of the investigation areas is attributable to former DOD activities, or whether that contamination is attributable to activities that occurred after the closure of the Arsenal in 1963.

As significant health and safety threats have been identified, USACE has addressed them. Section 2.3 describes the ongoing environmental and munitions investigations at the former Raritan Arsenal and the status of the identified Investigation Areas.

### 2.1.3 Current Land Use

Most of the former Raritan Arsenal is now occupied by the Raritan Center, a large light-industrial business park with approximately 14 million square feet of office, research, warehouse, distribution centers, and industrial space occupied by more than 3,000 tenants (**Figure 2-1**). The major landowners of Raritan Center are Federal Business Centers and Summit Associates, Inc., along with a number of smaller property owners.

The northern portion of the property is fully developed, but the southern portion is largely undeveloped wetlands. The Middlesex County Utilities Authority operates a sewage treatment plant pumping station in the southern area. Drinking water at the former Raritan Arsenal is provided by Middlesex Water Company, using offsite **surface water** and **groundwater** sources. Groundwater from aquifers beneath the former Raritan Arsenal is not suitable for potable use due to salt-water intrusion, metals, and total dissolved solids.

In 2001, the Raritan Central Railway company was created, building upon and expanding the existing rail infrastructure of the former Raritan Arsenal. The railway serves Raritan Center and the nearby Heller Industrial Park, providing bulk rail services that connect tenants with the container terminals of the Bay of Newark and nationwide freight lines.

Other Raritan Center tenants include the New Jersey Convention and Exposition Center, several hotels, several banks, a travel agency, a day care center, and the main studio and newsroom of News 12 New Jersey. Shipping centers include regional operations for United Parcel Service and Federal Express, as well as the U.S. Post Office. The Edison Public Safety Center provides onsite police, fire, and emergency medical services.

The western portion of the former Raritan Arsenal contains a mixture of land uses. The Middlesex County College was one of the first new uses of the property. EPA, Region 2, occupies offices, laboratories, and warehouses on land owned by GSA. A number of the original Raritan Arsenal buildings remain on the EPA campus, and several remain on the Middlesex County College campus.

The Thomas A. Edison County Park is a 161-acre Middlesex County property. The CentrePlace at Edison condominium community and a shopping center are located between the college and the EPA campus (**Figure 2-1**). These 30 acres are collectively referred to as “Beechwood Development” after the original development company. East of the shopping center is Amandla Crossing, a 30-apartment transitional housing development for homeless, single-parent families, which is operated by the local nonprofit group Making It Possible to End Homelessness (formerly Middlesex Interfaith Partners with the Homeless).

Land uses adjacent to the former Raritan Arsenal are predominately residential; light industrial, and recreational in nature. The Millbrook Village apartment community borders Middlesex County College on the west. A single-

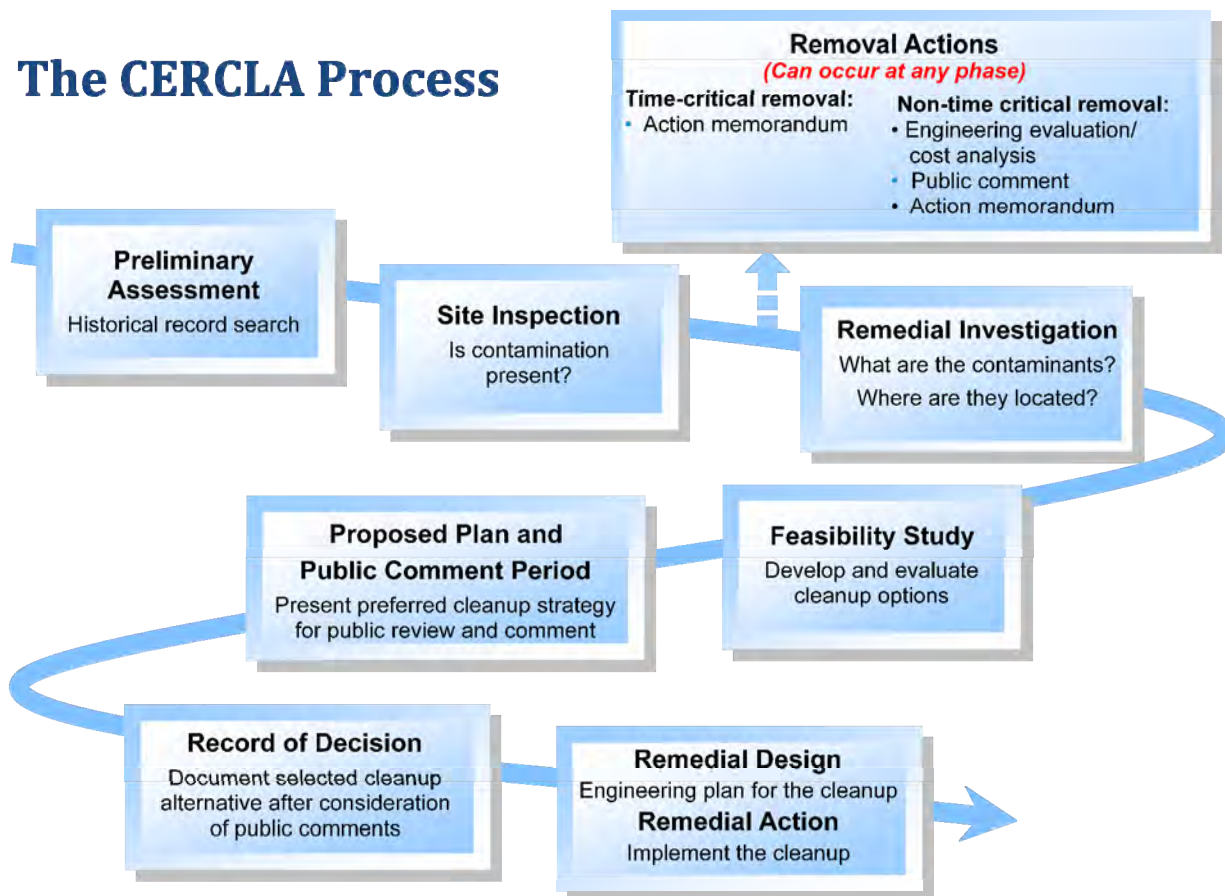
family residential area is located northwest of the former Raritan Arsenal, across Woodbridge Avenue, with small commercial properties including a preschool fronting Woodbridge Avenue. Adjacent land uses to the northeast and east are light industrial, commercial, wetlands conservation, and transportation.

## 2.2 Investigations and Remedial Actions

### 2.2.1 The CERCLA Process

As stated in Section 1, DoD conducts the investigation and cleanup of FUDS properties in accordance with CERCLA. The CERCLA process includes a series of activities, several of which are designed to involve the public in the decision-making process.

The typical sequence of activities is:



- Preliminary Assessment**— Site investigations typically begin with a preliminary assessment, to distinguish between sites that pose little or no threat to human health or the environment and sites that may pose a threat and require further investigation. This stage involves a review of historical documents and a visual site inspection.
- Site Inspection**— If the preliminary assessment results in a recommendation for further investigation, a site inspection is performed. During the site inspection, samples (such as water and soil) are collected to confirm or deny the presence of potentially **hazardous substances**.
- Remedial Investigation (RI)**—Based on the results of the preliminary assessment and site inspection, an RI may be needed at a site. An RI is designed to learn more about the site contamination and determine if any known contamination is leaving (that is, migrating from) the site. The primary purpose of the RI is to determine the **nature and extent of contamination** that exists at each site, and the risk that contamination presents to human health and the environment. During this phase, samples are usually collected from the soil,

groundwater, surface water (such as ditches, rivers, or lakes), and sediment. The resulting data provide information about the extent of possible contamination and rate of migration, if applicable.

- **Risk Assessment**—As part of developing RIs, USACE evaluates potential risks to people and to the environment. Human health risk assessments are performed to evaluate potential risks to people. Ecological risk assessments are performed to evaluate potential risks to plants and animals or other ecological receptors. USACE conducts these risk evaluations in accordance with federal standards and NJDEP guidance.
  - The human health risk assessment follows a formal, scientific process that estimates risk based on the contaminants found at the site and how people might be exposed to the contaminants.
  - Similar to a human health risk assessment, an ecological risk assessment considers how ecological receptors could be affected by coming in contact with contaminants at a site. Receptors considered in an ecological risk assessment can include very small organisms living in soil and at the bottom of water bodies, as well as birds, mammals, and fish.
- d. **Feasibility Study (FS)**—If the RI indicates cleanup of a site is needed to address human health risks and/or ecological risks, then an FS is prepared. The FS presents and evaluates various cleanup alternatives for the site.
- e. **Proposed Plan**—The Proposed Plan summarizes the cleanup alternatives developed in the FS, and recommends a preferred cleanup method. The public has an opportunity to comment on the Proposed Plan during an announced formal public **comment period**. Site information is compiled in an **Administrative Record** file and is placed in the general Information Repositories established at convenient locations, such as local libraries, for public review. The public comments received during this public comment period are reviewed and the responses are recorded in a document called a **Responsiveness Summary**.
- f. **Decision Document**—At the end of the public comment period, an appropriate **cleanup** alternative is chosen to protect human health and the environment. A Decision Document is issued that explains the selected cleanup action and includes the Responsiveness Summary.
- g. **Remedial Design and Remedial Action**—The final stage in the process is the remedial design and remedial action. The remedial design phase is where the technical specifications for cleanup remedies and technologies are designed. The remedial action is the actual construction or implementation phase of the cleanup process.

In addition, the following activities may occur at any time during the CERCLA process:

- **Interim Actions** are taken, as needed, to reduce imminent risks to human health and the environment while long-term field investigations are being conducted or until a final remedial action is determined. Interim actions can range from **removal actions** to institutional controls, such as putting up a fence or issuing land use instructions to control activities on or near contaminated sites.
- **Removal Actions** can function as either interim or long-term means of addressing potential releases of contaminants and reducing human and ecological exposure. An Action Memorandum documents the results.
- **An Engineering Evaluation/Cost Analysis (EE/CA)** is completed for non-time-critical removal actions and is similar to a fast-track, limited-scope RI/FS. It addresses human health exposure risks, compares removal alternatives, and provides a mechanism for regulatory and public review.
- **A No Further Action (NFA)** Decision Document is developed after a field investigation finds that the levels of contaminants at a particular site do not pose a threat to human health and the environment. The NFA Decision Document provides a means for regulatory agencies to review the investigation and risk assessment and for the public to comment on the no-action decision.

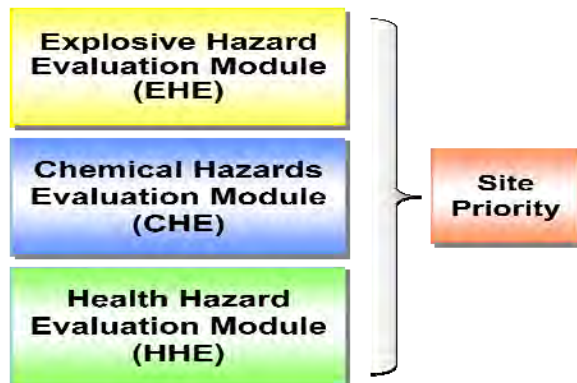
## 2.2.2 Munitions Response Program

The DoD Military Munitions Response Program (MMRP) works to reduce risks to people and the environment from **munitions and explosives of concern**. The DoD established the MMRP in 2001 in order to more effectively and efficiently (1) investigate the hazards posed by past use and disposal of **military munitions**, and (2) to carry out **response actions**. Munitions investigations and response actions generally follow the CERCLA process.

In order to make the best use of funding, Congress has directed DoD to prioritize all munitions response sites based on the potential risk posed to human health and the environment. The 2005 **Munitions Response Site Prioritization Protocol** (32 *Code of Federal Regulations* [CFR] 179) is a federal rule that applies to all sites included in DoD's inventory of active and former defense sites. It does not include any **operational range**, operating munitions storage or manufacturing facility, or operating munitions treatment or disposal facility.

The Protocol requires USACE to set priorities for munitions response sites, based on the overall conditions at each site. Prioritization is updated as the investigation provides additional information. The Protocol's central feature is the use of three hazard evaluation modules.

A site's relative priority is determined by computing scores for the site under one or more of these modules:



- **Explosive hazards** posed by munitions and explosives of concern are evaluated using the Explosive Hazard Evaluation Module.
- Hazards associated with chemical warfare materiel (CWM) are evaluated using the CWM Hazard Evaluation Module.
- Health and environmental hazards posed by **munitions constituents** and incidental non-munitions-related contaminants are evaluated using the Health Hazard Evaluation Module.

These three module scores are combined to produce a single priority score from 1 to 8, where Priority 1 indicates the highest potential hazard and Priority 8 indicates the lowest potential hazard. A score of Priority 2 is the highest score possible at a site without chemical warfare materials. The priorities do not have specific assigned actions, however. Priority 1 does not mean that an immediate removal action is needed and Priority 8 does not mean that no action is required.

The public has an opportunity to provide input and comments when sites are initially prioritized and when scores are updated as investigations and response actions progress.

After prioritization, munitions sites are sequenced for response action along with other FUDS munitions sites. DoD's policy is that a munitions response site with higher relative risks will be dealt with before a site with lower relative risks. Although the most important factor is a site's relative risk (priority score), other factors can influence sequencing decisions, including:

- Cultural and social factors
- Economic factors
- Reasonably anticipated future land use
- Availability of appropriate technology
- Short-term and long-term ecological effects
- Other environmental impacts

## 2.3 Summary of Environmental Investigations

In 1987, under provisions of the then-new DERP, USACE conducted a Contamination Evaluation Study. The final report was released in 1990, confirming the presence of buried ordnance, as well as chemical contamination of soil and groundwater on the site.

Since 1989, USACE has completed numerous extensive investigations and removal actions at the former Raritan Arsenal, including the removal of contaminated soil and thousands of buried munitions and explosives of concern that remained on the property from former Raritan Arsenal operations. Over 120 facility-wide and site-specific investigation and removal action reports have been completed, in consultation with regulators and local stakeholders. **Figure 2-2** shows the areas under some phase of investigation and **Appendix A** provides the history and status of each Investigation Area.

In 2000, an EE/CA was performed to analyze the results of all the military munitions investigations and removal actions that were previously accomplished, as well as to identify areas where military munitions still exist. No further removal actions are currently scheduled. The need for further response actions will be determined by the CERCLA investigative and decision-making process, unless an explosive safety hazard is discovered that warrants a time-critical removal action.

In 2013, a site-wide munitions RI will begin. **Figure 2-3** shows the locations of the munitions response sites to be investigated. When that report is complete (anticipated in 2014), USACE will prioritize and sequence areas within the former Raritan Arsenal for additional munitions response actions and will invite the public to participate in the prioritization and sequencing process, as required by the Protocol.

Through fiscal year (FY) 2012, USACE has spent approximately \$ 88.4 million dollars to investigate and clean up soil, groundwater, surface water, and sediment containing hazardous and toxic waste and to remove munitions that pose a safety hazard. The estimated cost to complete the investigation and remediation of the former Raritan Arsenal is approximately \$ 31.8 million, based upon currently available information.

The **Operable Units** and Investigation Areas at the former Raritan Arsenal are listed in section 2.3.2 and their locations are shown on **Figure 2-2**. **Appendix A** provides the history of investigations and remedial actions at each Investigation Area, the status of investigations and remedial actions, and anticipated activities through FY 2013.

### 2.3.1 Management Action Plan

The Management Action Plan for the former Raritan Arsenal presents historical and other background information about the site, describes the previous investigations, and provides schedules for carrying out investigations and related activities and preparing reports. The 2007 Management Action Plan (Weston Solutions, 2007) is available to the public in the Administrative Record file.

USACE will update the Management Action Plan again in FY 2013.

### 2.3.2 Operable Units and Investigation Areas at Former Raritan Arsenal

An Investigation Area or area of concern (AOC) is a discrete area where hazardous substances or wastes have been deposited, stored, disposed of, or placed, or where such historical activities are suspected based on prior land use. An Operable Unit is a collection of Investigation Areas or AOCs that are treated together during the RI/FS, often because they are close to each other, have similar cleanup requirements, or had similar types of historical use.

This section summarizes the Operable Units and specific Investigation Areas within each unit. **Figures 2-2** and **2-3** present the locations of these areas. **Appendix A** provides a more detailed description of each area's history of investigations and remedial actions, the status of investigations and remedial actions, and anticipated activities through FY 2013.

The environmental and munitions Investigation Areas at the former Raritan Arsenal have been organized into six Operable (Decision) Units, based on land ownership and type of land use:

- Commercial and Industrial Area
- EPA and GSA Property
- Middlesex County College
- Thomas Edison Park (including Area 9, 10 and 19)

- Undeveloped Wetlands Area
- Site-wide Groundwater, Indoor Air, and Vapor Intrusion

The “Beechwood Development” properties depicted on **Figure 2-1**, located between the EPA and GSA Property and Middlesex County College, are not currently part of any Operable Units. Investigations and remedial actions were completed to support development of these properties. There are some active Investigation Areas near these properties, however. In fall 2013, an RI will take place on EPA property outside the southern perimeter fence of the CentrePlace at Edison condominium community.

## Commercial and Industrial Area

The Commercial and Industrial Area is the largest Operable Unit at the Former Raritan Arsenal, covering approximately 2,400 acres that are fully developed. Overall, this Operable Unit is in the RI phase of the CERCLA process.

A Removal Action and RI Summary Report is currently being prepared to document all the previous cleanup work, assess any remaining risks to the human health and environment, and support a Proposed Plan and Decision Document. The following Investigation Areas are located in the Commercial and Industrial Area:

- **Area 2** (8.2 acres): Used for ordnance demolition into the early 1930s; munitions removal actions completed in 1993.
- **Area 3** (25 acres): Used through 1948 for ordnance demolition and burning; munitions removal actions completed 1988 through 1994.
- **Area 4** (25 acres): Used into the early 1920s by private industry to demilitarize various types of ammunition; munitions removal actions completed 1988 through 1995.
- **Area 5** (9.75 acres): Used from 1917 to 1963 as a disposal area for mustard agent, red fuming nitric acid, and potassium cyanide; removal action completed 1995 through 1996. This is the only known chemical munitions area at the former Raritan Arsenal. Although chemical munitions were not reportedly stored at the former Arsenal, leaking shells detected while en route to other destinations were disposed of in trenches.
- **Area 7** (5.9 acres): Several buildings were used from 1961 through 1963 for the destruction of various ammunition components during decommissioning of the Arsenal.
- **Area 8** (48 acres): Used to store and load solid propellant, primarily smokeless powder, and for general ammunition storage.
- **Area 14** (167 acres): Used to deposit material dredged from the Raritan River channel in the 1940s. A cap was installed as a remedial action by Federal Business Centers, during approved development, and no further USACE action is anticipated.
- **Area 15** (4.5 acres): Contained a pond that was used for the disposal of burned scrap and other refuse from a former demolition ground; removal action completed in 1977.
- **Areas 9 and 19** (294 acres, of which 53 acres is Area 9): Former magazine area where explosives were stored and where munitions-related explosions occurred during former Raritan Arsenal operations; removal actions completed in 1963, 1965, 1981, 1987, and 1993.
- **Area 20** (38 acres): An extensively used munitions renovation plant operated in this area; there was a major release of contaminated oil and solvents in the 1980s from an oil reclamation operation at a former magazine.
- **Inland Container property**: A possible former chemical storage area; 10 temporary warehouses were removed in the early 1960s.
- **Owens-Illinois property**: A fuel storage area and possibly a tank farm during former Raritan Arsenal operations.

## EPA and GSA Property

This property includes many buildings from the former Raritan Arsenal. Overall, this Operable Unit is in the RI phase of the CERCLA process. Additional investigation might be needed to fill data gaps.

- **Area 1** (0.57 acre): Reportedly used for ordnance demolition into the early 1930s.
- **Area 18G** (21 acres): Raritan Arsenal construction camp, outdoor storage, and commercial dump.
- **Area 18A**: Unlined pond reportedly used to dispose of waste solvents, degreasers, oil, and cosmoline (a rust preventative); removal actions in 1992 and 1998.
- **Area 18B** (50 acres): Western portion was reportedly used as a small arms firing range; contaminated soil removed in 2002.
- **Area 18C**: Subareas include the Former Asbestos Landfill, where the asbestos-contaminated portion was sealed in 1992; an underground tank system associated with Building 256; an area where oil-saturated soil was removed in 1998, 2002 and 2003; four debris disposal areas where contaminated soil and debris were removed in 1998 and 2002; a suspected gas and oil dump south of Building 255 (not confirmed by soil sampling), and another surface soil contamination area.
- **Area 18D** (31 acres): Used heavily during the operation of the former Arsenal; removal action completed in 1990; explosives ordnance disposal response when items were discovered during construction in 2005.
- **Area 18E** (9 acres): Several original former Raritan Arsenal buildings that were used for overhaul, repair, service, maintenance, testing, and rust-proofing of small arms; contaminated soil removed 2011-2012.
- **Area 18F** (13 acres): Part of a 43-acre area active since 1919, with buildings reportedly used for small arms packing. The western 30-acre portion (referred to as "Beechwood Development" including CentrePlace at Edison) is no longer considered part of Area 18F.

## Middlesex County College

This property also contains a few original buildings from the former Raritan Arsenal. Overall, this Operable Unit is in the RI phase of the CERCLA process. Due to past removal actions completed, the RI is expected to recommend NFA, subject to regulatory concurrence and public comments.

- **Areas 17/17A** (2 acres): reportedly used as a salvage yard from the 1940s to 1960s; Area 17A was reportedly used as a burning ground to destroy small arms by non-explosive means in the 1950s; removal action at the college baseball field (Area 17A) occurred from 1994 to 1995.
- **Area W**: Administrative and barracks area during former Raritan Arsenal operations; contaminated soil and drums removed in 1998.
- **Area X and Area H**: Administrative and barracks area during former Raritan Arsenal operations; no removal actions; no contamination present above NJDEP soil cleanup criteria or groundwater quality standards.
- **Building 118**: Former Raritan Arsenal hospital building; adapter boosters and two USTs removed in 1991.
- **High Traffic Area**: Sampling was conducted (at the request of the college) in campus locations of high college student and staff activity, to determine if any contaminants existed at levels that could affect human health.
- **Transformer Removal Areas**: Beginning in 1999, 21 transformers and 23 switches, along with contaminated soil, were removed from multiple locations at the college and at the Beechwood and CentrePlace properties.

## Thomas A. Edison Park

This Operable Unit is in the RI phase. Additional sampling will be performed to determine if historical magazine explosions resulted in contamination and to collect data for human health and ecological risk assessments.

- **Area 10** (140 acres): Upper Magazine Area, also used for de-priming cartridge cases; explosions in 1919 and 1943; removal actions completed in 1963, 1989, 1992, 1993, 1999, 2000, and 2001.

## Undeveloped Wetlands

Most of the former magazines and a 2,000-foot-long loading dock were located in the undeveloped wetlands area. A large fire in the 1980s and a smaller fire in 2012 consumed most of the wooden dock, but remains are still present along the shoreline. Since the area was largely undeveloped, fewer munitions investigations have taken place here. This Operable Unit will be the primary focus for the site-wide munitions RI beginning in 2012 (**Figure 2-4**).

- **Area 11** (11 acres): Used extensively by the Army for loading operations at the former dock, portions of which were contaminated with grenades, mortar shells, and small arms components, and potential disposal pits and trenches; surface clearance and ordnance sweeps in 1963 and 1989; munitions removal actions from 1992 to 1994, 1998, and 2005.
- **Area 12** (84 acres): Material dredged from the river bottom in front of the former dock was disposed of in this area; soil removal actions in 1999, 2004, and 2011.
- **Area 13** (8 acres): Consists of the shoreline beneath the former loading dock, which was known to contain discarded ordnance, the adjacent portion of the Raritan River, and 3 acres of land between the dock area and access road; munitions removal action in 1993.
- **Area 16** (277 acres): Former Lower Magazine Area, contained a total of 95 above-ground magazines that were used to store smokeless powder, primers, and fuzes, along 11 railroad lines used to load and unload trains and smokeless powder; munitions removed in 1985, 1986, 1988, and 1991.
- **Areas 6, 6A, 6B** (130 acres): Historical dredge material impoundment area, burying ground for ammunition components (Areas 6A and 6B), and site of a sulfuric acid manufacturing plant from 1966 until it was demolished in 1997; surface clearance in 1963 and a few inert munitions recovered in 1992.

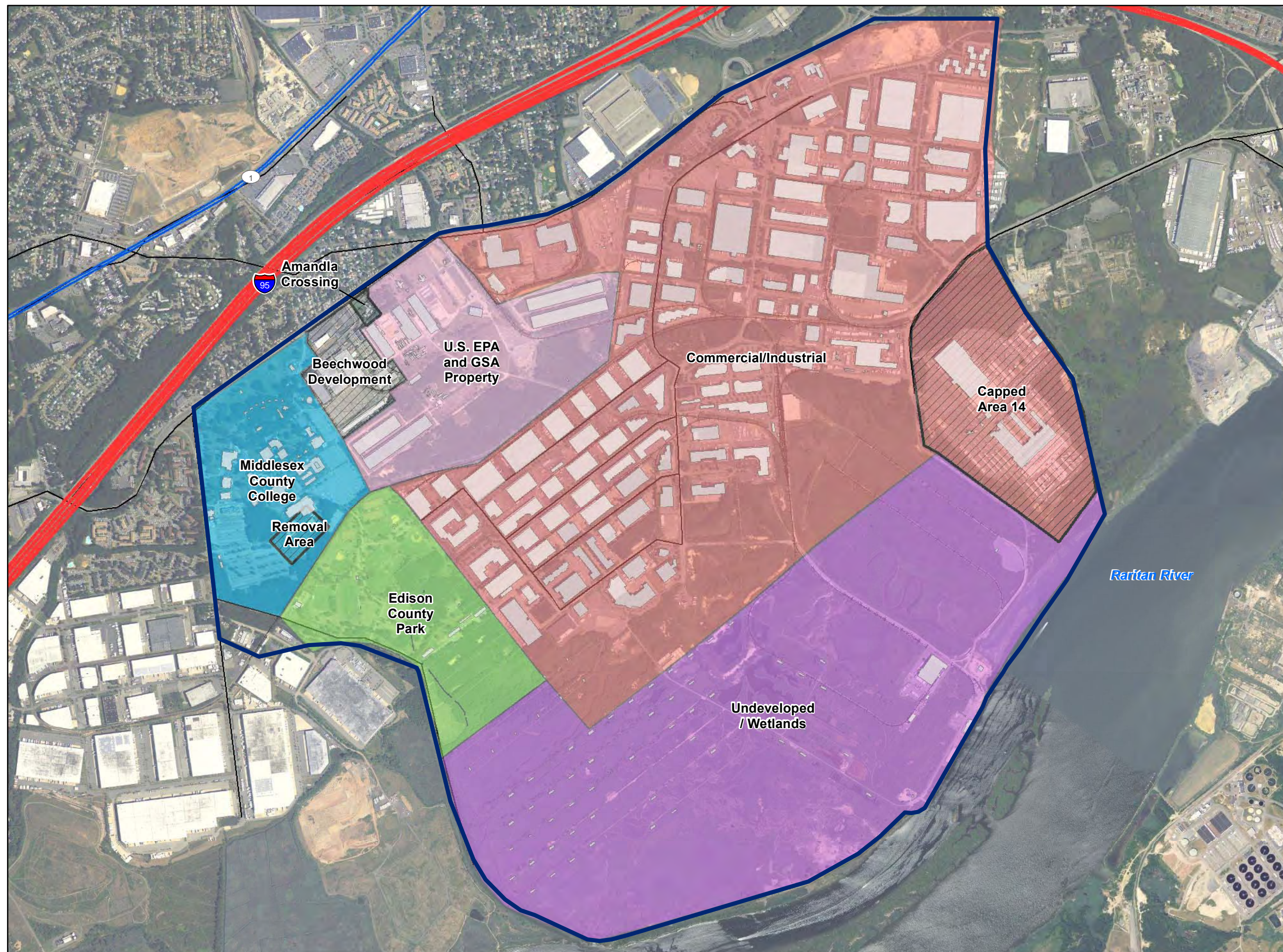
## Site-wide Groundwater, Indoor Air, and Vapor Intrusion

USACE is monitoring natural attenuation (the reduction in contamination due to bacterial activity and other natural processes) of groundwater contamination in 10 discrete AOCs. Overall, this Operable Unit is at the FS phase in the CERCLA process, to determine the need for remedial action and develop remedial alternatives for 6 of the 10 groundwater areas of concern. AOCs, 1, 3, 5, and 7 were determined not to be related to DOD activities. Therefore, these AOCs require no further USACE action and have been dropped from the monitoring program.

Under certain conditions, contaminants in soil or groundwater can evaporate and build up in the indoor air of nearby buildings. Where this has occurred, USACE has installed vapor mitigation systems that reduce air pressure beneath the building and keep vapors from entering the building. Eight industrial buildings are being monitored for vapors in indoor air and soil gas beneath the foundations. NJDEP reviews the indoor air and groundwater monitoring results.

- **AOC 1:** Groundwater plume with a likely offsite source near the entrance of Raritan Center.
- **AOC 2:** Groundwater plume with vapor intrusion issues; vapor mitigations systems installed at affected buildings in 2005 and 2008.
- **AOCs 3 and 4:** Groundwater plumes with no air quality issues.
- **AOC 5:** Groundwater plume with a likely source from operations at Thomas Edison Park.
- **AOC 6:** Groundwater plume with vapor intrusion issues; vapor mitigations systems installed at affected buildings in 2009.
- **AOC 7:** Groundwater plume with no air quality issues.
- **AOC 8:** Groundwater plume with vapor intrusion issues; vapor mitigation systems installed at affected buildings in 2005.
- **AOCs 9 and 10:** Groundwater plume with no air quality issues.





- Legend**
- Former Raritan Arsenal
  - Structures**
    - Structure-Building
    - Structure-Tank
  - Exposure Units**
    - Area Not Evaluated
    - Commercial/Industrial
    - Edison County Park
    - Middlesex County College
    - U.S. EPA and GSA Property
    - Undeveloped / Wetlands
    - Railroads
    - Historical Railroads



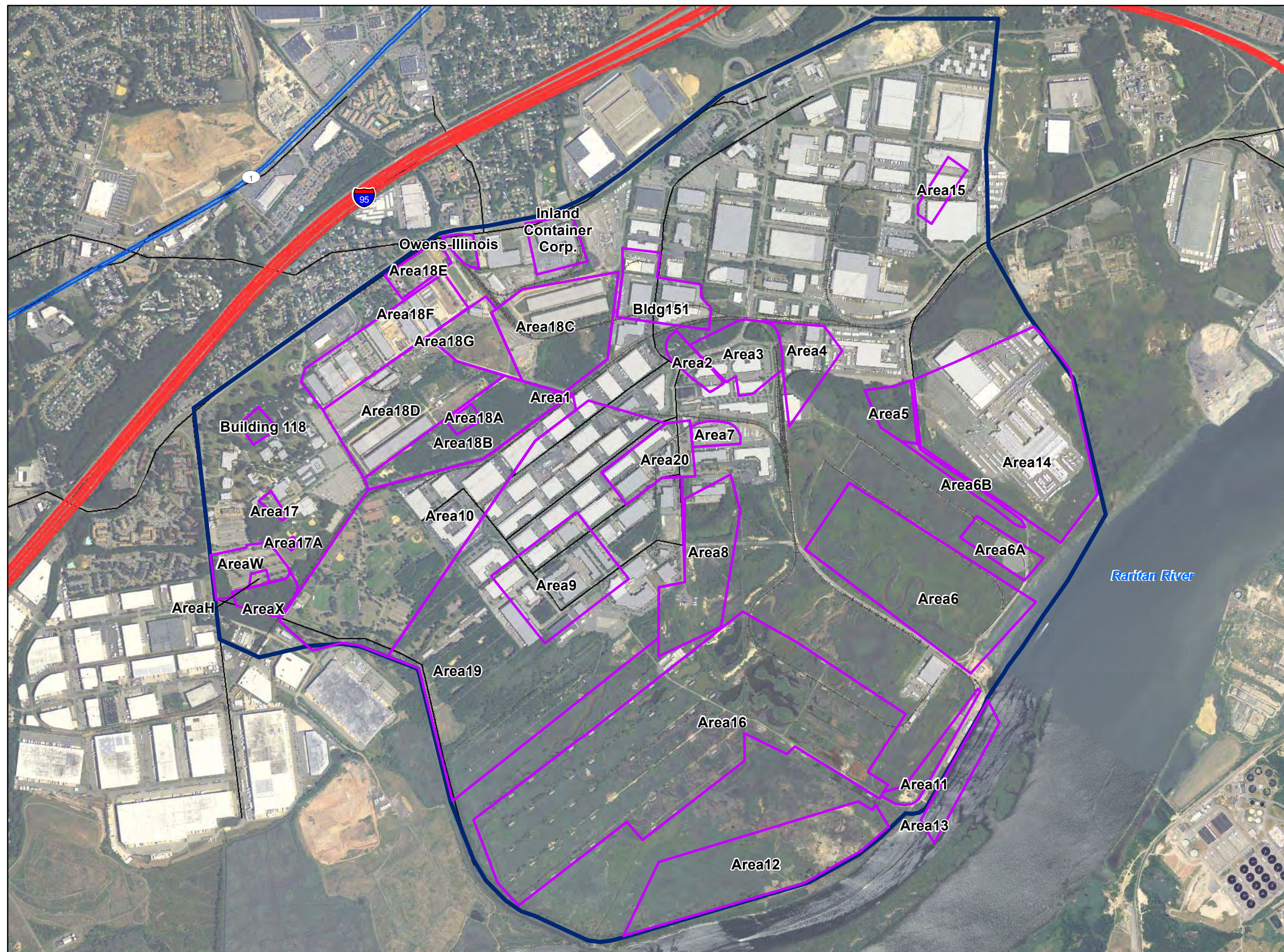
0 1,000 2,000 3,000  
Feet

**Figure 2-1**  
Operable Decision Units  
Community Relations Plan  
Former Raritan Arsenal, Edison, NJ



**CH2MHILL**





- Legend**
- Investigation Areas
  - Former Raritan Arsenal
  - Railroads
  - Historical Railroads
- Structures**
- Structure-Building
  - Structure-Tank



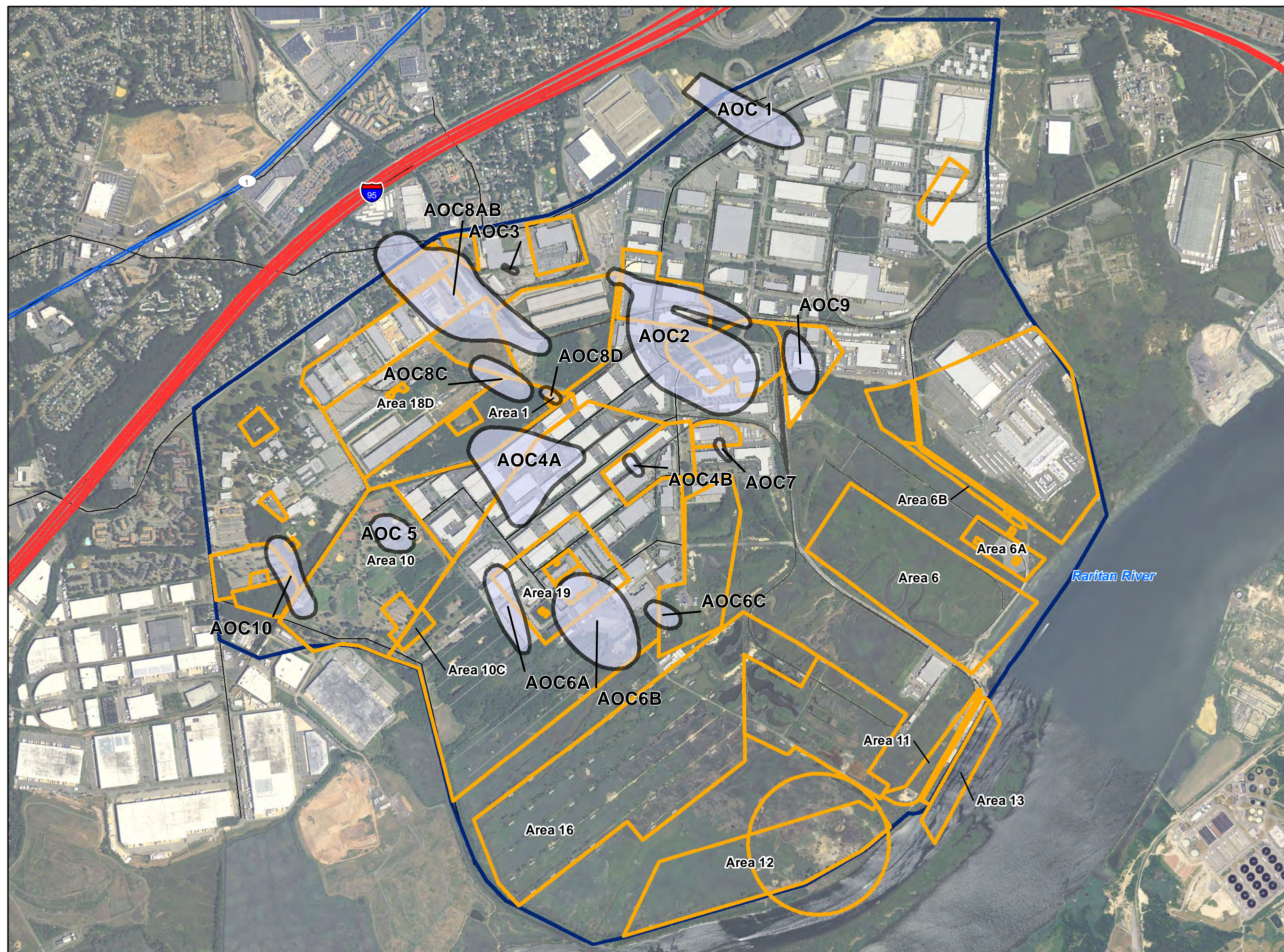
0 1,000 2,000 3,000  
Feet

**Figure 2-2**  
Investigation Areas  
Community Relations Plan  
Former Raritan Arsenal, Edison, NJ

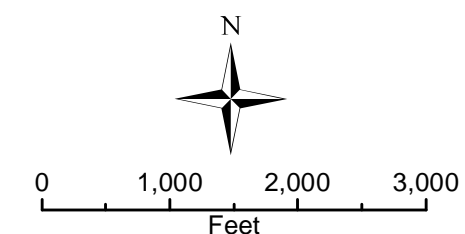


**CH2MHILL**





- Legend**
- Former Raritan Arsenal
  - Area To Be Investigated
  - Groundwater AOC (2005)
  - Structure-Building
  - Structure-Tank
  - Railroads
  - Historical Railroads



**Figure 2-3**  
 Groundwater Areas of Concern  
 Community Relations Plan  
 Former Raritan Arsenal, Edison, NJ  
**CH2MHILL**





# Legend

- Area Boundary
- Former Raritan Arsenal
- Interstate
- State Highway
- Local Road
- Railroads
- Historical Railroads

Note:  
-Areas 5 and 14 shown for reference  
and are not being investigated as part  
of this RI/FS.



0 1,000 2,000 3,000  
Feet

**Figure 2-4**  
Munitions Response Sites  
Community Relations Plan  
Former Raritan Arsenal, Edison, NJ



**CH2MHILL**



## SECTION 3

# Community Background

This section describes local communities near the site, provides a brief history of past community relations activities, and summarizes results of community interviews regarding community concerns about the site and the communication needs of community members.

## 3.1 Community Profile

The former Raritan Arsenal is located in Middlesex County, the most populous county in the state of New Jersey, and a part of the New York Metropolitan Area. Most of the site is in Edison Township, with a small portion in Woodbridge Township. Sayreville Borough is directly across the Raritan River. These communities are densely populated.

Edison and Woodbridge Townships are the fifth and sixth most populous municipalities in the State of New Jersey. Edison Township was originally incorporated in 1870 as Raritan Township but was renamed “Edison” in 1954, in honor of Thomas Edison’s industrial research laboratory in Menlo Park.

The Metro Park (Amtrak) train station in Woodbridge and the New Jersey Transit commuter train stations in Edison and Metuchen (an independent town in Edison Township) provide convenient transportation to New York City. Proximity to New York and Philadelphia, and a half-hour drive to the largest port on the east coast, has made Middlesex County and Edison Township in particular a transportation and distribution hub for the region’s wholesale trade and industrial base.

Like Edison Township, Woodbridge is working to retain and attract businesses, while cleaning up former industrial areas (brownfields) along the Raritan River and enhancing passive recreational areas along the riverfront. In 2011, Woodbridge Township was certified at the “Sustainable Jersey” Silver level for the third consecutive year and Edison Township was certified at the Bronze level. Sayreville Borough is a 16.3-square-mile waterfront community with a large base of industrial properties, but new technology companies and a growing residential population are changing the character of the town.

**Table 3-1** provides demographic and economic data about the communities surrounding the former Arsenal.

TABLE 3-1  
Demographic and Economic Profile  
*Community Relations Plan*

	Population 2000 <sup>a</sup>	Population 2010 <sup>b</sup>	Median Income <sup>c</sup>	College Education <sup>c</sup>	Unemploy- ment Rate <sup>c</sup>	Poverty Rate <sup>c</sup>	Percent Minority <sup>d</sup>	Recent Immigrant <sup>c,e</sup>	Limited English Proficiency <sup>c</sup>
Middlesex County	750,162	809,858	\$76,355	39.0%	5.5%	7.9%	50.8%	36.9%	16.1%
Edison Township	97,687	99,967	\$86,282	51.1%	5.7%	8.2%	60.6%	41.4%	18.8%
Woodbridge Township	97,203	99,585	\$78,080	31.1%	4.9%	5.9%	49.3%	35.9%	13.0%
Sayreville Borough	40,377	42,704	\$71,719	31.8%	6.0%	3.9%	40.6%	39.1%	11.4%

Sources:

a. U.S. Census Bureau, 2000 Census (Summary File 1)

b. U.S. Census Bureau, 2010 Census

c. U.S. Census Bureau, 2008-2010 American Community Survey

d. “Minority” is defined as members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic/Latino origin; or Hispanic/Latino

e. Foreign born non-native, arrived after 2000

All three municipalities, as well as the county, have gained population since the 2000 Census.

As **Table 3-1** and **Figure 3-1** show, these communities are all diverse, with Edison Township now a “majority minority” community. The trend began in the 1990s and has accelerated in the last decade, with more than one-third of residents having settled in the U.S. since 2000. The largest minority group is now Asian, largely of Indian origin (43 percent and 28 percent, respectively, in Edison). Middlesex County and Edison Township in particular, has the largest population of (Asian) Indians in New Jersey and the third largest in the nation. However, the level of English language proficiency is relatively high, reflecting the professional occupations of the new residents; less than 20 percent of the population where languages other than English are spoken at home are counted as speaking English “less than well.”

Edison Township has the highest percentage of college-educated residents and a higher median income than the county or the other three communities near the site, but also has the highest number of people living below the poverty threshold, including some Census tracts near the former Raritan Arsenal (see **Table 3-1** and **Figure 3-2**). Housing on the former Raritan Arsenal includes 30 units of transitional housing apartments at Amandla Crossing; there are also 45 affordable units in CentrePlace at Edison, about 16 percent of the 285 total homes in that development.

## 3.2 History of Community Involvement

In 1990, the former Raritan Arsenal began to receive a great deal of attention from the media, local citizens, special interest groups, and local officials. Most of the community has always been aware that the Army had operated the former Raritan Arsenal, as many older residents had worked there, but were not aware of the former Raritan Arsenal's hazardous waste and munitions issues. The DoD mandate to assess and remediate ordnance and chemical contamination at sites such as the former Raritan Arsenal also brought new attention to the site. The findings of the 1990 Contamination Evaluation Study were brought to the public's attention after a series of newspaper articles were published in May 1990. The fact that Middlesex County at that time had the most state-regulated hazardous waste sites of the 21 counties in New Jersey may also have played a role in the community's sensitivity to hazardous waste issues at the former Raritan Arsenal.

In response to heightened community concerns about public safety and the environment, citizen groups held meetings to discuss the site's problems and potential community action. The citizens' group Coalition for a Better Edison formed a special committee to address the Raritan Arsenal's contamination. In August 1990, USACE held a public meeting to discuss the status of the site and scheduled ordnance and hazardous waste activities. More than 50 citizens participated in this meeting.

Concern about the site increased in May 1991, after USACE began detonating excavated ordnance in a designated area on the site. Although a public meeting was held before the work to explain the procedures, noise impacts from the blasts were heard several miles away and caused significant community concern. In response to complaints from local residents and elected officials, USACE modified the onsite demolition procedures. The Corps held another public meeting in August 1991 to provide an update of ordnance activities, and to discuss scheduled environmental remediation work. Local residents and representatives from the Coalition for a Better Edison, Middlesex County Environmental Coalition, and Edison Wetlands Association participated in the meeting.

The USACE established an onsite project office in late 1991. The USACE project officer was designated as a single point of contact for responding to community and media questions and was available for presentations to local community groups.

In 1991, USACE established a Technical Review Committee to maintain a constant dialogue with community members, local agencies, and special interest groups. Initially, the Technical Review Committee met every 1 to 3 months. As community knowledge increased and concern decreased, the meetings gradually became less frequent. This group later became the current Stakeholders Working Group and now meets twice a year (see Section 4.3.5.)

Over time, interest and concern about the former Raritan Arsenal has decreased. As a result, the frequency of public meetings and meetings of the Stakeholders Working Group has also decreased. At present, USACE holds public information meetings twice per year and additionally as needed to solicit public comments whenever a removal action is proposed. (See Sections 4.3.2 and 4.3.3 for more information.)

Other outreach initiatives have included fact sheets, a public website, and regular safety briefings with local public safety officials prior to munitions investigations.

## 3.3 Community Concerns

### 3.3.1 Community Interviews

In October 1991, USACE conducted community interviews to improve understanding of community concerns about the former Raritan Arsenal and the ordnance and hazardous waste activities. Interview participants included local citizens, and representatives from environmental groups, civic groups, local agencies, neighborhood associations, and businesses located on the former Raritan Arsenal. In addition, USACE reviewed transcripts from previous public meetings, correspondences, and newspaper articles. The results of these interviews were used to prepare the 1992 CRP.

In 2006, a USACE contractor conducted interviews with key stakeholders as part of updating the 2003 Management Action Plan. Stakeholders interviewed were the NJDEP Case Manager, Township of Edison Public Health Officer, Middlesex County Parks Director, representatives of the large property owners (Federal Business Centers and Summit Associates, Inc.), and a representative of Coalition for a Better Edison. The purpose of these interviews was to identify stakeholder goals and priorities for the ongoing remediation of remaining munitions and hazardous and toxic wastes. According to the 2007 Revised Draft Management Action Plan:

“The stakeholders generally were in agreement that the goals of the environmental restoration should focus on ensuring that remaining groundwater contamination does not pose a risk to current occupants of Raritan Center by impacting indoor air quality. Additional priorities include removing any remaining ordnance, both from soils and from Raritan River sediments, and expediting the removal of toxic and hazardous wastes to allow for development of underutilized parcels of the former Raritan Arsenal.”

In April 2012, in order to update the CRP, USACE conducted interviews and distributed questionnaires to interested persons who responded to a public notice requesting public input. A total of 18 community members participated, including 10 owners (or their representatives) of property on the former Raritan Arsenal, five individuals who work on the site, four local government officials, three individuals who live on or very near the site, and three environmental group members (some participants are counted in more than one of these categories).

### 3.3.2 Key Community Concerns - 1992

This section summarizes themes and some of the specific key concerns expressed by participants in the 1991 community interviews. The 1992 CRP provides more details about specific community concerns.

#### Health and Safety

In general, the community felt that there are many unanswered questions about potential health affects related to the site. Employees were concerned about health risks associated with working in offices built near or on top of soils contaminated with hazardous waste and that health risks might increase when soils are disrupted during the investigation and remediation. Participants were also concerned about the site’s effect on water quality in the Raritan River and groundwater under the site, and about cleanup standards for ordnance remediation. Participants were specifically concerned about mustard agent and asked if there were evacuation plans in the event of an accident involving mustard agent.

## Scope of the Study

Participants wanted to know if there were any records that indicated the use of radioactive material at the site, and if the USACE investigation would include sampling for radioactive contamination. (Subsequent investigation determined that radioactive waste is not an issue at the former Raritan Arsenal.) Citizens wanted to make sure that potential contamination outside of the 17 Investigation Areas also would be addressed. (Additional Investigation Areas have been added since that time.)

## Public Involvement and Information

Interview participants explained that the community needed access to more information about site activities, sampling results, and potential health and environmental risks. One respondent noted that, “when information is not constant, the public thinks nothing is being accomplished.” They asked for regular public meetings, sending meeting announcements to a mailing list, using videos to communicate technical information, distribution of information to newspapers, and keeping local officials informed so they can answer public questions.

## Agency Credibility

Because several USACE Districts and Divisions were involved in the remediation at that time, management of the site appeared fragmented and citizens were confused about where to call for information. Citizens were also concerned that regulatory agencies, specifically EPA and NJDEP, would not be involved in an oversight capacity. (Because the former Raritan Arsenal is not a Superfund site, NJDEP is the lead environmental regulatory agency.)

## Future Land Use

Citizens were concerned that a proposed mixed-used development (known as “Rivertown”) in the southern portion of the former Raritan Arsenal might destroy existing wetlands and questioned whether it should be built on an area with known hazardous waste and ordnance contamination. (This proposed development did not happen.)

### 3.3.3 Key Community Concerns - 2012

This section presents themes and specific key concerns expressed by participants in the 2012 community interviews. **Appendix B** of this CRP provides a more detailed summary of the 2012 interview responses. Because interview and questionnaire responses are confidential, individuals are not named.

Overall, the level of community interest and concern reveals a mature cleanup program, with which most directly affected stakeholders are comfortable, and a community at large that is not highly concerned about what’s happening on a self-contained, industrial area.

On a scale of 1 to 10, with 10 being the most concerned about the environmental and munitions cleanup, the average level of concern was less than 5; two participants rated their level of concern at 10 and three participants at 1 or less. Only three local residents had heard comments or questions from other residents, while seven property owners or local officials had heard comments or questions from their tenants or constituents.

Because the community is growing and changing, new residents are not aware of the site’s history. The twice-yearly public meetings that USACE holds were described as particularly helpful to residents. Occasionally, a media article, an unexpected munitions discovery, or activities like the recent removal action at Area 18E in winter 2011 and 2012, which was visible from Woodbridge Avenue, briefly raises questions and concerns.

Property owners and local officials reported that sharing what they know about the site and USACE cleanup actions generally satisfies those who have questions. Interview participants who were not aware of the site before the interviews wanted to know more about it.

Stakeholders were described as “cautiously concerned” about the possibility of munitions or contaminated soil being discovered, but confident that USACE is “just a call away.” Onsite landowners are financially concerned and want to see the cleanup completed, but without compromising on safety.



## Health and Safety

Fewer participants in the 2012 interviews were strongly concerned about potential health and safety risks related to the site. Specific concerns included: protecting human health and the environment from exposure to hazardous and toxic waste, vapor intrusion, brush fires, and the possibility that firefighters responding could encounter munitions.

## Public Involvement and Information

Stakeholders Working Group members and local government officials expressed satisfaction in the type and frequency of information they have been receiving. About half of the interview and questionnaire participants were aware of the public website. Over half had attended public meetings and all of those felt that the information was presented effectively. One respondent described “timely and effective communications.”

Participants from the fairly new CentrePlace at Edison condominium community (onsite) and Millbrook Village apartment community (adjacent to the site) were not aware of the history of environmental remediation at the former Raritan Arsenal, indicating a need to focus outreach on residents of these communities – in particular, when work is being done near that area of the site.

Newspapers (44 percent) and television (39 percent) remain the primary means by which local residents get news and information, indicating the need to develop or continue relationships with members of the media who have learned about the site and will put out information to the public.

## Agency Credibility

The single point of contact is key success factor for the community relations program. About half of the 2012 participants had contacted an official for information about the former Raritan Arsenal. Of those, 78 percent had contacted the USACE Project Manager and 56 percent had contacted the NJDEP case manager (respondents could identify more than one); one respondent had asked the Township Health Department and one had asked their Congressman. Nearly 90 percent said that the officials they contacted had been responsive to their questions.

## Future Land Use

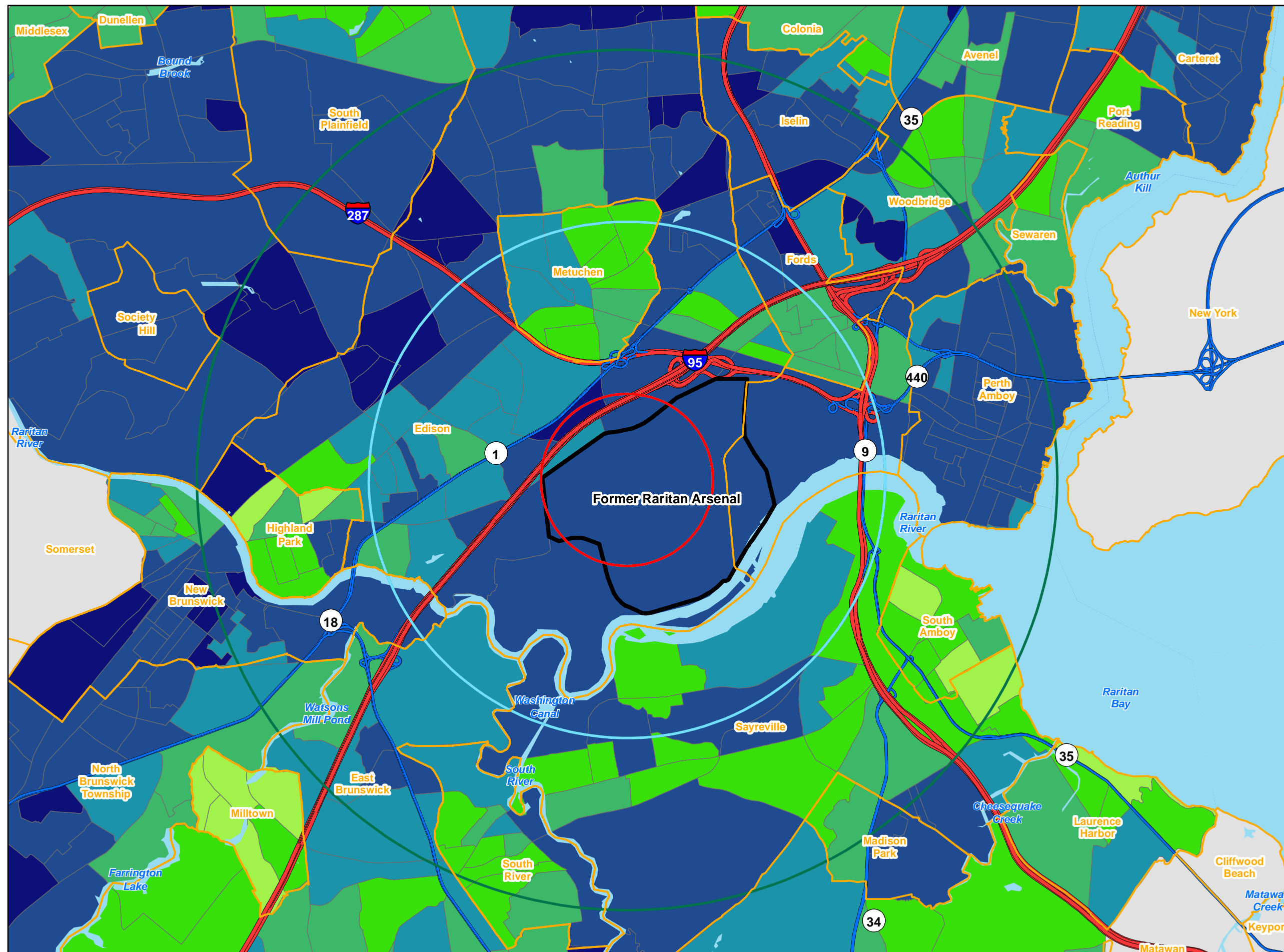
Some participants emphasized the need for proper and effective cleanup of contamination prior to any potential recreational or industrial and transportation development of the riverfront and new access roads.

### 3.3.4 Response to Concerns and Communication Needs

Nearly all (83 percent) of 2012 participants were interested in being kept informed. Most respondents feel that information should be provided either quarterly (33 percent) or as needed (44 percent). A variety of outreach methods will best serve the community. People said they would like to receive information in the following ways:

- E-mail: 72 percent
- Regular mail: 11 percent
- Public meetings: 33 percent
- Website: 33 percent
- Newspaper articles: 22 percent (specific suggestion: press releases in local newspapers)
- Television: 17 percent (specific suggestion: news pieces on Channel 12, New Jersey Network public access channel) every few years
- Site visits: 11 percent

To be responsive to community concerns, USACE will keep local stakeholders informed and aware of opportunities to participate in decision making throughout completion of environmental remediation at the former Raritan Arsenal. Specific ongoing and planned activities are described in Section 4.

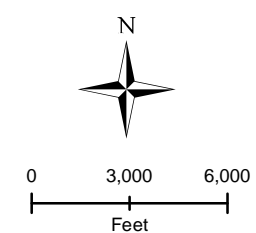


**LEGEND**

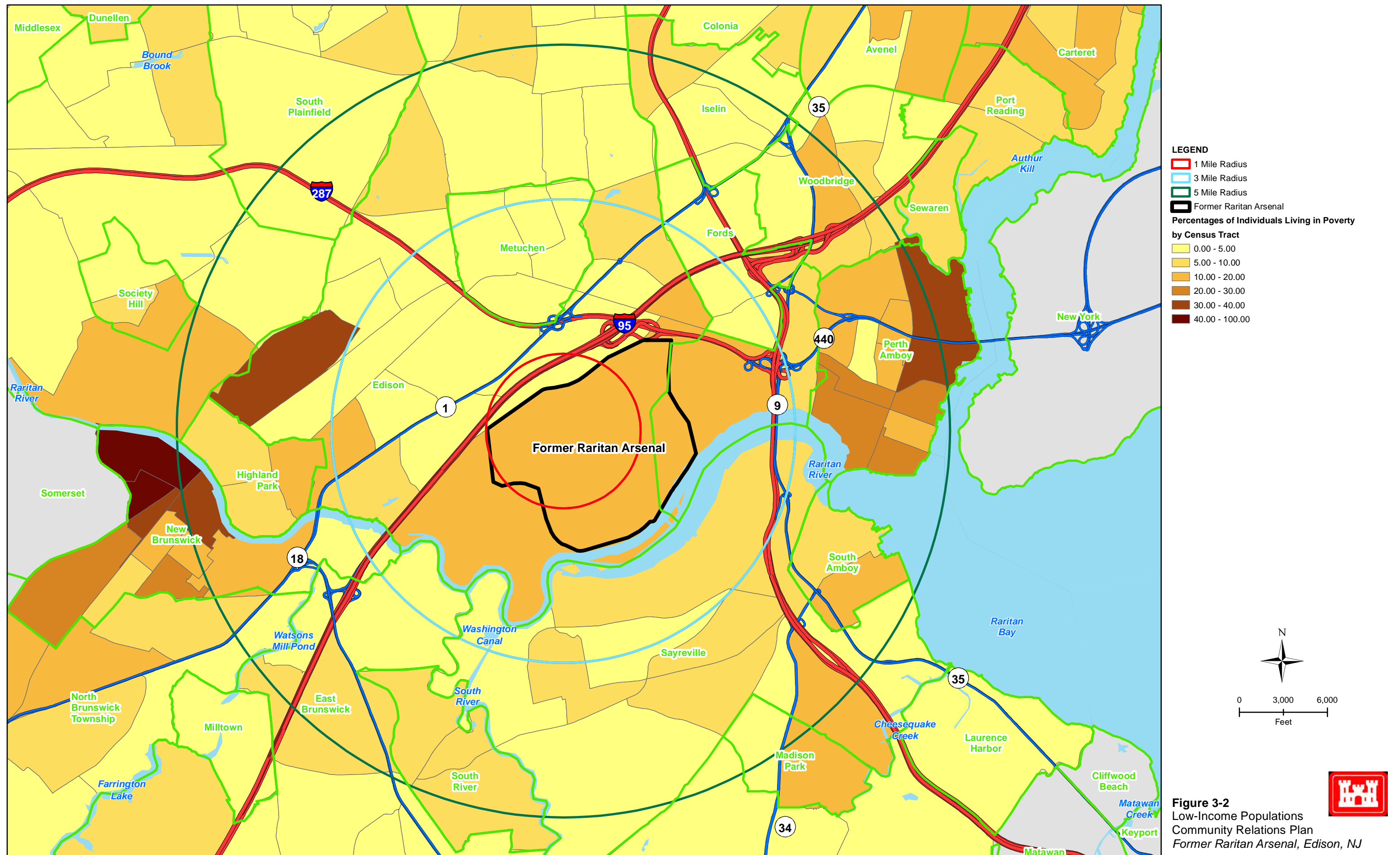
- 1 Mile Radius
- 3 Mile Radius
- 5 Mile Radius
- Former Raritan Arsenal

**Percentages of Minority Population by Block Group**

- 0.00 - 5.00
- 5.00 - 10.00
- 10.00 - 20.00
- 20.00 - 30.00
- 30.00 - 40.00
- 40.00 - 70.00
- 70.00 - 100.00



**Figure 3-1**  
 Minority Populations  
 Community Relations Plan  
 Former Raritan Arsenal, Edison, NJ



# USACE Community Relations Program

---

The USACE, New York District, will promote open, two-way communications with the community and provide opportunities for meaningful involvement. Understanding the community's interests enables the project delivery team to respond to public interest in and concerns about the environmental investigation, with specific attention to health, safety, and environmental issues of concern to the community.

USACE's community relations program includes meetings twice a year, fact sheets, a web site, and frequent personal contact with affected property owners. Elements of the community relations program are dynamic and will be updated, as necessary, to ensure the continued effectiveness of the program.

## 4.1 Keeping the Community Informed

### 4.1.1 Designate Points of Contact

The individuals listed in **Table 4-1** currently serve as the USACE and NJDEP points of contact for inquiries from stakeholders, the public, and the media. The USACE point of contact is onsite, in office trailers located on the EPA portion of the former Raritan Arsenal, at least several days per week.

USACE established the onsite office and single point of contact in response to the 1991 community interviews. As several 2012 community interview respondents noted, the close working relationship between the USACE Project Manager and stakeholders has been important to the success of the cleanup program. In addition, having the same NJDEP case manager for many years has provided invaluable institutional knowledge for stakeholders to draw upon.

TABLE 4-1

**Public Points of Contact**
***Community Relations Plan – Former Raritan Arsenal***

Sandra L. Piettro, Project Manager	Anthony Cinque, Case Manager
U.S. Army Corps of Engineers – New York District 2890 Woodbridge Avenue Edison, NJ 08818 917-790-8487 Sandra.L.Piettro@usace.army.mil	New Jersey Department of Environmental Protection Bureau of Case Management, 5th Floor 401 East State Street, CN-028 Trenton, NJ 08625 609-633-1416 Anthony.Cinque@dep.state.nj.us

### 4.1.2 Maintain Administrative Record File and Information Repository

**Description:** The Administrative Record File is a collection of documents used by USACE and NJDEP in reaching decisions about cleaning up the former Raritan Arsenal. This file includes technical plans and studies, proposed cleanup plans, health and ecological risk evaluations, Decision Documents, significant correspondence among government agencies, records of notifications to and participation by the public, and responses made by USACE to public comments. CERCLA requires that an Administrative Record File documenting the selection of a response action be established at or near the facility.

The Information Repository is required to be at a convenient location where community members can access the Administrative Record File and can read official documents about the status of the environmental restoration program at the former Raritan Arsenal.



**Goal:** To provide access to site-specific information so that the public may make informed comments on the selection of environmental restoration actions at the former Raritan Arsenal.

**Method:** The Information Repository and Administrative Record File for the former Raritan Arsenal are maintained by USACE, New York District, in their onsite offices at the former Raritan Arsenal. When public interest was high during the 1990s, the Information Repository was established at two locations: the Edison Public Library and the USACE onsite office. When documents are released for public comment, USACE announces the availability of the document, providing the point of contact for information about accessing the document and the Administrative Record File.

Use of the Information Repository is low. Nearly 80 percent of the 2012 interview and questionnaire respondents had never visited it. Reviewing the full Administrative Record File requires making an appointment, because the USACE offices are located on the secure and gated EPA property. All public notices and fact sheets have advised interested people to contact the USACE Project Manager for more information, which has not led to many requests to view the Administrative Record.

Several community interviews recommended that USACE make a copy of the Administrative Record File available on compact discs (CDs) at another more easily accessible location, such as the Middlesex County College Library or Edison Township Public Library. To determine the need for an alternative location, USACE will advertise the availability of the onsite Administrative Record File (upon appointment) on the public website (see Section 4.1.3) and in all public notices.

**Timing:** The Administrative Record File was opened as soon as response actions began at the former Raritan Arsenal, and it will remain open until the last Decision Document has been signed. The Administrative Record file is continuously updated with copies of new documents.

#### 4.1.3 Maintain Public Website

**Description:** Internet technology allows information to be made available quickly and to be delivered in a user-friendly manner.

**Goal:** To provide a resource for people to obtain information about the former Raritan Arsenal cleanup program at their own convenience.

**Method:** The USACE maintains a public information web site for the former Raritan Arsenal at <http://www.nan.usace.army.mil/Missions/Environmental/EnvironmentalRemediation/FormerlyUsedDefenseSites/FormerRaritanArsenal.aspx>. The website provides public meeting notices, fact sheets, a description of the property and its history, public meeting presentations, and maps.

As recommended by 2012 interview respondents, USACE will work with the Township of Edison to put a link from the Home page of the Township website to the USACE Raritan Arsenal public website. Currently, there is a link from the Township's Environmental Health Inspections & Services web page, which is not as visible.

**Timing:** Updated twice per year, or more frequently as needed.

#### 4.1.4 Maintain a Contact List of Interested Parties

**Description:** A list of persons known or anticipated to be interested in environmental restoration and munitions response activities at the former Raritan Arsenal.

**Goal:** To provide information directly to stakeholders about Environmental Restoration Program activities.

**Method:** USACE maintains an e-mail and mailing list of affected property owners and local officials who need to be notified regularly of USACE activities on the site. Lists of key contacts are found in **Appendixes C through F** (these lists do not include all onsite property owners; to protect privacy, the names and e-mail or mailing addresses of private individuals are not included).

In January 2011, USACE mailed a notice to all property owners within the Raritan Arsenal boundary, after an unexpected discovery of an inert munitions item during a construction project. The purpose was to remind other property owners that it is possible to find isolated munitions in unexpected locations and to inform them about the safety precautions to take if a suspect item is found. Similar mailings to property owners will be made periodically. In 2012, USACE mailed a notice to all onsite property owners and selected nearby property owners and environmental group leaders, to request participation in CRP interviews and determine interest in establishing a **Restoration Advisory Board (RAB)**.

During the 2012 interviews, 72 percent of the respondents expressed interest in an e-mail list. Therefore, USACE will consider adding establishing a general e-mail list, to provide public meeting notices and occasional updates about the former Raritan Arsenal to other interested persons. The e-mail list will include persons who have expressed interest during community interviews or at public meetings and community groups with an interest in the site. Other interested individuals will be added to the list upon request.

**Timing:** As needed.

#### 4.1.5 Publish Notices in Local Newspapers

**Description:** A concise announcement of upcoming public meetings and other events related to the Environmental Restoration Program.

**Goal:** To notify interested persons about events and activities related to the former Raritan Arsenal cleanup program.

**Method:** USACE places public notices in the *Middlesex County News/Star Ledger* and the *Home News Tribune*. Notices are placed in the legal advertising section, because that is where public meeting notices are customarily found in these newspapers.

USACE will continue to place paid public notices to announce public meetings and public comment periods for environmental restoration documents in local newspapers. For greater visibility, notices may be placed as display advertisements, rather than as legal notices. As suggested by 2012 interview respondents, USACE will also place meeting notices in the Community Calendar sections of the *Criterion News Advertiser*.

Contact information for these newspapers is provided in **Appendix F**. Example public notices can be found in **Appendix G**.

As recommended by 2012 interview respondents, USACE will work with the Township of Edison to put a link from the Township website to the USACE website, and will consider announcing public meetings on the Township Facebook page.

**Timing:** Public notices are placed to advertise the twice-yearly public meetings (see Section 4.3.3) and as needed, to advertise public comment periods and additional public meetings for environmental remediation Decision Documents.

#### 4.1.6 Prepare and Distribute Fact Sheets

**Description:** Fact sheets and newsletters are concise documents (typically 1 to 4 pages for a fact sheet, more for a newsletter) written to summarize information from key documents, such as RIs and Proposed Plans, and to update the public about the status of the cleanup program. They use language suitable for non-technical audiences and may include straightforward graphics as needed to illustrate technical issues and concepts.

**Goal:** To provide stakeholders with accurate, easy-to-understand information and to promote understanding of the issues and approaches involved in USACE environmental investigations and munitions response activities.

**Method:** USACE will continue to develop and distribute periodic fact sheets providing the community with the site-wide status of the former Raritan Arsenal cleanup. As appropriate, fact sheets may also focus on cleanup milestones at specific environmental or munitions sites of particular interest to the community.

USACE posts fact sheets on the public website and distributes them at public meetings. Fact sheets could also be distributed by mail or e-mail, placed in the public library, and provided to environmental and other interested civic groups for distribution to their memberships.

**Timing:** As needed, but at least twice yearly to coincide with the regularly scheduled public information meetings (see Section 4.3.3).

Example fact sheets can be found in **Appendix G**.

## 4.2 Bringing Issues of Concern to the Attention of the USACE

### 4.2.1 Discovery of Munitions or Suspected Munitions

Munitions or munitions related items can come in many shapes and sizes, and may be visible on the surface or partially buried, uncovered during excavation activities, or exposed by erosion and fires. When anyone encounters or believes that they may have encountered a munition or munition related item, they should consider it extremely dangerous.

The USACE encourages the public to learn the 3R's of explosive safety.



**Recognize** - recognizing when you may have encountered a munition is key to reducing the risk of injury or death. If you encounter or suspect you may have encountered a munition, consider it extremely dangerous. Remember, munitions are sometimes hard to identify.

**Retreat** - If you encounter or suspect you may have encountered a munition, do not touch, move or disturb it, but immediately and carefully (*do not run*) leave the area following the same path on which you entered. If you can, mark the general area, not the munition, in some manner (e.g., with a hat, piece of cloth, or tying a piece of plastic to a tree branch).

**Report** - When you think you may have encountered a munition, notify your local law enforcement – call 911.

Civil authorities are primarily responsible for rendering safe and disposing of improvised explosives devices, nonmilitary commercial explosives, or similar dangerous items that are discovered. Responses to military munitions will vary depending on the severity of the hazards presented and the need for a rapid response. In situations where military munitions create an actual or potential imminent threat to human health and the environment (including property) and where immediate action is needed to control, mitigate or eliminate the threat, Emergency Ordnance Disposal (EOD) personnel will respond to such situations. EOD units are on call 24 hours every day to provide emergency response teams in support of military and public safety and/or law enforcement authorities at the federal, state, and local levels.

Multiple military munitions found within a discrete location, or repeat findings of military munitions within a discrete area may indicate the need for a planned munitions response. In such cases, the responding EOD unit

may advise the requesting authority (e.g., Edison Police Department) to contact the USACE New York District for determinations of support.

## 4.2.2 Other Issues and Concerns

Aside from formal meetings and scheduled information sessions, a process is in place for the public or other interested parties/stakeholders to bring issues of concern to the attention of the USACE. Issues of concern should be directed (via letter, e-mail or phone) to the point of contact listed on the USACE public information website for the former Raritan Arsenal:

<http://www.nan.usace.army.mil/Missions/Environmental/EnvironmentalRemediation/FormerlyUsedDefenseSites/FormerRaritanArsenal.aspx>.

The USACE will then provide a response to that concern within 30 calendar days and will take appropriate action for any follow through activities. The USACE will also provide further information related to the outcome of any action/response taken by the USACE or other agencies/organizations to the person or persons initiating the original concern, as well as to any other relevant stakeholders.

## 4.3 Providing Opportunities for Community Involvement

### 4.3.1 Community Relations Plan

**Description:** A written plan of action that provides for interaction with stakeholders, the public, local officials, and environmental groups, and obtaining their input at appropriate points during the cleanup process.

**Goal:** To provide a foundation for maintaining two-way communication with the public, to create an understanding of environmental restoration and related actions, to ensure public input into decision-making processes related to affected communities, and to make certain that USACE is aware of and responsive to public concerns.

**Method:** The USACE CRP for the former Raritan Arsenal is based on interviews with Stakeholder Group members, local officials, environmental groups, and other interested community members. A summary of the 2012 interview results is included in **Appendix B**. For privacy and confidentiality, the names of people interviewed are not published.

The CRP will be made available to the public in the Information Repository, Middlesex County College Library, and on the public website.

**Timing:** A CRP was initially prepared for the former Raritan Arsenal in 1992. This CRP was prepared in 2012 and will be updated again in approximately 5 years, or if community interest and concern notably increases before that time.

### 4.3.2 Stakeholders Working Group

**Description:** The keystone of the USACE community relations effort at the former Raritan Arsenal is the Stakeholders Working Group. This group is composed of representatives of the major property owners, NJDEP, EPA (as a property owner, not as a regulator), and Edison Township, Coalition for a Better Edison / Edison Greenways, and Edison Wetlands Association. A local newspaper reporter sometimes attends these meetings, which helps get information out to the public in advance of public meetings. **Appendix C** provides contact information for the members of the Stakeholders Working Group.

**Goal:** To exchange information on a regular basis with stakeholders in the cleanup program.

**Method:** USACE provides an update of completed and planned activities at the Stakeholders Working Group meetings. Before each meeting, USACE asks members for items they wish to discuss, then distributes an agenda and an advance copy of the presentation. Meetings are held in the daytime, because most members are attending



as part of their working day. After the Working Group meeting, USACE solicits feedback from Working Group members before the presentation is prepared for the public information meeting (several weeks later).

Between meetings, the USACE Project Manager communicates regularly with individual Working Group members and other property owners to coordinate work scheduled on their property and to inform them of activities that could affect their operations or might otherwise be of interest to them. Working Group members can call the USACE Project Manager whenever an issue arises that might require USACE attention.

**Timing:** The Stakeholders Working Group meets twice a year, usually in the spring and fall, about 1 month before the regular public information meetings (see Section 4.2.3).

### 4.3.3 Hold Public Meetings

**Description:** A public meeting is a gathering where USACE and NJDEP can hear the public's views and concerns about an action or proposal and provide the public with updated information on the progress of the cleanup process. Public meetings must be held upon request whenever a formal public comment period is required under CERCLA regulations.

**Goal:** To provide information to the community about environmental restoration activities, provide a forum for the community to ask questions, and allow the community to voice any concerns they may have.

**Method:** To encourage the greatest possible participation, meetings are held in the evening and at locations that offer a well-equipped meeting room, are convenient to local community residents, and do not require entry to the EPA property through the security gate. Locations that have been successfully used for recent meetings are listed in **Appendix H**.

USACE advertises meetings in local newspapers (see Section 4.1.4) approximately 2 weeks before the meeting date and posts the meeting information on the public website. Meetings will include presentations, displays, and an opportunity to ask questions and provide comments. Meetings held to solicit comments during a formal public comment period will use a court reporter to generate a verbatim transcript of oral comments, in addition to written comments.

USACE will continue to place recorded presentations on the township's local access television station, for those who are unable to attend meetings or do not use the Internet as an information source.

**Timing:** USACE holds public information meetings twice yearly and additional meetings whenever a formal public comment period is required, for example, upon completion of Proposed Plans. USACE also will hold a public meeting whenever an environmental restoration or munitions response activity is planned that would be expected to generate a high level of public interest or concern.

### 4.3.4 Provide Public Comment Periods

**Description:** Public comment periods are held to solicit public input on major decisions in the CERCLA process, primarily the selection of removal actions or final cleanup remedies. At the conclusion of a public comment period, a Responsiveness Summary is prepared to summarize relevant comments received from the public.

**Goal:** Public comment periods provide community members with an opportunity for meaningful involvement in the process and provide the USACE with valuable information for use in making decisions. Responsiveness Summaries document how the USACE has considered those comments during the decision-making process.

**Method:** USACE will make documents available for public review – an EE/CA report for planned removal actions and a Proposed Plan for remedial actions – and will announce a 30-day public comment period by publishing a notice in local newspapers and on the public website (see Sections 4.1.5 and 4.1.3). A Responsiveness Summary will be issued as part of the Decision Document that follows a Proposed Plan, or the Action Memorandum that follows an EE/CA.

**Timing:** A comment period lasts a minimum of 30 days. The public comment period can be extended an additional 30 days if requested by the public. Public meetings are held within the public comment period. The Decision Document and Action Memorandum will be made available for public review in the Information Repository before the cleanup action begins.

### 4.3.5 Evaluate Interest in a Restoration Advisory Board

**Description:** A RAB is an advisory group for the restoration process, with members from the local community, affected property owners, USACE, environmental regulatory agencies, and other interested parties. RAB community members should reflect the diverse interests within the local community and should live or work in the affected community or be directly affected by the cleanup program in other ways.

**Goal:** To serve as a forum for effective communication among community members, USACE, and regulatory agencies to represent the interests of the general public and to serve as a community point of contact for questions and concerns about the cleanup program.

**Method:** The DoD RAB Rule (32 CFR Part 202), issued May 2006, and the accompanying Restoration Advisory Board Rule Handbook (Office of the Secretary of Defense, March 2007) provide a framework for promoting participation in the environmental restoration process. That includes what activities can be performed by a RAB, how to establish a RAB, the requirement for individualized RAB operating procedures, the responsibilities of RAB members, and the steps required to adjourn a RAB when a site has been remediated, or to dissolve a RAB when it is not functioning.

The DoD RAB Rule states that:

“...a RAB should be established when there is sufficient and sustained community interest, and any of the following criteria are met:

- (1) The closure on an installation involves the transfer of property to the community,
- (2) At least 50 local citizens petition the installation for creation of a RAB,
- (3) Federal, state, tribal, or local government representatives request the formation of a RAB, or
- (4) The installation determines the need for a RAB. To determine the need for establishing a RAB, an installation should: (i) Review correspondence files (ii) Review media coverage, (iii) Consult local community members, (iv) Consult relevant government officials, and (v) Evaluate responses to communication efforts, such as notices placed in local newspapers and, if applicable, announced on the installation Web site.”

Closure of Raritan Arsenal and property transfer took place decades before DoD began establishing RABs. USACE has never received a citizens’ petition requesting a RAB, and the regulatory agencies have indicated only that they would support an official DoD RAB, if USACE determines one is necessary.

USACE established a Technical Review Committee for the former Raritan Arsenal in 1991, in response to community desire for more frequent updates about the cleanup process. In 2001, the Technical Review Committee was re-designated as a RAB.

After the RAB Rule was published, USACE evaluated the group’s operations for compliance. Because there had not been a formal process of recruiting additional community members, USACE published a notice in 2006 to solicit community interest in serving on a RAB. This effort did not result in additional community members. Therefore, the existing group has continued to function as a Stakeholders Working Group, composed of representatives from the major property owners, local government, and two local environmental groups.

At a December 10, 2009, public meeting, USACE again requested community input on whether an official DoD RAB should be established. A notice of the public meeting and request for input on establishing a RAB was published on November 16 through 20, 2009. USACE received 13 letters from the local community, from three interested citizens, six property owners of the former Raritan Arsenal site, and members of two community groups. Seven of these individuals expressed interest in establishing an official DoD RAB, but the remaining letters recommended that USACE continue to conduct public outreach by hosting public information meetings and

coordinating with the property owners and regulatory agencies to communicate the progress of site work under the FUDS program. In May 2010, USACE determined that this input did not show sufficient community interest to support a RAB.

In April 2012, USACE again placed a public notice and held a public meeting to determine interest in establishing a RAB (see notice in Appendix G). Persons interested in becoming RAB members were encouraged to attend the meeting or contact the USACE Project Manager. Only two people filled out a RAB Community Interest form. The 18 individuals who were interviewed for the CRP update were asked if they were interested in becoming RAB members; 12 of them replied that they might be, while six either were not interested or did not see the need for a RAB. In July 2012, USACE determined that this input did not show sufficient community interest to support a RAB.

**Technical Assistance for Public Participation (TAPP):** Under 32 CFR Part 203 (February 1998), TAPP is available for a RAB to obtain outside technical assistance, if other resources are not available to help them understand and provide input into Environmental Restoration Programs. The RAB identifies a project and DoD procures a technical assistance contractor. Funding is provided for up to \$25,000 per year or 1 percent of the total restoration cost, whichever is less, with a limit of \$100,000 total over the life of the program at any one facility. The funding is taken from the budget for the program at the facility.





















The Stakeholders Working Group was asked in 2009 if technical assistance through TAPP would be useful to them, which would be another reason to establish a formal DoD RAB. The members advised USACE that existing technical resources (including consultants hired by the large property owners) were sufficient and that USACE funding was better spent on the cleanup program.

**Timing:** USACE conducted public outreach to determine the need for a RAB in 2006, 2009, and 2012. USACE will continue to evaluate community interest in establishing a RAB approximately every 2 years, in accordance with the DoD “RAB Rule.”

## 4.4 Projected Schedule for Community Relations Activities

The schedule for community relations activities will be based on times identified during the community interviews. To meet the information desires of the community and allow area residents to participate in the decision-making process, USACE may schedule public involvement activities throughout the environmental action process. The activities comply with the public involvement requirements of the National Contingency Plan and CERCLA. **Table 4-2** provides a tentative schedule for anticipated CERCLA milestones.

TABLE 4-2  
**Community Relations Schedule**  
*Community Relations Plan*

Activity	Community Involvement Plan	Stakeholders Working Group	Information Repository, Administrative Record File	Web Site	Fact Sheet	Public Notice	Public Comment Period	Public Meeting	Responsiveness Summary
Twice-yearly status updates		○		○	○	○		○	
Preliminary Assessment/ Site Inspection									
Munitions Response: Initial prioritization		●				●			
Munitions Response: Change in prioritization or scheduling		●							
Remedial Investigation/ Feasibility Study	●	○	●	○	○				
Proposed Plan					● (a)	●	●	●	
Decision Document						●			●
Remedial Design/ Remedial Action					○	○			
Removal Actions (6 months planning)					○	●	●		
Engineering Evaluation/ Cost Analysis					○	●	●	○	●

a. Proposed Plans are typically developed in a fact sheet format to meet this requirement.



Periodic updates



Ongoing activity



Required activity



Discretionary activity

## SECTION 5

# References

---

Not all documents referenced in the formulation of this document are specifically cited in the text.

Berger, Joseph. 2008. New York Times article “Migrations - A Place Where Indians, Now New Jerseyans, Thrive.” April 27, 2008.

Borough of Sayreville. 2012. Website: <<http://www.sayreville.com>>

CentrePlace at Edison. 2012. Website: <<http://www.centreplace.org>>

Chang, Kathy. 2010. Edison/Metuchen Sentinel article “Arsenal cleanup moving along, fed official says.” June 23, 2010.

Durett, Jacqueline. 2012. Edison/Metuchen Sentinel article “Cleanup work progressing at ex-Raritan Arsenal site.” May 2, 2012.

Edison Township. 2012. The Official Web Site of Edison, NJ < <http://www.edisonnj.org>>

Dames & Moore. 1992. *Community Relations Plan for the Former Raritan Arsenal, Edison, New Jersey*. Prepared for U.S. Army Corps of Engineers. March 1992.

Gerszberg, Rochelle Lauren. 2005. Metuchen Sentinel article “Military Shells Found at Building Site Near Arsenal.” October 5, 2005.

Hanley, Robert. 1991. New York Times article “In Edison, a Crossroads of Diversity.” April 17, 1991.

Heyer, Gruel & Associates. 2009. *Master Plan, Township of Woodbridge, Middlesex County*.

Letterkenny Army Depot. 1963. Statement of Clearance - Decontamination Operations, Raritan Arsenal.

Makin, Bob. 2011. MyCentralJersey.com article “\$50M Raritan Arsenal site cleanup planned.” November 13, 2011.

Making it Possible to End Homelessness. 2012. Website < <http://www.miphnj.org/amandla-crossing> >

Nore, Robert. 1992. Raritan Arsenal, Unexploded Ordnance Removal Project. Edison, New Jersey. U.S. Army Corps of Engineers, Huntsville Division.

Office of the Secretary of Defense. 2007. *DOD Restoration Advisory Board Rule Handbook*. February

Piazza & Associates. 2006. Website <<http://www.piazza-and-associates.com/afhousing>>

Ryvenco. 2012. Website <<http://www.ryvenco.com/new-home/centerplace-at-edison-garden-homes>>

Schoor Depalma. 2003. *Edison Municipal Master Plan*. Prepared for the Edison Planning Board. Adopted August 2003.

Sustainable Jersey. 2012. Website < <http://www.sustainablejersey.com>>

Thompson, Brian. 2012. NBC New York article: “Cleanup Underway at Site of Former Military Arsenal in New Jersey”

U.S. Army Corps of Engineers. 2004. *USACE Engineer Regulation 200-3-1, Environmental Quality—Formerly Used Defense Sites Program Policy*.

U.S. Army Corps of Engineers. 2011. *Engineer Pamphlet 200-3-1, Public Participation in the Defense Environmental Restoration Program for Formerly Used Defense Sites*.

U.S. Census Bureau. 2000. Table DP-1 Profile of General Demographic Characteristics: 2000. Census 2000 Summary File 1 (SF 1) 100-Percent Data.

U.S. Census Bureau. 2010. Table DP-1, Profile of General Population and Housing Characteristics: 2010. Census 2010.

U.S. Census Bureau. 2010. Table DP03, Selected Economic Characteristics. 2010 American Community Survey 1-Year Estimates.

U.S. Census Bureau. 2010. Table DP03, Selected Economic Characteristics. 2008-2010 American Community Survey 3-Year Estimates.

U.S. Census Bureau. 2010. Table DP02, Selected Social Characteristics in the United States. 2008-2010 American Community Survey 3-Year Estimates.

U.S. Census Bureau. 2010. Table DP02, Selected Social Characteristics in the United States. 2010 American Community Survey 1-Year Estimates.

U.S. Environmental Protection Agency. 2005. *Superfund Community Involvement Handbook* (USEPA 540-K-05-003).

Van Develde, Elaine. 2004. Metuchen Sentinel article "Air at Raritan Center safe, Army Corps says." April 20, 2012.

Weston Solutions, Inc. 2007. *Revised Draft Management Action Plan for the Former Raritan Arsenal, Edison, New Jersey*. Prepared for U.S. Army Corps of Engineers (Contract Number DACA31-00-D0023, Delivery Order 56, DCN RA56-010306-AAAD). January 2007.

Woodbridge Township. 2012. Woodbridge Twp New Jersey < <http://www.twp.woodbridge.nj.us> >

Woodbridge Township. 2012. The Woodbridge News. Volume 6, Issue 1, February 2012.

## Appendix A

### History and Status of Investigation Areas

---

## APPENDIX A

# History and Status of Investigation Areas

TABLE A-1

History and Status of Investigation Areas on the Former Raritan Arsenal

*Community Relations Plan*

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
Commercial/Industrial	Area 2	8.2 acres within the current Raritan Center reportedly used for ordnance demolition following World War I and into the early 1930s. The portion of Area 2 located south of the Raritan Center Parkway is completely developed with buildings, pavement or landscaping. The portion of Area 2 located north of the Raritan Center Parkway remains undeveloped.	<ul style="list-style-type: none"> <li>• 1993 (Phase I RI) - UXO removal</li> <li>• 1993 - UXO removal in Area 2A</li> </ul>	PAHs, mercury	Volatile Organics	Removal Action and Remedial Investigation Summary Report being prepared.	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
Commercial/Industrial	Area 3	25 acres within the current Raritan Center used following World Wars I and II, and through 1948 for ordnance demolition and burning. Slightly more than half of this area has been developed with buildings, pavement or landscaping.	<ul style="list-style-type: none"> <li>• 1988 - UXO removal</li> <li>• 1992 - UXO removal</li> <li>• 1993 - UXO removal</li> <li>• 1994 - UXO removal</li> </ul>	PAHs, Pesticides, Arsenic	Volatile Organics	Removal Action and Remedial Investigation Summary Report being prepared.	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
Commercial/Industrial	Area 4	25 acres within the current Raritan Center used from end of World War I into the early 1920s by the Columbia Salvage Corporation and Delaware Steel and Ordnance Company for demilitarization of various ammunition from 75mm to 12-inch guns. This process included a TNT melt-out and	<ul style="list-style-type: none"> <li>• 1988 - UXO removal</li> <li>• 1991 - UXO removal</li> <li>• 1994 - UXO removal</li> <li>• 1995 - UXO</li> </ul>	PAHs, PCBs, TNT, DNT	TNT, DNT, arsenic, thallium	Removal Action and Remedial Investigation Summary Report being prepared.	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.



TABLE A-1

**History and Status of Investigation Areas on the Former Raritan Arsenal****Community Relations Plan**

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
		<p>salvage operation that resulted in large quantities of TNT contamination on the surface and several feet below grade.</p> <p>Block 390 CC, Lot 1 (previously referred to as a "portion of Area 4") was investigated from 1987 to 1999, activities includes a soil remedial action (which comprised the removal and offsite disposal of 12,000 lbs of bulk TNT and various ordnance components). Concentrations of TNT and DNT are present in the soil at levels in excess of the NRDCSCC and IGWSCC.</p> <p>This area is currently covered with a remedial cap (as an engineering control) and a Deed Notice is currently in place (as an institutional control).</p> <p>Approximately 9 acres are fully developed with buildings, parking lots and landscaping.</p>	removal					
Commercial/Industrial	Area 5	<p>9.75 acres of undeveloped property located south of the current United Parcel Service building and west of the former East Patrol Road in the Raritan Center.</p> <p>Area 5 was not part of the original Arsenal, and was not purchased for use by the Arsenal until 1942. Until that time the site was the property of the</p>	<ul style="list-style-type: none"> <li>Removal and disposal of 661 CWM and MD/RRD-related items in 1995-1996. Confirmatory samples showed CWM-related compounds not</li> </ul>	none	none	Work Plan and Remedial Investigation Report documenting all previous investigations and findings being prepared.	Vegetation clearing and Digital Geophysical Mapping (DGM) to locate any remaining buried objects or disposal trenches and to	Once the RI/FS report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.

TABLE A-1  
**History and Status of Investigation Areas on the Former Raritan Arsenal**  
*Community Relations Plan*

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
		<p>Heyden Chemical Corporation.</p> <p>Upon purchase by the Federal Government until closure of the Arsenal in 1963, Area 5 was used a disposal site for mustard agent, red fuming nitric acid and potassium cyanide.</p> <p>Limited Chemical Warfare Materials (CWM) (mustard gas) were reportedly buried or disposed within Area 5. Chemical munitions were not reportedly stored at the former Arsenal, but if mustard shells were detected leaking while enroute to another destination, it was Army policy to dispose of them in a trench in the nearest appropriate facility. Area 5 was the only known or suspected CWM disposal area at the former Raritan Arsenal.</p>	<p>detected or at concentrations well below NJDEP and EPA standards.</p> <ul style="list-style-type: none"> <li>Trenches have since been filled.</li> </ul>				confirm completeness of removal actions. The resulting map will be incorporated into the RI/FS report.	
Commercial/Industrial	Area 7	5.9 acres near the center of the Former Arsenal located on property within the current Raritan Center, east of the Raritan Center Parkway. The area is currently fully developed and occupied by Public Service Electric and Gas. Several buildings within Area 7 were used during the Arsenal close-out in 1961-1963 for the destruction of various ammunition components containing less than 600 grains of	<ul style="list-style-type: none"> <li>Early 1960s - Decommissioning related removals</li> </ul>	PAHs	Volatile Organics	Removal Action and Remedial Investigation Summary Report being prepared.	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.

TABLE A-1

**History and Status of Investigation Areas on the Former Raritan Arsenal****Community Relations Plan**

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
		explosives.						
Commercial/Industrial	Area 8	48 acres near the center of the Former Arsenal, used as a storage area for solid propellant, primarily smokeless powder; black powder loading of blank ammunition; and general ammunition storage. During the 1930s, fire and explosions scattered large grains of unburned 16-inch gunpowder.	<ul style="list-style-type: none"> <li>Early 1960s - propellant powder burning</li> </ul>	PAH, Arsenic	Metals	Removal Action and Remedial Investigation Summary Report being prepared.	Possible data collection to fill data gaps	Once this report is reviewed and final, a Proposed Plan and Decision Document will be prepared.
Commercial/Industrial	Area 14	167 acres of former marshland on the eastern portion of the Former Arsenal used to deposit material dredged from the Raritan River channel. The timeframe for the dredging operations is believed to date to 1940. Recent construction work at the Raritan Center has contributed significant additional fill material, raising the land surface. Areas not covered with fill still exist as wetlands that extend to the Raritan River.	Remedial actions performed during 2000/2001 and 2010 in support of redevelopment activities	not applicable	not applicable	Site redeveloped. Cap installed by Federal Business Centers via approved development.	No activities planned by USACE.	No activities planned by USACE.
Commercial/Industrial	Area 15	4.5 acres located within the former Igloo Area of the eastern portion of the Arsenal. It once contained a pond that was used for the disposal of burned scrap and other refuse from Area 6, a former demolition ground. In 1976, a smoking soil pile was reported, and a local Army Explosive Ordnance Disposal unit removed visibly contaminated	<ul style="list-style-type: none"> <li>1977 - UXO Removal</li> </ul>	none	Volatile Organics	Removal Action and Remedial Investigation Summary Report being prepared.	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.

TABLE A-1

**History and Status of Investigation Areas on the Former Raritan Arsenal****Community Relations Plan**

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
		material. In 1977, 225 cubic yards of material containing ordnance items was reportedly removed from this area to Picatinny Arsenal. Area 15 is fully developed with a building, parking lot and landscaping.						
Commercial/Industrial	Areas 9/19	Located in the western portion of the former Arsenal. Area 9 is approximately 53 acres in size and Area 19 is 294 acres in size; Area 19 contains Area 9. Area 19 includes a large portion of the former magazine area, where magazine buildings stored explosives during the operation of the former Arsenal, it also included a rail line constructed along each row for the transportation of material. Area 9, surrounds the former location of Magazine H-65. Munitions storage related explosions occurred in these areas in the past.	<ul style="list-style-type: none"> <li>• 1963 - Surface cleaning and disking to a depth of 6 in. to remove ammunition and components</li> <li>• 1965 - Ten magazines removed along with other ordnance actions</li> <li>• 1981 - Portion of Area 9 cleared, shrapnel and one shell projectile removed</li> <li>• 1987 - Clearance operation, 19 non-hazardous ordnance related items removed</li> <li>• 1993 - 151 anomalies investigated</li> </ul>	Arsenic	none	Removal Action and Remedial Investigation Summary Report being prepared.	Additional sampling to further delineate elevated arsenic concentrations and to determine if elevated arsenic concentrations within Area 19 have affected sediment in downstream areas.	Once this report is reviewed and finalized, a Feasibility Study and a Proposed Plan and Decision Document will be prepared.
Commercial/	Area 20	38-acre area in the central portion of	• None	PAHs, Arsenic	Volatile	Removal Action	Possible data	Once this

TABLE A-1

**History and Status of Investigation Areas on the Former Raritan Arsenal****Community Relations Plan**

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
Industrial		the Former Arsenal. An extensively-used munitions renovation plant operated in this area and a man-made pond was reportedly located behind the plant. In the early 1980s, this area was the site of a major release of PCB-contaminated oil and solvents from an oil reclamation operation at a former magazine. The area is currently part of the Raritan Center and has been fully developed with buildings, pavement and landscaping.			Organics	and Remedial Investigation Summary Report being prepared.	collection to fill data gaps	report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
Commercial/Industrial	Inland Container	A possible former chemical storage area, in the north-central portion of the Former Arsenal. Ten temporary warehouses were reportedly constructed in the mid 1950s and removed between 1961 and 1963. This area of concern is currently occupied by the Inland Container Corporation along Woodbridge Avenue.	<ul style="list-style-type: none"> <li>• None</li> </ul>	BaP	none	Removal Action and Remedial Investigation Summary Report being prepared.	Removal Action and Remedial Investigation Summary Report being prepared.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
Commercial/Industrial	Owens-Illinois	A fuel storage area and possibly a tank farm were reportedly located in the north-central portion of the Former Arsenal. This part of the Arsenal is now owned by Owens-Illinois and has been fully developed with a building, pavement and landscaping.	<ul style="list-style-type: none"> <li>• None</li> </ul>	PAHs	Volatile Organics	Removal Action and Remedial Investigation Summary Report being prepared.	No activities planned by USACE.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
EPA/GSA	Area 1	0.57 acre area of wooded and undeveloped area located within a 200-	<ul style="list-style-type: none"> <li>• 2002 - Lead removal</li> </ul>	Lead	Volatile Organics	Removal Action and Remedial	No additional MEC	Once this report is reviewed and

TABLE A-1  
**History and Status of Investigation Areas on the Former Raritan Arsenal**  
*Community Relations Plan*

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
		acre parcel; reportedly used for ordnance demolition following World War I and into the early 1930s. It is located in the northern central portion of the facility. The limits of Area 1 are defined based on the presence of a ground scar identified in a 1939 aerial photo, which is interpreted as the former demolition area.				Investigation Summary Report being prepared.	investigation. Sampling to further assess the identified burned material in the NW corner of Area and to confirm presence/absence of TNT in soil.	finalized, a Feasibility Study and a Proposed Plan and Decision Document will be prepared.
EPA/GSA	Area 18D	31 acres of land on the western side of the former Arsenal. A 1-acre parcel in the central part of Area 18D contains a MEC burial trench. Used heavily during the operation of the former Arsenal. Building 229 was used from June 1941 to October 1942 for small arms packing. Area 18D also contains a dump area used by Columbia Salvage for ammunition salvage and disposal. This area is mostly developed.	<ul style="list-style-type: none"> <li>• 1990 - 10,768 munitions items were removed from trench adjacent to a reported dump</li> <li>• 2005 - An EOD unit removed empty bomb casing and others munitions debris uncovered during construction work</li> </ul>	PAHs, Lead	none	Removal Action and Remedial Investigation Summary Report being prepared.	Sampling in the Beechwood Area of Concern (outside the development fence) and drainage pathways.	Once this report is reviewed and finalized, a Feasibility Study and a Proposed Plan and Decision Document will be prepared.
EPA/GSA	Area 18G	21-acre partially developed area adjacent to Area 18D in the north-central portion of the Former Arsenal. This area was the location of the Raritan Arsenal construction camp and was reportedly used for outdoor storage in the 1940s and for a dump	<ul style="list-style-type: none"> <li>• 1999 - UST removal</li> </ul>	PAHs, Metals	Volatile Organics	Removal Action and Remedial Investigation Summary Report being prepared.	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.

TABLE A-1

**History and Status of Investigation Areas on the Former Raritan Arsenal****Community Relations Plan**

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
		used by Columbia Salvage. The area contains small buildings, pavement and natural vegetation.						
EPA/GSA Area	Area 18A	Unlined pond that was reportedly used for the disposal of waste solvents, degreasers, oil and cosmoline, located on undeveloped property currently owned by EPA. The pond first appeared on historical aerial photos in 1951.	<ul style="list-style-type: none"> <li>• 1992 - Removal action</li> <li>• 1998 - Removal actions at two locations</li> </ul>	PAHs, Lead	Volatile Organics	<ul style="list-style-type: none"> <li>- Remaining soil contamination to be addressed as part of groundwater</li> <li>- Recommended No Further Action for Soils in 18A-1 and 18A 2.</li> <li>- Removal Action and Remedial Investigation Summary Report being prepared.</li> </ul>	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
EPA/GSA Area	Area 18B	50 acres of undeveloped land surrounding Areas 1 and 18A. The western portion of the area was reportedly used as a small arms firing range.	<ul style="list-style-type: none"> <li>• 2002 - Soil contaminated with lead and arsenic removed at former firing range.</li> </ul>	PAHs, pesticides, Lead, Arsenic	Volatile Organics	<ul style="list-style-type: none"> <li>-Remedial action to address lead and arsenic contamination conducted in 2002. Met residential cleanup goals.</li> <li>- No ecological risks.</li> </ul>	Removal Action and Remedial Investigation Summary Report being prepared. Possible data collection to fill data gaps.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
EPA/GSA Area	Area 18C (Asbestos Landfill)	PAHs and asbestos detected in landfill samples.	<ul style="list-style-type: none"> <li>• 1992 - Asbestos-contaminated portion of Area</li> </ul>	PAHs, Pesticides, PCBs, Metals	Volatile Organics	<ul style="list-style-type: none"> <li>-Current understanding is that GSA will</li> </ul>	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a

TABLE A-1  
**History and Status of Investigation Areas on the Former Raritan Arsenal**  
*Community Relations Plan*

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
			18C sealed by spraying with a copolymer			address soil in this area. No ecological risk - Removal Action and Remedial Investigation Summary Report being prepared.		Proposed Plan and Decision Document will be prepared.
EPA/GSA Area	Area 18C (Bldg. 256)	AOCs within the building included pneumatic lifts and an area of standing water in the Grit Blast Room in the northern part of Bay B. An underground tank system (consisting of one 6,000-gallon steel underground storage tank, 3 smaller concrete tanks, and a leach field east of the building) were excavated and sampled. All tanks contained oily liquid, sludge or solid wastes. Contaminated soil was observed near the tanks. A heavily contaminated area was discovered just north of the tank system that contained oil-saturated soil and debris.	<ul style="list-style-type: none"> <li>• 1998 &amp; 2002/2003 - Contaminated soil removed</li> </ul>	Volatile Organics (former leach field area only)	Volatile Organics	<ul style="list-style-type: none"> <li>- Remediation of soils completed. Any remaining soil contamination (including from UST removals) is below the water table. No ecological risk.</li> <li>- Removal Action and Remedial Investigation Summary Report being prepared.</li> </ul>	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
EPA/GSA Area	Area 18C (DDA-1 & DDA-2)	DDA-1: Buried 55-gallon steel drums, empty or crushed 30-gallon galvanized trash cans, 1-gallon paint cans (empty or partially filled), 5-gallon paint buckets, paint-stained soils, and building debris (e.g., brick, wood, cement, electrical conduit piping) to a maximum depth of 9.5 feet below the	<ul style="list-style-type: none"> <li>• 1998 &amp; 2002 - Contaminated soil removed</li> </ul>	Volatile Organics, PAHs, Metals	Volatile Organics	<ul style="list-style-type: none"> <li>- Remedial action for soil completed in 2002. Residential cleanup goals achieved. No ecological risk.</li> <li>- Removal Action</li> </ul>	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.



TABLE A-1

**History and Status of Investigation Areas on the Former Raritan Arsenal****Community Relations Plan**

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
		surface. Most drums were crushed, split open or rusted through, but several drums appeared to be intact with unknown contents. A strong varnish odor was noted near the open paint cans. DDA-2: 300-400 buried 1-pint size cans labeled "waterless hand cleaner" at depths of 1.5 to 5.5 feet below ground surface. Black stained soils with a strong varnish-like odor were observed about one foot below the cans.				and Remedial Investigation Summary Report being prepared.		
EPA/GSA Area	Area 18C (DDA-3 & DDA-4)	DDA-3 contained buried 55-gallon steel drums, 30-gallon galvanized trash cans, 1-gallon paint cans, 5-gallon paint buckets, paint-stained soils, and miscellaneous building debris (e.g., brick, wood, cement, electrical conduit piping). A strong varnish odor was noted near the open paint cans. DDA-4 contained buried building debris (e.g., brick, wood, cement, electrical conduit piping).	<ul style="list-style-type: none"> <li>1998 - Contaminated soil and debris removed</li> </ul>	PAHs	Volatile Organics	- Non-residential cleanup goals met. 1 PAH sample at DDA-4 exceeds criteria.	Removal Action and Remedial Investigation Summary Report being prepared. Possible data collection to fill data gaps.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
EPA/GSA Area	Area 18C (Gas and Oil Dump)	Potential gas and oil dump reportedly found south of Building 255 -sampling indicates no such dumping occurred.		none	Volatile Organics	-Current recommendation for soil is No Further Investigation or Action. - No ecological risk.	Removal Action and Remedial Investigation Summary Report being prepared. Possible data collection to fill	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.

TABLE A-1  
**History and Status of Investigation Areas on the Former Raritan Arsenal**  
**Community Relations Plan**

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
							data gaps.	
EPA/GSA Area	Area 18C (Surface Soil Contamination)	Two soil samples collected during the 1996 Supplemental Phase II RI contained arsenic at concentrations exceeding NJDEP cleanup standards.		Arsenic	Volatile Organics	Removal Action and Remedial Investigation Summary Report being prepared. No Further Action recommended for soil due to <i>de minimis</i> quantities of arsenic. No ecological risk.	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
EPA/GSA Area	Area 18E	9-acre area that contains several original arsenal buildings. Buildings 14, 15 and 19 were used for overhaul, repair, service, maintenance, testing and rust-proofing of small arms. The area is fully developed with buildings, pavement and landscaping, EPA demolished Buildings 14 15, and 19 in 1997.	<ul style="list-style-type: none"> <li>2011/2012 (Winter) - Contaminated soil removed</li> </ul>	Arsenic and lead	Volatile Organics	Soil removal action complete. Removal Action and Remedial Investigation Summary Report being prepared.	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
EPA/GSA Area	Area 18F	Part of a 43-acre developed area that was active starting in 1919. Several buildings were reportedly used for small arms packing, with the remainder of the buildings used for warehousing of supplies. Approximately 30 acres are now referred to as "Beechwood Development." The remaining 13-acre	<ul style="list-style-type: none"> <li>None</li> </ul>	Arsenic, Lead	Volatile Organics	Removal Action and Remedial Investigation Summary Report being prepared.	Possible data collection to fill data gaps	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.

TABLE A-1

**History and Status of Investigation Areas on the Former Raritan Arsenal****Community Relations Plan**

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
		area is fully developed with buildings, pavement and landscaping.						
"Beechwood Development"	(formerly part of Area 18F)	Part of a 43-acre developed area that was active starting in 1919. The approximately 30-acre "Beechwood Development" has since been developed into a condominium community (CentrePlace at Edison) and a shopping center. Investigations and remedial actions were completed to support development of these properties. There are some active areas of concern near these properties. In fall 2012, a remedial investigation will take place on EPA property along the south perimeter fence of the CentrePlace at Edison condominium community.	<ul style="list-style-type: none"> <li>• 2005 - Removal of approximately 850 inert/practice bomb casings</li> </ul>	n/a	n/a	n/a	n/a	n/a
MCC	Area 17/17A	A 2-acre area that was reportedly used as a salvage yard from the late 1940s to the early 1960s. Area 17A is a 0.5-acre area reportedly used as a burning ground for the destruction of small arms by non-explosive means in the 1950s. Areas 17 and 17A are developed with Middlesex County College (MCC) buildings or landscaping. MCC developed Area 17A as a baseball field. Portions of Area 17 remained wooded, landscaped with grass, or developed as tennis courts by MCC.	<ul style="list-style-type: none"> <li>• 1994/1995 - Removal action at MCC baseball field area (Area 17A)</li> </ul>	Lead at depth only (approved by NJDEP)	none	Removal Action and Remedial Investigation Summary Report being prepared.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.	

TABLE A-1  
**History and Status of Investigation Areas on the Former Raritan Arsenal**  
**Community Relations Plan**

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
MCC	Area W	Area W is located on the northwestern corner of the Former Arsenal and was the site of administrative and barracks activities during the Arsenal operation. Except for a wooded portion, most of the area is covered by asphalt parking lots.	<ul style="list-style-type: none"> <li>1998 - Approximately 2,000 CY of contaminated soil and overpacking, 58 drums, and 100 drum carcasses removed</li> </ul>	PAHs, TCE	Volatile Organics	Removal Action and Remedial Investigation Summary Report being prepared.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.	
MCC	Area X and Area H	Areas X and H are located on the northwestern corner of the Former Arsenal and were the site of administrative and barracks activities during the Arsenal operation. Area X is mostly undeveloped and covered by forest. Area H is covered by asphalt parking lots.	<ul style="list-style-type: none"> <li>None</li> </ul>	none	none	Removal Action and Remedial Investigation Summary Report being prepared.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.	
MCC	Building 118	The Former Arsenal hospital building in the northwestern part of the Former Arsenal. In 1962, grenades and adapter boosters were found in a trench dug during deactivation of water lines. In 1987, several thousand adapter boosters were found in almost the same location. Building 118 still exists in the Middlesex County College complex.	<ul style="list-style-type: none"> <li>1991 – Adaptor boosters and two USTs removed</li> </ul>	PAHs	none	Removal Action and Remedial Investigation Summary Report being prepared.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.	
MCC	High Traffic Area (HTA)	Responding to a request from MCC, the USACE conducted a preliminary assessment and investigation in 1994 to evaluate MCC campus locations of high student/staff activity that had not been	<ul style="list-style-type: none"> <li>None</li> </ul>	Pesticides, PAHs, arsenic	none	Remedial Investigation Summary Report being prepared.	Once this report is reviewed and finalized, a Proposed Plan	

TABLE A-1

**History and Status of Investigation Areas on the Former Raritan Arsenal****Community Relations Plan**

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
		previously sampled. Sampling was conducted to determine if any contaminants existed on the site that could impact the health of site users.					and Decision Document will be prepared.	
MCC and Beechwood	Transformer Removal Areas	Removal of PCB-containing pad-mounted transformers, pole-mounted transformers, vaulted transformers, and switches, some of which were located in Manhole 21-26 on MCC property. PCB-contaminated soil was removed from two concrete pad locations and PCB-contaminated water was removed from two vaults.	<ul style="list-style-type: none"> <li>21 transformers and 23 switches removed</li> </ul>	none	none	Removal Action and Remedial Investigation Summary Report being prepared.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.	
Middlesex County - Thomas A. Edison Park	Area 10	140 acres of land located on the western portion of the former Arsenal. From the mid-1920s to the post-WWII era, used for de-priming cartridge cases. Included the Upper Magazine Area, where in 1919 an explosion in Magazine E-31 destroyed the magazine and scattered VB MK I rifle grenades over the area. In 1943, an explosion in Magazine H-65 in Area 9 also scattered VB MK I rifle grenades over a portion 8.3 acres of land located in the southern portion of Area 10, which are referred to as Parts I and II.	<ul style="list-style-type: none"> <li>Removal Actions performed in 1963, 1989, 1992, 1993, 1999, 2000 and 2001</li> </ul>	PAHs, Metals, Arsenic, TNT, VOCs and Pesticides	none	Removal Action and Remedial Investigation Summary Report being prepared.	Additional surface soil, subsurface soil, surface water, and sediment sampling to determine if any potential MC contamination is associated with the historic magazine explosion and to collect data for the RI risk evaluation.	Once this report is reviewed and finalized, a Feasibility Study and a Proposed Plan and Decision Document will be prepared.
Site-wide	Groundwater	Groundwater Plume - Likely source is	<ul style="list-style-type: none"> <li>None</li> </ul>	N/A	N/A	Shallow GW	No further	No further

TABLE A-1  
**History and Status of Investigation Areas on the Former Raritan Arsenal**  
*Community Relations Plan*

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
Groundwater Indoor Air / Vapor Intrusion	ter AOC 1	from off-base, including potentially the Edison Township WWTP that was located near the entrance to the Raritan Center.				investigation (1996). NFA from NJDEP. No Further Action (non-DOD Issues).	USACE action	USACE action
Site-wide Groundwater Indoor Air / Vapor Intrusion	Groundwater AOC 2	Groundwater Plume with vapor intrusion issues	<ul style="list-style-type: none"> <li>• 2005 - Vapor mitigation system installed at Building 165</li> <li>• 2008 - Vapor mitigation system installed at Building 160</li> </ul>	N/A	Volatile Organics	2007-2010 Pilot study of anaerobic bioaugmentation and ISCO performed. MNA has been proposed (2012) as the selected remedy.	Groundwater / Indoor Air / Vapor Intrusion Feasibility Study.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
Site-wide Groundwater Indoor Air / Vapor Intrusion	Groundwater AOC 3	Groundwater Plume with no air quality issues	<ul style="list-style-type: none"> <li>• None</li> </ul>	N/A	Volatile Organics	No Further Action (non-DOD Issues)	No further USACE action	No further USACE action
Site-wide Groundwater Indoor Air / Vapor Intrusion	Groundwater AOC 4	Groundwater Plume with no air quality issues	<ul style="list-style-type: none"> <li>• None</li> </ul>	N/A	Volatile Organics	No Further Action for 4B (non-DOD issues). Monitored Natural Attenuation for GW AOC 4A.	Groundwater / Indoor Air / Vapor Intrusion Feasibility Study.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
Site-wide Groundwater	Groundwater	Groundwater Plume - Likely source is	<ul style="list-style-type: none"> <li>• None</li> </ul>	N/A	N/A	No Further Action	No further	No further

TABLE A-1  
**History and Status of Investigation Areas on the Former Raritan Arsenal**  
*Community Relations Plan*

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
Indoor Air / Vapor Intrusion	ter AOC 5	from Thomas Edison Park operations.				(non-DOD Issues)	USACE action	USACE action
Site-wide Groundwater Indoor Air / Vapor Intrusion	Groundwater AOC 6	Groundwater Plume	<ul style="list-style-type: none"> <li>• 2009 - Subslab depressurization system installed at Building 102-168 Fernwood</li> <li>• 2011- Converted to solar-powered passive mitigation system</li> </ul>	N/A	Volatile Organics	No Further Action for 6B (non-DOD Issues). Monitored Natural Attenuation for AOC 6A and 6C.	Groundwater / Indoor Air / Vapor Intrusion Feasibility Study.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
Site-wide Groundwater Indoor Air / Vapor Intrusion	Groundwater AOC 7	Groundwater Plume	<ul style="list-style-type: none"> <li>• None</li> </ul>	N/A	Volatile Organics	No Further Action (non-DOD issues)	No further USACE action	No further USACE action
Site-wide Groundwater Indoor Air / Vapor Intrusion	Groundwater AOC 8	Groundwater Plume with vapor intrusion issues for AOC 8A and 8B	<ul style="list-style-type: none"> <li>• 2005 - Vapor Mitigation systems installed at Buildings 10, 18, 200, 205 and 209</li> </ul>	N/A	Volatile Organics	Monitored Natural Attenuation is the NJDEP-approved remedy for 8C/ 8D (2008).No recommended final action yet for AOC 8A/ 8B.	Groundwater / Indoor Air / Vapor Intrusion Feasibility Study.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
Site-wide Groundwater Indoor Air /	Groundwater AOC 9	Groundwater Plume with no air quality issues	<ul style="list-style-type: none"> <li>• None</li> </ul>	N/A	Volatile Organics	Monitored Natural	Groundwater / Indoor Air / Vapor Intrusion	Once this report is reviewed and finalized, a

TABLE A-1  
**History and Status of Investigation Areas on the Former Raritan Arsenal**  
*Community Relations Plan*

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
Vapor Intrusion						Attenuation	Feasibility Study.	Proposed Plan and Decision Document will be prepared.
Site-wide Groundwater Indoor Air / Vapor Intrusion	Groundwater AOC 10	Groundwater Plume with no air quality issues	<ul style="list-style-type: none"> <li>None</li> </ul>	N/A	Volatile Organics	Monitored Natural Attenuation	Groundwater / Indoor Air / Vapor Intrusion Feasibility Study.	Once this report is reviewed and finalized, a Proposed Plan and Decision Document will be prepared.
Undeveloped / Wetlands	Area 11	Comprised of 11 acres of marshy land at the southeastern boundary of the former Arsenal and across the road from the former dock along the Raritan River. Dredged material from the Raritan River channel near the dock area, potentially containing MEC, may have been periodically disposed within Area 11 and MEC may have been disposed in pits and trenches. Used extensively by the Army for loading operations at the former dock, with records indicating that portions were contaminated with grenades, mortar shells, and small arms components.	<ul style="list-style-type: none"> <li>1963 - Surface clearance with magnetometer</li> <li>1989 - Ordnance sweeps with shallow digs, no ordnance identified</li> <li>1992-1994 - MEC removal actions</li> <li>1997 - Approximately 10 acres reportedly filled/covered with Raritan River dredge material</li> <li>1998 - 41,770 MEC items removed from trenches and pits,</li> </ul>	Metals, Arsenic, Lead, BNA, PAHs, Pesticides	none	Removal Action and Remedial Investigation Summary Report being prepared.	Sampling to assess the extent of MC contamination. Potential MEC associated with dredge spoils will be investigated, as well as other pits and trenches in the area.	Once this report is reviewed and finalized, a Feasibility Study and a Proposed Plan and Decision Document will be prepared.



TABLE A-1

**History and Status of Investigation Areas on the Former Raritan Arsenal****Community Relations Plan**

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
			plus 63 dispersed items • 2001 - Three suspect trenches/pits investigated, no MEC/MPPEH recovered • 2005 - 570 cubic yards of soil excavated, ordnance items removed					
Undeveloped / Wetlands	Area 12	84 acres that lie along the Raritan River at the southwestern boundary of the former Arsenal, location of a former OB/OD area. Dredge material from the Raritan River was reportedly disposed in Area 12. The Raritan River dredging operations included the river bottom in front of the former Arsenal dock, which was known to contain ordnance. Therefore, it is possible that some ordnance-containing dredged material may have been deposited in Area 12. Since closure of the Former Arsenal in 1963, various government organizations, including Explosive Ordnance Disposal units, have used a portion of Area 12 for detonating munitions. Since 1991, USACE contractors have used Area 12 for	• 1999 - 660 cubic yards of contaminated material removed on western side of site • 2004 - 842 tons of soil with VOCs and crushed drums (no MEC) removed • 2011 - 125,000 pounds of materials documented as safe and removed; 3 UST removed	PAHs, Metals, Arsenic, TNT and Pesticides	none	Removal Action and Remedial Investigation Summary Report being prepared.	Sampling to assess the extent of potential MC contamination. DGM surveys in unmapped areas to investigate dredge spoils and within a designated radius from the center of the OB/OD area to search for OB/OD kick outs.	Once this report is reviewed and finalized, a Feasibility Study and a Proposed Plan and Decision Document will be prepared.

TABLE A-1  
**History and Status of Investigation Areas on the Former Raritan Arsenal**  
*Community Relations Plan*

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
		onsite detonation of munitions recovered from other portions of the former Arsenal.						
Undeveloped / Wetlands	Area 13	8 acres located at the southwestern boundary of the former Arsenal, including the submerged dock area and the adjacent portion of the Raritan River. The upland portion of Area 13 includes 3 acres of land located between the dock area and access road.	<ul style="list-style-type: none"> <li>• 1975 - USACE increased depth by 14 ft. by dredging, since then subject to periodic dredging. Location where dredge materials were placed is unknown</li> <li>• 1993 - Removal action excavating to 4-8 ft below ground surface. A total of 245 munitions items were recovered</li> </ul>	No previous investigations	No previous investigations	Removal Action and Remedial Investigation Summary Report being prepared.	Sampling to delineate the nature and extent of MC contamination and to provide data for risk evaluation. Samples will be collected beneath the former dock and the area between the access road and the former dock. Three new groundwater monitoring wells will be installed and sampled to determine if there have been potential releases to groundwater.	Once this report is reviewed and finalized, a Feasibility Study and a Proposed Plan and Decision Document will be prepared.
Undeveloped	Area 16	277 acres of land located in the south	• 1963 -	Arsenic, PAHs,	none	Removal Action	Sampling to	Once this report

TABLE A-1

**History and Status of Investigation Areas on the Former Raritan Arsenal****Community Relations Plan**

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
/ Wetlands		central portion of the former Arsenal, bordered to the north, south and east by undeveloped wetlands and on the west by the West Patrol Road. The area is also known as the former Lower Magazine Area and contained a total of 95 above-ground magazine buildings, located along 11 railroad lines. Sixty-five magazines in the western portion of the site were used to store smokeless powder. Twenty-one magazine buildings in the eastern portion were used to store primers and fuzes. Nine magazines in the eastern portion also used to store smokeless powder. Operations at the former magazine area were limited to storing, loading, and unloading trains and transporting smokeless powder.	Magazines cleared <ul style="list-style-type: none"> <li>• 1985 - Ordnance removed during demolition, 3,580 live shells removed near Building 643</li> <li>• 1986 - 150-200 shells discovered near Building 643</li> <li>• 1988 - Ordnance removed, 1,200 live projectiles also removed</li> <li>• 1991 - 29,194 37-mm rounds recovered around Buildings 643 and 644</li> <li>• 1992-1993 - Anomalies investigated, no ordnance items</li> <li>• 1995 - Brass casings recovered</li> </ul>	VOCs, Metals, Pesticides		and Remedial Investigation Summary Report being prepared.	evaluate potential contamination from smokeless powder constituents and at the outlet of any drainage swales to assess effects of soil washing into drainage channels adjacent to the magazines. Groundwater samples from existing wells will be analyzed for explosives and related chemicals.	is reviewed and finalized, a Feasibility Study and a Proposed Plan and Decision Document will be prepared.
Undeveloped / Wetlands	Areas 6, 6A, 6B	Approximately 130 acres in the underdeveloped eastern portion of the facility. Area 6 (125 acres) was historically used as a dredge material impoundment area. Areas 6A and 6B (4.56 acres), to the northeast of Area 6, are separated by a ditch; Area 6A is south of the ditch and Area 6B is north	<ul style="list-style-type: none"> <li>• 1963 - Surface cleaning and disking to a depth of 6 in. to remove ammunition and components</li> <li>• 1992 - 3 inert munitions</li> </ul>	PAHs, Metals, Arsenic, Lead, Mercury, Pesticides, TNT	none	Removal Action and Remedial Investigation Summary Report being prepared.	Additional soil sampling to confirm the nature and extent of constituents that have previously	Once this report is reviewed and finalized, a Feasibility Study and a Proposed Plan and Decision Document will

TABLE A-1  
**History and Status of Investigation Areas on the Former Raritan Arsenal**  
*Community Relations Plan*

Operable Decision Unit	Investigation Area	Description of Area	Removal Actions Performed	Current Soil Contamination above NJDEP Non-Residential Soil Cleanup Criteria	Current Groundwater Contamination above NJDEP Groundwater Quality Standards	Current Status of Area	Activities planned through FY 2013	Future Actions planned
		of the ditch. They were used as burying grounds for various ammunitions components until 1963. In 1966, a sulfuric acid manufacturing plant was constructed on Area 6A by Laplace, Inc. This facility was demolished and the land was cleared in 1997.	recovered during RI				exceeded criteria, to fill spatial data gaps, or in areas where MEC investigation indicates that subsurface anomalies are present.	be prepared.

**Sources:** Weston Solutions, Inc. 2007. Revised Draft Management Action Plan for the Former Raritan Arsenal, Edison, New Jersey.  
Updated status information provided by Avatar Environmental, Weston Solutions, Inc., Hydrogeologic, and CH2M HILL, Inc.

**Acronyms:**

AOC	Area of concern	MEC	Munitions and explosives of concern	RRD	Range-related debris
BaP	Benzo(a)pyrene	MPPEH	Material potentially presenting an explosive hazard	SVOC	Semivolatle organic compounds
EOD	Explosive ordnance disposal	NJDEP	NJ Department of Environmental Protection	TNT	Trinitrotoluene
EPA	United States Environmental Protection Agency	OB/OD	Open burn/open detonation	UST	Underground storage tank
HTA	High Traffic Area	PAHs	Polycyclic aromatic hydrocarbons	UXO	Unexploded ordnance
MC	Munitions constituents	PCBs	Polychlorinated biphenyls	VOC	Volatile organic compounds
MCC	Middlesex County College	RI/FS	Remedial Investigation/Feasibility Study		
MD	Munitions debris	ppm	parts per million		

TABLE A-2

**Remediation Milestones and Planned Activities at the Former Raritan Arsenal*****Community Relations Plan*****FY 2012 Milestones**

Groundwater Compliance Monitoring Progress Report dated December 2011

Feasibility Study – Groundwater / Indoor Air (Vapor Intrusion)

Indoor Air Quality Report #7

Work Plan: Area 5 – Remedial Investigation / Feasibility Study

Remedial Investigation & Remedial Actions Summary Report – Middlesex County College

Proposed Plan – Middlesex County College for public comments

Remedial Investigation & Remedial Actions Summary Report – Thomas Edison Park

Remedial Investigation and Remedial Actions Summary Report – Commercial / Industrial Area

Remedial Investigation and Remedial Actions Summary Report – USEPA / GSA property

Work Plan: Site-wide Remedial Investigation / Feasibility Study

Commence fieldwork activities at various areas

Stakeholders Working Group Meetings – March and October 2012

Public Information Meetings – April and November 2012

**FY 2013 Future Planned Activities**

Proposed Plan – Groundwater / Indoor Air (Vapor Intrusion) for public comments

Annual Indoor Air Quality report #8

Management Action Plan Update

Proposed Plan – Middlesex County College for public comments

Remedial Investigation & Remedial Actions Summary Report – Commercial / Industrial Area

Remedial Investigation & Remedial Actions Summary Report – Thomas Edison Park

Remedial Investigation / Feasibility Study report – Area 5

Remedial Investigation / Feasibility Study – Site-wide – Munitions and/or Hazardous, Toxic Waste

Community Relations Plan Update

Commence fieldwork activities at various areas

Stakeholders Working Group Meetings – April and October 2013

Public Information Meetings – January and November 2013

## Appendix B

### Community Interview Results

---

## Summary of 2012 Community Questionnaire Responses Former Raritan Arsenal FUDS

Number of individuals who were interviewed:	9
Number of individuals who filled out a questionnaire:	9
TOTAL:	18
<i>Affiliation (can be more than one)</i>	
Local official (Edison Township and Middlesex County)	4
Property owner representative - Former Raritan Arsenal	9
Works onsite	6
Lives onsite (CentrePlace at Edison)	2
Environmental organization representative	3
Lives or works near the site	2

1.	How long have you lived/worked in Edison Township/Middlesex County?	Lived	From 1 year to 66 years Average: 33 years		
		Worked	From 16 years to 50 years Average: 31 years		
2.	How far from the former Raritan Arsenal do you live or work?	Live	From 0 miles (onsite) to 30 miles Average: 6 miles		
		Work	From 0 miles (onsite) to 15 miles Average: 3 miles		
3.	Are you familiar with the <u>environmental</u> cleanup work at Raritan Arsenal? (If yes) When and how did you learn about it?			Yes: 83%	No: 17%
	USACE POC: 11%		Newspaper: 11%	Township: 11%	
	Former arsenal worker: 11%		TRC/RAB: 6%	public meeting: 6%	Environmental group: 6%
	In 1994, David Brower and Major Bauman (USACE) informed him there was UXO at a building on their property News, newspaper, several years ago Through township in 1990s Early in his career, through township Emergency Management who were point of contact for removals etc.; he was unofficially part of that. In the 1990s, when she was on the Township Council in 2004, helped coordinate access to buildings for indoor air quality testing When started working here, learned from USACE lead Found information in 1987 about contamination that Army was investigating; was on the TRC Have uncle/aunt who used to work there First started hearing in the 1970s, remember when MCC had to dig up baseball fields to look for munitions, fenced area at Edison Park. Area along the river, roads are still there; too bad we can't get better use of that. Shells found at Beechwood shopping center, townhouses on Woodbridge Ave in 2008/2009 When I started working for environmental group in 2008 Since 2006, when began developing land in former arsenal Attended your public meeting				

	Actively involved – owns the land My husband worked in Raritan Center 25 years ago and was aware of it then.			
4.	Have you heard anything about the upcoming <u>munitions</u> investigation? (If yes) When and how did you learn about it?		Yes: 72%	No: 28%
	Stakeholders working group: 31%	USACE POC: 31%		
	Federal Business Centers: 8%	RAB Meeting: 8%	public meeting: 8%	
	The USACE Project Manager does a good job keeping him informed, emails or calls USACE Project Manager, Stakeholders Working Group meetings (multiple responses) Heard from a removal action contractor that a new contract would be done to investigate other areas. Office of Safety Management safety briefings – he is notified Through stakeholders group Don't know much yet, hear rumors that fires are due to buried munitions A number of issues at first; didn't realize the extent of the problem Discussions with workers, employees of Federal Business Center, public meetings I keep up to date			
5.	Have you talked with any USACE or state environmental officials about the former Raritan Arsenal? (If yes) Which officials?		Yes: 50%	No: 50%
	USACE POC: 78%	NJDEP: 56%	Township Health Dept: 11%	Congressman: 11%
	(If yes) Were they responsive to your concerns or questions?		Yes: 89%	No: 0%
	Especially recently with building issue, munitions discovered during expansion of parking lot Tenants needed to be brought up to speed, who to call (mass mailing) Everyone's been great Good rapport, work closely			
6.	[OFFICIALS/PROPERTY OWNERS] Have any of your constituents/tenants talked with you to express interest or concern about Raritan Arsenal?		Yes: 39%	No: 44%
	[RESIDENTS] Have any of your friends/neighbors shared interest or concerns with you about Raritan Arsenal?		Yes: 17%	No: 22%
	If yes, what were their concerns, and why was it of interest or concern to them?			
	Not any longer, but they were concerned back in the beginning. Not so much about UXO, but hazardous and toxic waste (HTW) remediation at the college ballfield raised concerns; they had expected UXO, didn't expect HTW. Once they knew it wasn't a toxic landfill, things went back to normal. When USACE comes to do work now, it is posted on the college Infonet and no one questions it.  (EPA workers) All the time: what are they doing, are we affected, are we going to be contaminated, why spend the money, why didn't you tell us; visible work on front lawn of EPA Regional Administrator building raised questions.  When demolition started a brush fire, some worried about catastrophic event; tells them that it was in the wetlands, a remote area.  Over time, yes; recently, no. Most recently during college parking lot renovation; added language in construction permit. Township coordinated engineering and construction officials to determine level of oversight necessary for public safety. Concern: not overkill to risk project funding.  Deputy Fire Chief has spoken (to local official) about it. Fire fighters don't go out to fight fires in the undeveloped area because of munitions; they come out, but will respond only if fire crosses over to the developed area.  No residents have expressed concern (to local official), except one who generally makes more of the danger than it turns			



	<p>out to be.</p> <p>Usually it's just: why are USACE coming in to test indoor air? What's the latest information?</p> <p>If there is an article in the newspaper (munitions discovery etc), someone might call with questions. Local official (interviewee) will sit down with them and provide the information, background/history, that USACE has been working here for &gt; 20 years and NJDEP provides strong oversight.</p> <p>Sometimes the media stirs things up with misleading information. Example – day care center had indoor air quality issue 8 years ago, NJDEP took over and installed mitigation, no longer any issue there. It was brought up again at recent public meeting because an article made it sound like a new problem.</p> <p>Munitions years ago, not recently. Have cleaned up a lot of it. College cleanup started a lot of business park tenants talking and asking. Have built many buildings without seeing anything.</p> <p>20 years ago, still former employees around; telling stories about when they worked there. No one saying they dumped things. Still some bitterness in the 1990s that the Army closed Raritan, had to go to Picatinny Arsenal.</p> <p>[one local group member] always has a lot to say.</p> <p>Whenever they find a shell, why wasn't it removed earlier? Local official receives form letters from an environmental group, occasionally from someone else. What have they done, are there more munitions? He tells them that they (owners) survey areas when they are going to build. USACE is quick to remediate whenever something is found.</p> <p>If there are more bombs on site, could be a danger to area</p>	
7.	<p>On a scale of 1 to 10, with 10 being the most concerned, how concerned do you think the <b>local community</b> is about the environmental and munitions cleanup at the former Raritan Arsenal?</p>	<p>Average: 4.2 Minimum: 1 Maximum: 10</p>
	<p>Cautiously concerned; possibility of uncovering UXO, contaminated soil; assurance that USACE is just a call away</p> <p>Those that know – if it doesn't affect them directly. Informed, not panicked.</p> <p>Onsite landowners more concerned, financially; active participants in stakeholders group. Want to get things wrapped up but not compromise on safety.</p> <p>Less from general public, last time something came up was over a year ago</p> <p>Public meetings are good for people who move here from elsewhere and aren't aware of the site.</p> <p>Latest mass mailing to tenants produced little reaction. Keeping them informed is good. Every document begins with some history. (Township is taking the same approach with lead smelter issue as Lenar –Beechwood did: excavate to a given depth, land use control prohibiting deeper excavation. After initial shock and information provided, now you can't get people to come out to meetings.)</p> <p>Needles in a haystack, would always run into something else. Did archival research with 3 different companies to establish areas of concern, cleaned it up. Sometimes run into stuff in another area. People don't realize, the whole property was a swamp during Army time, just dumped things into the swamp.</p> <p>First cleaned up munitions, most obvious hazard; then cleaned up soils, then groundwater (still working on), then indoor air quality has become an issue they had not thought of before</p> <p>Most are not aware of it, isolated and industrialized area.</p> <p>Tenants at 3 buildings being tested for indoor air quality have requested testing results; gives them FBC consultant's report to explain the results in plain language. Munitions investigation doesn't affect anyone so far.</p> <p>Not too nervous about anything now; 15-20 years ago was very concerned.</p> <p>So much else going on in the world, would be more concerned if contamination was visible or finding more munitions.</p> <p>Community in transition, there are lots of new people who know little about Raritan. No concern until something happens; get excited, fades away.</p>	
8.	<p>On a scale of 1 to 10, with 10 being the most concerned, how concerned are <b>you</b> about the environmental and munitions cleanup at the former Raritan Arsenal?</p>	<p>Average: 4.8 Minimum: 0 Maximum: 10</p>
	<p>Concerned but knows it is being dealt with properly</p> <p>Concern is high to get it done, low in the sense of problem getting it done.</p>	

	<p>Thinks majority of cleanup has been completed before MCC and Raritan Center was developed.</p> <p>Feel very comfortable with the USACE work and NJDEP oversight</p> <p>Been active cleanup for 20 years; not like in beginning when nothing was going on. Colonel Bauman in 1992 shook things up, gave confidence something would be done. He lived nearby at Naval Station Earle, was here a lot. Before him, the project managers were from Kansas City and were not here very much.</p> <p>Protection of human health and environment and vapor intrusion</p>					
9.	<p>Please describe any specific interests or concerns you have about the former Raritan Arsenal or the environmental and munitions cleanup activities:</p> <p>So far, anything identified has been addressed. USACE provides safety training for the college, contractors, and site inspector before construction projects, which has led to changes in construction practices.</p> <p>What happened? Why the investigation?</p> <p>Demolitions, make sure area is clear to avoid brush fires.</p> <p>Fire fighters could encounter munitions, so they don't go into the brush.</p> <p>Use of riverfront area for recreation. It may not be useable, depending on cost of remediation. Twp is talking about doing something along the riverfront, twp has own riverfront property next to boat launch</p> <p>Twp will remove Edison landfill wastes to adjacent Meadow Road landfill, restore riverbank for remediation; remediate landfill later). Edison Park had their own landfill on Meadow Road, Industrial Land Reclaiming,</p> <p>Make sure area is cleaned up where new road will come in, rumored/proposed barge docking area.</p> <p>How things are progressing, what's the game plan for the future</p> <p>Getting it finished so that we don't have anyone asking us questions. In the 1990s, lot of newspaper and TV publicity, often instigated by the same person. Would get inaccurate information. People saw iron staining in water ditches, would think it was contaminated; some thought it was their drinking water. Don't know of anyone injured.</p> <p>Cumulative damage to environmental resources over the last 90 years, effects on fish/wildlife</p> <p>Not having same issues as in areas where there is new development. Except Edison Park, not much public access. About to cap Township landfill, could be a good place for recreational use. Is only place left to develop for warehouses, bringing in a road – don't know what will find. Proposed barge docking facility (only permitted dock on Raritan River). Would like to see it move forward.</p> <p>Possible exposure to hazardous and toxic waste.</p> <p>Proper and effective cleanup prior to development.</p> <p>Time to Complete.</p> <p>Safety.</p>					
10.	<p>If you had a questions or concern about these investigations, who would you call or contact?</p> <table><tr><td>USACE point of contact: 50%</td><td>Edison Township Office of Emergency Management: 6%</td><td>EPA: 6%</td></tr></table>			USACE point of contact: 50%	Edison Township Office of Emergency Management: 6%	EPA: 6%
USACE point of contact: 50%	Edison Township Office of Emergency Management: 6%	EPA: 6%				
11.	<p>Have you ever attended a public meeting about the Raritan Arsenal cleanup?</p> <p>(If yes) Do you feel the information was presented effectively to the public?</p> <p>(If yes) Do you have any suggestions for improving the meetings?</p> <p>Would think more people would be interested, don't seem to be; USACE puts a lot of work into the presentation</p> <p>No – having information on website before and after the meeting is helpful. Videotaped last meeting, provided to township.</p> <p>Link USACE website to township website, which gets a lot of traffic. Makes it simpler for township. USACE sends public notice to township to update on town website.</p> <p>Bigger room.</p> <p>Not really, presented clearly now. First meetings, lots of people in town showed up, lots of questions. Set up the Technical Review Committee of property owners and people who had concerns (MCC, park)</p>	<p>Yes: 56%</p> <p>Yes: 100%</p>	<p>No: 39%</p> <p>No: 0%</p>			

	Always effective, whoever PM was has done it well. Location here is good. Always a lot of information presented, although people don't pay attention to it all, because they are usually focused on one issue Slide shows, charts – pretty effective Less reading off PowerPoint; more discussion, handouts, large maps available		
12.	Public meetings are advertised in the <i>Star-Ledger</i> and on the project website. Have you ever noticed these advertisements?	Yes: 17%	No: 78%
	Not in the Star Ledger Suggest putting it in community calendar of local Criterion		
13.	The USACE maintains a public website to provide information about the former Raritan Arsenal cleanup. Have you ever visited the website?	Yes: 44%	No/not aware: 50%
	(If yes) Did you find the information helpful? Do you have any suggestions for improving it?  Yes, don't use it much, mostly to confirm meeting times; has used some of the site history in his reports Don't use it. Would refer others to the website for information Not really because have been working with USACE, it's not news for them Have had people in town call because they've seen ads. On email list; website useful Yes, helpful		
14.	Would you be interested in joining a mailing list to receive fact sheets and other general information about this investigation?	Yes, E-mail: 72%	No: 6%
	If yes, would you prefer e-mail or regular mail?	Yes, Mail: 11%	
15.	The USACE maintains a Public Information Repository at their work trailer, on the former Raritan Arsenal site, where the public can review documents about the cleanup work.		
	Did you know about/have you ever visited the repository?	Yes: 11%	No: 78%
	Do you think this location is suitable and convenient?	Yes: 39%	No: 17%
	If not, can you suggest another location?  Respondent remembered it was originally in Edison public library and MCC library, after the program settled down was consolidated; have to make appt to view it, people would be hesitant to go on EPA property; would be good to put electronic copy in the public library Online or CDs/hard drives.  Need to publicize that it's there. If it's a safe location for documents, good place. Someone would be there to help people find things. Electronic copy in the library would be good, if indexed.  Members of the public don't know they can get on the place (if they call ahead, USACE Project Manager notifies the guard to let them in)  Any public place would be good, maybe the college library Edison Public Library Middlesex County College is more accessible		
16.	How do you and other community members receive information about local events and news?	Radio: 11%	TV: 39%
		Other: 11%	Newspapers: 44%
			Web: 28%
	Home News Tribune (not weekends); not much TV, New York networks Channel 12, CNN, CBS is always on at Emergency and Remedial Response Division (ERRD – on EPA property) AM WCTC, Home News Tribune, Star Ledger, News Channel 12		

	Township cable channel, weekly newspapers – best vehicle is the Sentinel, covers most communities (better than Star-Ledger or Home News) Cathy Chang reporter at Sentinel covers township news Channel 12 local, Home News, Star-Ledger, Sentinel. Township uses their local access TV to televise their council meetings, Mayor’s Corner; for issues that come up, she videotapes her testimony and provides an introduction. Channels 2, 4, 7; channel 12 local access Mostly from the internet Home News (best for notices), Star-Ledger, Sentinel Township televised the last 2 USACE public meetings. Sandra provided slides and voiceover Township TV channel Criterion, The Sentinel, Home News Tribune USEPA, NJDEP, and Middlesex County Home News Tribune					
17.	Other than the mailing list, how would you like to receive information about the cleanup work at former Raritan Arsenal from the USACE?					
	Stakeholders Group meetings: 11%	Newspapers: 22%	Radio/TV: 17%	Web: 33%	Public meetings: 33%	Site visit: 11%
	Other: 6% Stakeholders meetings are best for him, forwards information to others on campus Fowards status emails to others at EPA. Need a combination in today’s world, increasing use of social media Township has a Facebook page for farmers market and other special activities, more active on Twitter (works well) USACE can always call the Mayor if they need to talk about something USACE Project Manager, stakeholders meetings We get what we need. Press releases in local newspapers, news pieces on Channel 12, NJ Network (NJ public access channel –owned by WNET) every few years					
18.	How often do you think information should be provided to the local community?			Monthly: 17%		Quarterly: 33%
				Annually: 22%		As needed: 44%
	Other: as actions change, when quiet twice/year is fine; more as something is happening 30-60 days before something happens, especially if visible (EPA site work on Woodbridge Avenue was visible-USACE let township know to inform residents) Safety meeting with Township Office of Emergency Management Sign with a point of contact (a North Edison paint factory remediation site was not posted with a sign [DEP case #, point of contact] recently, when a camp opened nearby there was a lot of concern about it)					
19.	If there is sufficient and sustained community interest, a Restoration Advisory Board (RAB) can be formed. A RAB is a community advisory team intended to facilitate public participation in environmental restoration activities. RAB meetings are open to the public and are typically held 2-4 times per year. The agenda typically covers environmental cleanup and munitions response activities that have occurred since the last meeting. RAB members are expected to attend all meetings and sometimes to review documents between meetings.					
	Would you be potentially interested in serving on a RAB for the former Raritan Arsenal?			Yes: 67%		No: 33%
	maybe, don’t see the need for one RAB/TRC used to work well, not a lot of need for it anymore					

20.	<p>Can you suggest anyone else (friend, neighbor, group, community leader) that we should contact, or who might want to be included on the mailing list?</p> <p>No one else at the college, he was appointed to be the main contact; of his neighbors, no one seems interested.</p> <p>(Middlesex County) Local Emergency Planning Committee chair, Edison Township</p> <p>Region 2 EPA Public Affairs (in NYC)</p> <p>Region 2 EPA ERRD</p> <p>Chair of the Township Office of Emergency Management (recently changed)</p> <p>Keep adding as people become involved (example: encouraged Arizona Iced Tea to keep employees aware of website)</p> <p>Cathy Chang reporter at Sentinel</p> <p>Chair of Edison Environmental Commission, just did first environmental inventory for the Township</p> <p>[suggested two individuals who] have environmental interests, level-headed and thoughtful</p> <p>No. cleanup is really important to people who are here, no one else. If you get too much out there, people speculate on what's going on, gets out of hand. As things happen, we can talk to them.</p>
21.	<p>Do you have any other comments or suggestions for the project team?</p> <p>Involvement has evolved over time, but even early communication was good.</p> <p>Done well at this point, timely and effective communications. Having a single point of contact is really beneficial.</p> <p>I manage this apt complex at 97 Horizon Drive, Edison, NJ, 08817, Millbrook Village. Are tenants here receiving this form?</p> <p>Pleased with information provided today.</p> <p>Think everyone goes pretty smoothly</p>

**THANK YOU for taking the time to share your thoughts with us! Your participation is greatly appreciated.**

If you are responding to these questions in writing, please fax, scan/email, or mail your responses to:

Sandra L. Piettro, Project Manager  
U.S. Army Corps of Engineers, New York District  
Jacob K. Javits Federal Building, Room 1811  
26 Federal Plaza  
New York, NY 10278-0090

Telephone: 917.790.8487 ■ Email: [Sandra.L.Piettro@usace.army.mil](mailto:Sandra.L.Piettro@usace.army.mil) ■ Fax: 212.264.0563

**If you would like to talk with us in person on April 23-26, please call or email Sandra Piettro by April 20, 2012.**

Please visit the project website at: <http://www.nan.usace.army.mil/business/buslinks/raritan/index.htm>

## Appendix C

### Stakeholders Working Group

---

## APPENDIX C

# Stakeholders Working Group

---

Sandra L. Piettro  
Project Manager  
U.S. Army Corps of Engineers – New York District  
2890 Woodbridge Avenue  
Edison, NJ 08818  
917-790-8487  
Sandra.L.Piettro@usace.army.mil

Anthony Cinque  
Case Manager  
New Jersey Department of Environmental Protection  
Bureau of Case Management, 5th Floor  
401 East State Street, CN-028  
Trenton, NJ 08625  
609-633-1416  
Anthony.Cinque@dep.state.nj.us

Nicole Visceglia Rodgers  
Federal Business Center  
300 Raritan Center Parkway  
Edison, NJ 08818  
732-225-2200  
nvisceglia@federalbusinesscenters.net

John V. Visceglia, Vice President  
Summit Associates, Inc.  
Raritan Plaza 1- Raritan Center  
Edison, NJ 08818  
732-225-2900  
jvisceglia@sairealestate.com

John Orozco  
Orozco Consultants  
Federal Business Center  
300 Raritan Center Parkway  
Edison, NJ 08818  
732-417-4232

John Verlaque  
Edgewood Properties  
1260 Stelton Road  
Piscataway, NJ 08854  
732-985-1900  
jverlaque@edgewoodproperties.com

Ralph Albanir  
Director  
Middlesex County Parks  
1030 River Road  
Piscataway, NJ 08903  
732-745-3995  
ralph.albanir@co.middlesex.nj.us

Donald Drost  
Facilities Manager  
2600 Woodbridge Avenue  
Edison, NJ 08818  
732-906-2568  
Donald\_Drost@middlesexcc.edu

Kwong Cho  
USEPA Region 2  
Building 207  
2890 Woodbridge Avenue  
Edison, NJ 08818  
732-906-6901  
cho.kwong@epa.gov

Jay P. Elliot, Director  
Division of Health & Human Services  
Edison Township  
100 Municipal Boulevard  
Edison, NJ 08817  
732-248-7476  
jelliot@edisonnj.org

Walter Stochel, Vice President  
Coalition for a Better Edison/Edison Greenways  
2118 Oak Tree Road  
Edison, NJ 08820  
732-906-0529  
wstochel@earthlink.net

Dana Patterson  
Edison Wetlands Associates  
206 Tyler Road  
Edison, NJ 08820  
703-321-1300  
dana@edisonwetlands.org

Appendix D  
Federal, State, and Local Officials

---



## Federal, State and Local Officials

---

### Federal Government

Office of Congressman Frank Pallone Jr.  
67/69 Church Street  
New Brunswick, NJ 08901  
732) 249-8892

### State Government

New Jersey Senator Barbara Buono  
Two Lincoln Highway, Suite 401  
Edison, NJ 08820  
732-205-1372

Assemblyman Peter J. Barnes III  
3 Stephenville Pkwy, Suite 2E  
Edison, NJ 08820  
732-548-1406

Assemblyman Patrick J. Diegnan Jr  
908 Oak Tree Ave, Unit P  
South Plainfield, NJ 07080  
908-757-1677

### Local Government

Christopher Rafano  
Freeholder Director  
Middlesex County  
15 Charter Drive  
South River, NJ 08882  
732-745-5692

Antonia "Toni" Ricigliano  
Mayor, Edison Township  
Edison Municipal Complex  
100 Municipal Boulevard  
Edison, NJ 08817  
732-248-7298  
mayorricigliano@edisonnj.org

William Stephens  
Management Specialist  
Township of Edison  
100 Municipal Boulevard  
Edison, NJ 08817-3302  
Office: 732-248-7298  
Fax: 732-287-6679  
wstephens@edisonnj.org

Brian Latham  
Deputy Fire Chief  
Edison Municipal Complex  
100 Municipal Boulevard  
Edison, NJ 08817  
732-248-7567  
blatham@edisonfd.org

Thomas Bryan  
Chief of Police  
Edison Municipal Complex  
100 Municipal Boulevard  
Edison, NJ 08817  
732-248-7422  
tbryan@edisonpd.org

Sgt. Michael Mintchwarner  
Middlesex Local Emergency Planning Committee  
100 Municipal Boulevard  
Edison, New Jersey 08817  
732-248-8669  
mmintchwarner@edisonpd.org

Sushma Trivedi  
Chief, Emergency Medical Services  
Edison Municipal Complex  
100 Municipal Boulevard  
Edison, NJ 08817  
732-404-8620  
strivedi@edisonnj.org

Jim Leonard  
Facility Manager  
Middlesex County Utilities Authority  
- Edison Pumping Station  
732-721-3800  
JLeonard@mcua.com

Kristyn Morrison  
Edison Township Environmental Commission  
2235 Route 130  
Dayton, NJ 08810  
732-355-4553  
kristynm@accutest.com  
Morrison.kristyn@gmail.com

## Appendix E

### Environmental and Civic Groups

---

## Environmental and Civic Groups

---

### Adjacent Residential Communities

CentrePlace At Edison Condominium Board  
100 Edward Stec Boulevard  
Edison, NJ 08837

Amandla Crossing  
Making it Possible to End Homelessness  
60 Clif Prescod Lane, Edison, NJ 08817  
732-729-7770

Millbrook Village  
Property Management  
97 Horizon Drive  
Edison, NJ 08817  
732-287-4545  
JoeB@gardenhomes.com

### Environmental Groups

Robert (Bob) Spiegel  
Edison Wetlands Associates  
206 Tyler Road  
Edison, NJ 08820  
732-321-1300  
[rspiegel@edisonwetlands.org](mailto:rspiegel@edisonwetlands.org)

Bob Takash, President  
Edison Greenways Group  
P.O. Box 10432  
New Brunswick, NJ 08906  
732-985-7071  
[info@edisongreenways.org](mailto:info@edisongreenways.org)

Debbie Mans, Executive Director  
New York New Jersey Baykeeper  
[debbie@nynjbaykeeper.org](mailto:debbie@nynjbaykeeper.org)

Bill Schultz  
Raritan RiverKeeper  
P.O. Box 244  
Keasbey, NJ 08832  
732-442-6313  
[raritan.riverkeeper@verizon.net](mailto:raritan.riverkeeper@verizon.net)

Judy Shaw  
Rutgers Sustainable Raritan River Initiative  
848-932-2711  
Cell: 856-462-4067  
[judy.shaw@rutgers.edu](mailto:judy.shaw@rutgers.edu)

### Business Groups

Edison Chamber of Commerce  
336 Raritan Center Parkway  
Campus Plaza 6  
Edison, NJ 08837  
732-738-9482  
[president@edisonchamber.com](mailto:president@edisonchamber.com)

## Appendix F

### Media Contacts

---

## Media Contacts

---

### Reporters

Bob Makin  
*Home News Tribune*  
732-565-7319  
makin@njpressmedia.com

Kathy Chang  
Greater Media Newspapers  
(*Edison/Metuchen Sentinel*)  
732-895-1343

Jacqueline Durrett  
Greater Media Newspapers  
(*Edison/Metuchen Sentinel*)  
732-773-8957

### Public Notices

*Middlesex County News/Star Ledger*  
Star Ledger Plaza  
Newark, NJ 07101  
973-392-4104  
[legalads@starledger.com](mailto:legalads@starledger.com)

*Home News Tribune*  
35 Kennedy Boulevard  
East Brunswick, NJ 08816  
888-516-9200  
[hntlegals@gannett.com](mailto:hntlegals@gannett.com)

### Community Calendars

*Criterion News Advertiser*  
Chris Crane  
87 Forrest Street  
Metuchen, NJ 08840  
732-548-8300  
criterion.pub@verizon.net

*Central Jersey Events*  
[http://search.mycentraljersey.com/localevents/add\\_event/](http://search.mycentraljersey.com/localevents/add_event/)

**Appendix G**  
**Example Public Notices and Fact Sheets**

---

## **Example Public Notices**

**Public Notice**  
**U.S. Army Corps of Engineers (USACE – New York District)**  
**Former Raritan Arsenal**  
**Non-Time Critical Removal Action**  
**Signed Action Memorandum**

U.S. Army Corps of Engineers - New York District signed the Action Memorandum for the former Raritan Arsenal site in Edison, New Jersey. This action is being taken under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as the Superfund law. The Action Memorandum was signed on November 18, 2011.

USACE opened public comment on the Engineering Evaluation/Cost Analysis (EE/CA) report for the Non-Time Critical Removal Action at 2890 Woodbridge Avenue (Area 18E) on September 20, 2011. The EE/CA report compares and evaluates cleanup alternatives in terms of effectiveness, implementability, and costs.

In addition to the information and the analysis contained in the EE/CA, USACE must consider all significant written and oral public comments provided regarding the EE/CA during the public comment period. The public comment period was held from September 20, 2011, until November 4, 2011. Based on the EE/CA and public comments, USACE selected the alternatives specified in the Action Memorandum.

A responsiveness summary was prepared to respond to public comments and is available for review at the repositories listed in this fact sheet.

If you have any questions, please contact:

Ms. Sandra L. Piettro, Project Manager  
U.S. Army Corps of Engineers – New York District  
Telephone: 917-790-8487  
E-mail: [Sandra.L.Piettro@usace.army.mil](mailto:Sandra.L.Piettro@usace.army.mil)

The Administrative Record file for the former Raritan Arsenal site is also available for inspection, please call or write Ms. Piettro at the contact information provided above.



**Public Notice**  
**U.S. Army Corps of Engineers (USACE – New York District)**  
**Former Raritan Arsenal**  
**Non-Time Critical Removal Action**

U.S. Army Corps of Engineers - New York District is planning to perform a Non-Time Critical Removal Action at 2890 Woodbridge Avenue (Area 18E) and is offering the public an opportunity to comment on our proposed action. The comment period is 30 days. An Engineering Evaluation Cost Analysis (EE/CA) has been prepared which describes the delineation (removal and disposal) of volatile organic compounds (VOCs) and metals in contaminated soils (approximate 2,000 yards) which is part of the former Raritan Arsenal project. The purpose of our efforts is to address contaminated soil identified within Area 18E which may impact groundwater.

If you are interested in reviewing the EE/CA for the 2890 Woodbridge Avenue (Area 18E) property, please contact:

Ms. Sandra L. Piettro, Project Manager  
U.S. Army Corps of Engineers – New York District  
Telephone: 917-790-8487  
E-mail: [Sandra.L.Piettro@usace.army.mil](mailto:Sandra.L.Piettro@usace.army.mil)

The Administrative Record file for the former Raritan Arsenal site is also available for inspection, please call or write Ms. Piettro at the contact information provided above.



Movie Times

DUNELLEN

**DUNELLEN CINEMA CAFE**, 458 North Ave., (732) 968-9010 — **The Hunger Games** (PG-13) 1, 4, 7.

EAST BRUNSWICK

**MEGA MOVIES AT BRUNSWICK SQUARE**, 755 Route 18, (732) 651-MEGA — **21 Jump Street** (R) 11:30, 2, 4:40, 7:15, 9:40. **American Reunion** (R) 11:20, 1:50, 4:25, 7:20, 9:55. **The Cabin in the Woods** (R) 12:30, 2:50, 5:05, 7:25, 9:50. **The Cabin in the Woods** (R) 12:30, 2:50, 5:05, 7:25, 9:50. **Chimpanzee** (G) 11:10, 1, 3, 4:55, 6:50, 8:45. **Dr. Seuss' The Lorax** (PG) 11:15, 1:30. **The Hunger Games** (PG-13) 12, 1:40, 2:55, 3:50, 4:50, 6, 7, 8, 9, 10. **Lockout** (PG-13) 12:05, 2:15, 4:35, 6:55, 9:15. **The Lucky One** (PG-13) 11:30, 1:55, 4:45, 7:10, 9:35. **Mirror Mirror** (PG) 11, 1:20, 3:55, 6:25. **Think Like a Man** (PG-13) 11:05, 1:45, 4:20, 7:05, 9:45. **The Three Stooges** (PG) 12:10, 2:20, 4:30, 6:45, 8:55. **Titanic 3D** (PG-13) 12, 3:45, 7:45. **Wrath of the Titans** (PG-13) 8:50.

EDISON

**AMC LOEWS MENLO PARK 12**, 390 Menlo Park, (888) AMC-4FUN — **21 Jump Street** (R) 11, 2, 5, 8:30, 11:30. **American Reunion** (R) 11. **American Reunion** (R) 12:30, 4:45, 8. **The Cabin in the Woods** (R) 11:45, 2:45, 5:45, 8:45, 11:30. **Chimpanzee** (G) 12:15, 3, 6:15, 9:15. **The Hunger Games** (PG-13) 11, 2:30, 6:30, 10. **Lockout** (PG-13) 11:15, 2:15, 5, 8:15, 11:15. **The Lucky One** (PG-13) 11. **The Lucky One** (PG-13) 1:15, 4:15, 7:15, 10:30. **Mirror Mirror** (PG) 12, 3:30. **Think Like a Man** (PG-13) 7:45. **Think Like a Man** (PG-13) 12, 3:15, 7:30, 10:45. **The Three Stooges** (PG) 12:45, 4, 6:45, 9:30. **Titanic 3D** (PG-13) 1:30, 6, 10:15. **Woman Thou Art Loosed: On the 7th Day** (PG-13) 10, 12:25, 2:55, 5:20, 7:50, 10:15. **Wrath of the Titans** (PG-13) 1:05, 3:30. **Wrath of the Titans 3D** (PG-13) 4, 9:45.

**BIG CINEMAS MOVIE CITY 8**, 1655 Oak Tree Road, (732) 548-2300 — **Agent Vinod** (NR) 11:15, 2:50, 6:35, 10:10. **Ee Rojullo** (NR) 12:15, 3:45, 7, 10:20. **Housefull 2: The Dirty Dozen** (NR) 11:30, 3, 6:30, 10. **Kahaani** (NR) 1:15, 4:15, 7:15, 10:15. **Nee-Ku Naaku Dash Dash** (NR) 11, 2:45, 6:30, 10:15. **Oru Kal Oru Kannadi** (NR) 11, 2:50, 6:45, 10:30. **Rachcha** (NR) 12, 3:30, 7, 10:30. **Vicky Donor** (NR) 12:30, 4, 7, 10:05.

MANVILLE

**READING CINEMAS MANVILLE**, 180 North Main Street, (800) FAN-DANG 2717 — **21 Jump Street** (R) 12:05, 2:25, 4:50, 7:10, 9:40. **American Reunion** (R) 11:35, 2:05, 4:35, 7:05, 9:35. **The Cabin in the Woods** (R) 10:50, 1:10, 3:30, 5:50, 8:10, 10:25. **Chimpanzee** (G) 11:30, 1:30, 3:30, 5:30, 7:30, 9:30. **The Hunger Games** (PG-13) 10, 1, 4, 7, 10. **Lockout** (PG-13) 10:25, 12:50, 3:10, 5:30, 7:50, 10:30. **The Lucky One** (PG-13) 10:15, 11:50, 12:45, 2:20, 3:15, 4:50, 5:45, 7:20, 8:15, 9:50, 10:45. **Mirror Mirror** (PG) 2:50, 5:05, 7:25, 9:55. **October Baby** (PG-13) 10:15, 12:30. **Special Event** (NR) **Think Like a Man** (PG-13) 12:15, 2:45, 5:15, 7:45, 10:15. **The Three Stooges** (PG) 10:55, 1:05, 3:15, 5:25, 7:35, 9:50. **Titanic 3D** (PG-13) 1, 5, 9. **Wrath of the Titans** (PG-13) 10:30. DLP

METUCHEN

**FORUM THEATRE**, 314 Main Street, (732) 548-5600 — **The Deep Blue Sea** (R) 7:30.

NEW BRUNSWICK

**AMC LOEWS NEW BRUNSWICK 18**, 17 Route 1, (888) AMC-4FUN — **21 Jump Street** (R) 10:50, 1:30, 4, 6:30, 9, 11:40. **American Reunion** (R) 10:45, 1:25, 4:05, 6:45, 9:30, 12:10. **CC/DVS Bully** (PG-13) 12, 2:20, 4:45, 7:20, 9:45, 12:15. **The Cabin in the Woods** (R) 10:35, 12:55, 3:25, 5:50, 8:15, 10:40. **Dr. Seuss' The Lorax 3D** (PG) 10, 12:10, 2:20. **Housefull 2: The Dirty Dozen** (NR) 10, 1:10, 4:25, 7:40, 11. **The Hunger Games** (PG-13) 11:15, 2:25, 4:10, 5:35, 7:10, 8:45, 10:20, 11:55. **Lockout** (PG-13) 10:25, 10:40, 12:45, 1:10, 3:05, 3:40, 5:25, 6:10, 7:45, 8:40, 10:05, 11:10, 12:25. **The Lucky One** (PG-13) 12, 2:30, 5, 7:30, 10, 12:30. **Mirror Mirror** (PG) 11, 1:35. **Think Like a Man** (PG-13) 11:25, 2:15, 5:10, 8, 10:55. **The Three Stooges** (PG) 12:15, 2:35, 4:55, 7:15, 9:40, 12:05. **Titanic 3D** (PG-13) 4:30, 8:30. **Titanic: An IMAX 3D Experience** (NR)



Taylor Schilling, left, and Zac Efron are shown in a scene from "The Lucky One," now in theaters. ASSOCIATED PRESS

10:55, 3, 7:05, 11:05. **Vicky Donor** (NR) 10:20, 1:40, 4:55, 8:10, 11:30. **Woman Thou Art Loosed: On the 7th Day** (PG-13) 10, 12:25, 2:55, 5:20, 7:50, 10:15. **Wrath of the Titans** (PG-13) 1:05, 3:30. **Wrath of the Titans 3D** (PG-13) 10:40, 5:55, 8:20, 10:45.

**RUTGERS UNIVERSITY FILM CO-OP - RUTH ADAMS**, 72 Lipman Drive - 018 Loree Hall, (732) 932-8482 — Call theater for schedule.

**RUTGERS UNIVERSITY FILM CO-OP - SCOTT HALL**, 43 College Avenue, (732) 932-8482 — Call theater for schedule.

**STATE THEATRE - NEW BRUNSWICK**, 247 Livingstone Hall, (732) 217-7200 521 — Call theater for schedule.

NORTH BRUNSWICK

**REGAL COMMERCE CENTER 18**, 2399 Route 1 south, (800) 326-3264 262 — **21 Jump Street** (R) 2, 4:35, 7:15, 9:55. **American Reunion** (R) 4:40. **OC The Cabin in the Woods** (R) 1:40, 7:35, 10:35. **The Cabin in the Woods** (R) 12:50, 3:10, 5:30, 8, 10:25. **Chimpanzee** (G) 12, 2:20, 4:50, 7, 9:10. **Dr. Seuss' The Lorax** (PG) 12:05, 2:25, 4:45. **Housefull 2: The Dirty Dozen** (NR) 2:40, 6, 9:20. **The Hunger Games** (PG-13) 12:30, 1:10, 3:30, 4:10, 6:30, 7:20, 9:30, 10:20. **Kahaani** (NR) 9:45. **Lockout** (PG-13) 1:50, 5:10, 7:45, 10:10. **The Lucky One** (PG-13) 12:20, 1, 2:50, 4, 5:20, 7:10, 7:50, 9:50, 10:30. **Mirror Mirror** (PG) 1:35, 4:30. **The Raid: Redemption** (Serbuan maut) (R) 7:25, 10:05. **Think Like a Man** (PG-13) 12:40, 1:20, 3:40, 4:20, 6:50, 7:30, 9:40, 10:40. **The Three Stooges** (PG) 12:10, 1:30, 2:30, 3:50, 5, 6:40, 7:40, 9, 10. **Titanic 3D** (PG-13) 12:15, 4:15, 8:15. **Vicky Donor** (NR) 12:25, 3:20, 6:10, 9:15. **Wrath of**

**the Titans** (PG-13) 7:05.

PRINCETON

**PRINCETON GARDEN THEATRE**, 160 Nassau St., (609) 683-7595 — **Footnote** (Hearat Shulayim) (PG) 12, 4:35, 9:15. **The Hunger Games** (PG-13) 12:30, 3:30, 6:30, 9:30. **The Kid With a Bike** (Le Gamin au

**Velo**) (PG-13) 2:25, 7.

SOUTH PLAINFIELD

**REGAL HADLEY CENTER 16**, 1000 Corporate Court, (908) 668-4449 — **21 Jump Street** (R) 12:05, 2:50, 5:30, 8:05, 10:40. **American Reunion** (R) 2:10, 7:55, 10:30. **American Reunion** (R) 5. **OC The Cabin in the**

**Woods** (R) 12:55, 3:20, 5:50, 8:20, 10:45. **Chimpanzee** (G) 12:10, 2:30, 5:05, 7:30, 10. **Dr. Seuss' The Lorax** (PG) 1:05, 4:10. **Housefull 2: The Dirty Dozen** (NR) 6:10, 9:35. **The Hunger Games** (PG-13) 12:45, 3:50, 7, 10:05. **Lockout** (PG-13) 1:50, 4:20, 6:55, 9:15. **The Lucky One** (PG-13) 12:15, 2:40, 5:25, 8, 10:35. **Mirror Mirror** (PG) 1,

3:40. **Think Like a Man** (PG-13) 12:35, 1:30, 2:55, 3:30, 4:30, 6:45, 7:15, 7:45, 8:30, 9:50, 10:20, 10:50. **The Three Stooges** (PG) 12, 1:15, 2:20, 4, 4:45, 6:30, 7:05, 9, 9:30. **Titanic 3D** (PG-13) 1:40, 5:40, 9:40. **Vicky Donor** (NR) 12:20, 3:15, 6, 8:50. **Wrath of the Titans 3D** (PG-13) 12:25, 5:45.

**DONATE YOUR CAR**

*Wheels For Wishes*

Benefiting

**MAKE-A-WISH.**

NEW JERSEY CHAPTER

\*Free Vehicle/Boat Pickup ANYWHERE  
\*We Accept All Vehicles Running or Not  
\*Fully Tax Deductible

**WheelsForWishes.org** **Call: 1-732-898-2411**

**"WICKED TWISTED FUN!"**

PETER TRAVERS, ROLLING STONE

**"OUTRAGEOUSLY ENTERTAINING!"**

ANDREW O'HEIR, SALON

**YOU THINK YOU KNOW THE STORY.**

**THE CABIN IN THE WOODS**

WITH JOSS WHEDON & DREW GODDARD DIRECTED BY DREW GODDARD

**LIONSGATE**

AMC LOEWS BRICK PLAZA 10 BRICKTOWN 888.AMC.4FUN	REGAL ENTERTAINMENT GROUP HADLEY THEATRE STADIUM 16 800.FANDANGO #264 RAVE MOTION PICTURES HAZLET 12 HAZLET 732.888.1352 MEGA MOVIES AT BRUNSWICK SQUARE EAST BRUNSWICK 732.651.MEGA	AMC LOEWS MENLO PARK 12 EDISON 888.AMC.4FUN CLEARVIEW CINEMAS MIDDLEBROOK GALLERIA CINEMA 10 OCEAN 888.CLVW.TIX AMC LOEWS MONMOUTH MALL 18 EATONTOWN 888.AMC.4FUN	AMC LOEWS NEW BRUNSWICK 18 NEW BRUNSWICK 888.AMC.4FUN MARQUEE ORCHARD 10 TOMS RIVER 732.341.SHOW AMC LOEWS SEACOUNT 10 TOMS RIVER 888.AMC.4FUN
--	---	--	---

**NO PASSES OR DISCOUNT TICKETS ACCEPTED**

AP-500054079

**Public Meeting Notice**

**You are invited to attend a public information meeting about the Former Raritan Arsenal Site**

The U.S. Army Corps of Engineers (USACE), New York District, will discuss ongoing cleanup activities, progress toward site closure, recent ordinance-removal actions, and the status of the indoor-air investigation at the former Raritan Arsenal site (Raritan Center). Please join us:

**Thursday, April 26, 2012 at 7pm – 9pm**  
**Edison Municipal Complex • Council Chambers**  
**100 Municipal Boulevard • Edison, New Jersey**

**Agenda**  
**7pm – 8pm: U.S. Army Corps of Engineers Presentation**  
**Questions and Discussion**

**Community Involvement Opportunity**

The USACE recognizes the importance of stakeholder participation in the Defense Environmental Restoration Program. To enhance the public involvement program for the former Raritan Arsenal site, the USACE is currently:

1) Updating the Public Involvement Plan for the former Raritan Arsenal site. This plan will guide future opportunities for public participation. You can help by sharing your thoughts in a 20-minute, confidential meeting, before or after the public meeting (6:00-7:00 pm or 8:00-9:00 pm on April 26), or at another time and place between April 23-27, 2012.

**To schedule a meeting, please contact Ms. Sandra Piettro, Project Manager, at 917-790-8487 by April 24, 2012.**

2) Seeking input about potential interest in establishing a Department of Defense (DoD) Restoration Advisory Board (RAB). A DoD RAB creates a regular forum for the community and the USACE to exchange information about environmental restoration projects at the site, under the DoD Formerly Used Defense Sites (FUDS) Program. RAB meetings are always open to the public. This would be in addition to the public and Raritan Arsenal stakeholders group meetings that are currently held twice a year.

If you are interested in having the USACE establish a DoD RAB and becoming a member, please attend this public meeting for more information, or contact:

**Sandra L. Piettro, Project Manager**  
**U.S. Army Corps of Engineers – New York District**  
**Jacob K. Javits Federal Building**  
**26 Federal Plaza, New York 10011**  
**New York, NY 10278-0090**  
**Telephone: 917-790-8487**

**"AN EXHILARATING GIFT OF A COMEDY!"**

—PETER TRAVERS, ROLLING STONE

—WHIT STILLMAN'S

**DAMSELS IN DISTRESS**

WRITTEN, PRODUCED AND DIRECTED BY WHIT STILLMAN

**PG-13**

www.sonypicturesclassics.com

CLEARVIEW CINEMAS  
**CLAIRIDGE CINEMAS**  
MONTCLAIR  
777-FILM #574

DIGIPLEX  
**CRANFORD 5**  
276-9120

MONTGOMERY CINEMAS 7  
ROCKY HILL  
924-7444

CLEARVIEW CINEMAS  
**RED BANK**  
777-FILM #721

**WWW.DAMSELSINDISTRESSMOVIE.COM**

AP-500054060

**May Celebrations**

**May 12th**

**Barbara**

**Happy Birthday Mom!**

**Thanks for all you do for us!**

**We love you!**

**Micaela & Chris, Shaun, Lauren & Justin**

To submit a **May Celebration**, please fill out the information below and return with payment of **\$37** and a photo for a business card-size ad by **Tuesday April 24, 2012**. Please indicate your home address below. The May Celebrations Page will appear on **Tuesday, May 1, 2012**.

☐ **\$37.00** Birthday Celebrations ad with photo.  
☐ **\$37.00** Nurses Week Celebration with photo  
☐ Put my ad online at no additional cost.

**In Appreciation of Their Dedication!**

**NATIONAL NURSES' WEEK**

**PUT YOUR FAVORITE NURSE IN THE SPOTLIGHT!**

Date of Event \_\_\_\_\_

Celebrant's Name \_\_\_\_\_

Message (Maximum 150 Characters) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Greetings From \_\_\_\_\_

Phone Number \_\_\_\_\_

Your Name \_\_\_\_\_

Street Address \_\_\_\_\_

Town \_\_\_\_\_

Charge my credit card (circle one):

Credit Card# \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Larger size ads available. Call for details at 732-643-3626 or e-mail: celebrations@NJPressMedia.com

Make check payable to: Home News Tribune

**HOME NEWS TRIBUNE**

CentralJersey.com

Mail to: Celebration Page/Jamie  
Classified Telesales/Home News Tribune  
P.O. Box 788, Neptune, NJ 07754

I agree to the terms and conditions outlined below.

Name \_\_\_\_\_

Signature \_\_\_\_\_

By submitting the above referenced photograph and message, I hereby give the Home News Tribune, and anyone authorized by the Home News Tribune, full permission to use, copy, edit, publicly display, publish or distribute, in whole or in part, the attached photograph (the "Photograph"), the message, name, likeness and biographical information in the newspaper and on the Home News Tribune's Web site and in any derivative works thereof. The Home News Tribune has the right to use the Photograph, the Message, name, likeness and biographical information for promotional purposes related to the Home News Tribune, or any related products or services. I represent and warrant that I have the full right, power and authority to grant the rights set forth above, and that I am authorized by the copyright owner of the Photograph and anyone depicted in the Photograph to grant these rights and this release so that the Home News Tribune can use and publish the Photograph and the Message. I also represent and warrant that use of the Photograph shall not violate any law or infringe upon the rights of any third party. I agree to indemnify and hold harmless the Home News Tribune, Gannett Co. Inc. its affiliated corporations and licensees for any loss, claim, damages or expenses arising from my breach of any of the representation contained herein. I release the Home News Tribune, Gannett Co. Inc., and their respective parents, subsidiaries, affiliated companies, officers, directors, agents, employees, successors or assigns from all claims and liability relating to this release, to the use of the Photograph, the Message, name, likeness or biographical information.

AP-5000537239



**Public Meeting Notice  
You are invited to attend  
a public information  
meeting  
about the Former Raritan  
Arsenal Site**

The U.S. Army Corps of Engineers (USACE), New York District, will discuss ongoing cleanup activities, progress toward site closure, recent ordnance-removal actions, and the status of the indoor-air investigation at the former Raritan Arsenal site (Raritan Center). Please join us:

**Thursday, April 26, 2012  
at 7pm - 9pm  
Edison Municipal Complex  
Council Chambers  
100 Municipal Boulevard  
Edison, New Jersey**

**Agenda  
7pm - 8pm: U.S. Army  
Corps of Engineers Pre-  
sentation  
Questions and Discussion**

**Community Involvement  
Opportunity**

The USACE recognizes the importance of stakeholder participation in the Defense Environmental Restoration Program. To enhance the public involvement program for the former Raritan Arsenal site, the USACE is currently:

1) **updating the Public Involvement Plan** for the former Raritan Arsenal site. This plan will guide future opportunities for public participation. **You can help by sharing your thoughts** in a 20-minute, confidential meeting, before or after the public meeting (6:00-7:00 pm or 8:00-9:00 pm on April 26), or at another time and place between April 23-27, 2012.

**To schedule a meeting,  
please contact Ms. Sandra  
Piettro, Project Manager,  
at 917-790-8487 by April  
24, 2012.**

2) Seeking input about potential interest in establishing a Department of Defense (DoD) **Restoration Advisory Board (RAB)**. A DoD RAB creates a regular forum for the community and the USACE to exchange information about environmental restoration projects at the site, under the DoD Formerly Used Defense Sites (FUDS) Program. RAB meetings are always open to the public. This would be in addition to the public and Raritan Arsenal stakeholders group meetings that are currently held twice a year.

**If you are interested in  
having the USACE estab-  
lish a DoD RAB and becom-  
ing a member, please at-  
tend this public meeting  
for more information, or  
contact:**

Sandra L. Piettro,

Project Manager  
U.S. Army Corps of  
Engineers - New York  
District  
Jacob K. Javits  
Federal Building  
26 Federal Plaza,  
Room 1811  
New York, NY 10278-0090  
Telephone: 917-790-8487  
Fee: \$124.12 4/24/12



**US Army Corps  
of Engineers®**

## **Public Notice of Availability**

### **You are invited to attend a public information meeting for the Former Raritan Arsenal Site**

The U.S. Army Corps of Engineers, New York District, will discuss ongoing cleanup activities, progress toward site closure, recent ordnance-removal actions and the status of the indoor-air investigation at the former Raritan Arsenal site located within boundaries of the Raritan Center. The meeting will include a Corps of Engineers presentation and a question-and-discussion session. Please join us:

**Thursday, December 9, 2010 at 7– 9 p.m.  
Edison Municipal Complex • Council Chambers  
100 Municipal Boulevard • Edison, New Jersey**

**Agenda  
7 – 9 p.m. – U.S. Army Corps of Engineers Presentation,  
Questions and Discussion**

The U.S. Army Corps of Engineers recognizes the importance of public participation in the Defense Environmental Restoration Program. The Corps seeks input at the meeting from former Raritan Arsenal Site stakeholders and community members.

For more information, please contact Sandra Piettro, U.S. Army Corps of Engineers – New York District Project Manager, at 917-790-8487.

# Example Fact Sheets

**RARITAN ARSENAL CLEANUP  
FACT SHEET  
27 January 1992**

**LOCATION:** Edison, Middlesex County, N.J., Former  
Raritan Arsenal

**1. PROJECT PHASE:** OEW Remediation, and RI/FS  
HTW Remedial Investigation/Feasibility  
Study to identify the type and extent of  
chemical contamination and recommend  
remedial action.

**2. GEOGRAPHIC DISTRICT PROJECT MANAGER**

MAJ Ben M. Bauman, New York District (CENAN-PP-R)  
(908) 603-9517, FAX (908) 603-9087

**3. SITE DESCRIPTION:** The former Raritan Arsenal occupies approximately 3,200 acres and is situated along the banks of the Raritan River, approximately 20 miles southwest of Manhattan. It is bordered to the north and northwest by Woodbridge Avenue to the southwest by Mill Road and the ILR Landfill. This is not an NPL site.

**4. SITE HISTORY:** The Arsenal was established in 1917 and originally was a storage point for shipments overseas. Shortly after World War I it became a permanent ordnance depot because of its strategic location. At the time, depot operations consisted mainly of ammunition storage, vehicle storage and processing of other items. Operations included receiving, storing, shipping, transfer, re-storage and re-packing of ammunition (including 37-mm and 40-mm projectiles, fuses, pyrotechnics, grenades, chemical mortars, dummies, and TNT). From 1919 until 1941, the Ordnance Specialist School was located there. Accidental explosions in magazine buildings and outdoor storage areas reportedly scattered explosive materials over large areas during the period from 1919 through World War II.

During World War II, the Arsenal gained a Products Division and a Field Service Ammunition Division. Storage facilities, shipping facilities and ammunition igloos all were expanded during the war.

In 1951, the Army added the Provisional Unit Training Center to train, supply and activate Explosive Ordnance Disposal units. This center was deactivated in 1952. As the decade proceeded many of the arsenal's activities were phased out. During this period some waste materials, including ordnance and chemical agents were routinely destroyed by burial or burning in chambers or pits. Accidental explosions in magazine buildings and outdoor storage areas reportedly scattered explosive materials over large areas.

200.1f

C02NJ008402\_08.11\_0001



In 1962, the government declared it excess to the Army's needs. Phase-out began in 1961 and lasted until 1964, when the former arsenal was turned over to the General Services Administration. Decontamination of the site was performed under the direction of Raritan Arsenal personnel in 1963, and then later under the Letterkenny Army Depot and representatives from the Army Material Command Safety Office.

Within the last 25 years, the northern half of the site has been developed extensively with the construction of numerous buildings and roadways. The southern half of the site remains primarily marshland with limited development. The developed land on the former arsenal site is now mostly light industrial, warehouse, and office space and is known as Raritan Center (2,000 acres). Raritan Center continues to be developed by Summit Associates and Federal business centers. Other major occupants include Middlesex County College, Middlesex County's Edison Park, and the Environmental Protection Agency offices.

5. **MAJOR CONTAMINANTS:** Solvents and metals. TNT, unexploded ordnance, and possible mustard agent.

6. **MODE OF CLEAN UP:** O&A Excavate and destroy on site.  
HTW To be determined.

7. **MANAGEMENT:** From 1957 to 1990 the U.S. Army Corps of Engineers, conducted a Confirmation Study to determine whether any toxic or hazardous material was present at the site, and whether the Department of Defense was involved with creating the waste. The Confirmation Study found chemical contamination of the soil and groundwater, and ordnance contamination. The Corps of Engineers is coordinating efforts at ordnance and HTW remediation with all regulatory agencies, public and private parties.

7a. **HAZARDOUS AND TOXIC WASTE ACTIVITY.** The Corps awarded a contract to Dames and Moore on February 14, 1991, to prepare Work Plans for a Remedial Investigation. The final work plan and Site Safety Health Plan (SSHP) documents have been approved.

The remedial investigation will be conducted in two phases. Phase I consists of all areas of the former Raritan Arsenal except the Middlesex County College (MCC) and the U.S. Environmental Protection Agency (U.S.E.P.A.) facilities. Phase II will encompass MCC, U.S.E.P.A. and other suspected areas as determined during Phase I activities. A rapid response team will be mobilized to remediate any imminent public health hazard detected during Phase I or Phase II field activities. Upon completion of the RI/FS a decision document will be completed, remedial design awarded and then remediation will be started. Phase I of the RI/FS field activities commenced the week of 20 January 1992. Dames & Moore continues preparation of the Community Relations Plan.



A Corps of Engineers rapid response team will be mobilized to conduct a removal action in the EPA area. The EPA study (funded by the Corps) has found HTW contamination on the EPA property at 2890 Woodbridge Ave., Edison, New Jersey. This property is part of the Former Raritan Arsenal and will be remediated by the Corps of Engineers. See enclosed reports. The E.P.A. requested that the Corps conduct a removal action at the pond located along Avenue D on their property in January 1992 and the Corps agreed to execute this mission. The rapid response contractor (IT Corp) is conducting a site visit on 30 January 1992 and will mobilize in six (6) to eight (8) weeks to start work at the pond. As more information is available the TRC members and public will be informed.

7b. **ORDNANCE ACTIVITY:** The Corps awarded a delivery order under an existing contract to IT Corporation to conduct ordnance removal activities at the Former Raritan Arsenal (FRA). In the near future the Corps will award a follow on contract to conduct ordnance removal and investigative activities at FRA. A preliminary archive historical search was conducted by Metcalf & Eddy International Inc.; additional historical research is ongoing. The current status of ordnance activities is:

	<u>START</u>	<u>COMPLETION</u>
<u>Middlesex County College:</u>	Jan 91	Est. Dec 92

Remarks: Ordnance continues to be removed in the vicinity of building 118 (North Hall). A thorough investigation of approximately 100 acres of the campus and removal of ordnance will be conducted with the follow on contract. Ordnance removed: 82,086 MK II booster adaptors.

<u>Area 17</u>	Complete	Cleared, no ordnance found
----------------	----------	----------------------------

\*\*\*

EPA/GSA Property:

<u>Area 1</u>	Complete	Cleared, no ordnance found
<u>Remainder of Property</u>	TBD	Est. Dec 92

Remarks: A thorough investigation and removal of ordnance will be conducted with the award of the follow on contract.

\*\*\*

Raritan Center

<u>Area 4</u>	Oct 91	Est. Apr 92
---------------	--------	-------------

Remarks: In area 4, past Arsenal operations involving TNT removal from ordnance resulted in TNT deposits in this area. Remediation consists of sifting the soil and

separating the TNT residue. So far, this operation has removed 3,928 lbs of TNT. The ordnance action described above started October 91, and is estimated to be completed April 92. After the concentrated TNT residue has been removed, a HTW investigation will commence leading to the final cleanup of soil and groundwater.

\*\*\*

Area 16

TBD

Dec 92

Remarks: During the Arsenal's operation, this large area contained approximately 70 ordnance storage facilities. So far, the areas around two of the building sites (643 and 644) have been metal detector surveyed and remediated. Over 30,000 37mm projectiles were recovered and destroyed. The reason for the high contamination at these areas is that a fire and subsequent ordnance stockpile explosion occurred at these building sites during the operation of the former Arsenal. The remainder of area 16 will be investigated and remediated via a follow-on contract scheduled for February 1992. The removal action described above started in October 1991 and is estimated to be completed in December 1992. This estimate is based on the assumption that the locations (building sites 643 and 644) with the worst ordnance contamination have been located and remediated. If this assumption proves incorrect, the completion date will be revised accordingly.

\*\*\*

Thomas Edison Park  
(Area 10)

Oct 91

Est. Apr 92

Remarks: Ordnance removal ongoing, eight French Rifle Grenades removed and destroyed. Survey and ordnance removal at this area is approximately 25% complete.

\*\*\*

Area 5

TBD

TBD

Remarks: Suspected mustard agent area. A fence has been erected, as a precaution, to deny access to this area. HQ, Department of the Army is developing protocol to address environmental, legal, and logistical issues associated with transporting, storing, and destroying mustard agent. Start and completion dates for remediation of this area are to be determined. An investigation of the site will be conducted to verify the extent of contamination in Area 5.

\*\*\*

Other Areas

TBD

Est. Dec 92

Remarks: Areas 2,3,6,7,8,9,11,12,13,14,15 will be investigated and ordnance removal commenced with the award of the follow on contract.

7c. OEW activity to date:

TYPE	UNEARTHED	DESTROYED ON SITE
UXO, 37mm projectiles	30,149	30,149
UXO, MK II booster adaptors	82,086	81,462
UXO, Grenade Rifle, VB French	8	8
UXO, MK 23 Practice Bomb	1	1
UXO, 9.2" Projectile	1	1
UXO, 75mm Projectile	6	3
UXO, Adapter Booster	5	5
UXO, 155mm Projectile	1	1
UXO, TNT	3,928 lbs	2,522 lbs

8. ISSUES AND CONCERNS:

Suitability for Future Use: The suitability for future use of the effected areas cannot be determined at this time until completion of all investigative and remediation efforts. Current ordnance removal activities have allowed continued use of local facilities. Our goal is to remediate the FRA from known hazards in accordance with the standards for remediation applicable at this time consistent with the Defense Environmental Restoration Program authorities and standard practice of the DOD Explosive Safety Board.

9. FUNDS STATUS:

A.) OEW. In prior fiscal years, \$2.6 million was spent to investigate and remediate ordnance contamination. Total to date spent on OEW is approximately \$3.3 million.

B.) HTW. In prior fiscal years \$2.04 million was spent to investigate chemical contamination. Total to date spent on HTW is approximately \$2.2 million.

VF  
File

**AREA 5  
FACT SHEET  
FEBRUARY 9, 1993**

1. **LOCATION:** Area 5 is located at the Former Raritan Arsenal in Edison, N.J. The site is situated at the edge of the Raritan Center approximately 500 feet southeast of the United Parcel Service Facility.
2. **SITE CHARACTERISTICS:** Area 5 is a "V" shaped wooded area totalling approximately 10 acres in size. The suspected disposal area is a 1.39 acre fenced portion.
3. **SITE HISTORY:** During the period (1943 - 1945?) when Raritan was utilized as a shipping port for vessels transporting munitions and equipment overseas, chemical munitions and /or containers which developed leaks were transported to area 5 for disposal. Leaking munitions and containers were also transported by barge to Raritan for disposal. The filler for these containers and munitions is suspected to be mustard (HD). In addition, all containers were of the 55-gal drum type and munitions were of the 100-1b bomb type (Mark 47 without fuse or burster).

A small detachment of Chemical Corps personnel, assisted by civilians, was assigned the task of disposing of these leakers. The disposal procedure utilized by this detachment consisted of digging a pit 5' by 5' by 5', pouring the liquid mustard out of the munition or container into a decontaminating solution contained in the pit, and then placing the empty containers or bomb casings into the pit. The pit was then covered with earth and signs were posted over it indicating the date of burial, the type of agent buried and a warning against digging in the area. The estimate of the number of pits dug in the area is five.

In more recent years, an unknown quantity of potassium cyanide was buried in the area. This compound was buried by the Arsenal Post Engineers after Raritan ceased utilizing it as a fumigant. The Explosive Ordnance Disposal Squad stationed at Raritan had utilized a portion of the area in the disposal of red fuming nitric acid by neutralization.

4. **CHARACTERISTICS OF MUSTARD AGENT:**

- a. Is a gas (boils) above 442 degrees F
- b. Is a liquid between 58 and 442 degrees F
- c. Freezes below 58 degrees F
- d. Mostly insoluble in water and heavier than water
- e. Amber colored liquid with garlic like odor



200.1f  
C02NJ008402\_08.11\_0008

## **AREA 5 FACT SHEET**

5. **ACTIONS TAKEN TO DATE:** Three previous investigations of Area 5 have yielded mixed results. The 1st investigation was conducted in 1961 by members of the Army's Technical Escort Unit. Though no surface contamination was discovered, soil samples taken at the 4.5 ft - 5 ft level did yield positive results for blister agent as well as an undetermined amount of M47 bombs. Subsequent investigations by Edgewood Arsenal in 1970 and Corps' Contractors in 1988 produced inconclusive results. Currently CEHND in support of CENAN at Raritan has completed the first phase of Area 5 site characterization. Phase I consisted of a surface sweep/debris removal and surface (0-6 inches) soil samples. No traces of mustard were detected by on site low level monitoring equipment or subsequent lab analysis. Given these negative results additional non-intrusive efforts are being coordinated which will involve geophysical mapping, vegetation clearance, and fence construction around the total 10 acre site.
6. **ACTIONS PLANNED:** Phase II of the site characterization will begin upon completion of all non-intrusive work. This effort is scheduled to occur third qtr FY 93 and will involve deep soil sampling, ground water monitoring well installation, and the location and identification of burial pits and magnetic anomalies. Information obtained in Phase II will be used in assessing the appropriate remedial options. The Feasibility study is currently scheduled for FY94.
7. **THREAT TO HUMAN HEALTH AND SAFETY:** Current non-intrusive work does not pose any serious threat to human safety or health. A greater risk will occur during deep soil intrusive activities. Prior to beginning such activities thorough and complete coordination/training of local emergency response and medical treatment personnel will occur.
8. **PUBLIC INVOLVEMENT:** Operational briefings have been conducted with both the State and EPA. Additionally, the overall site characterization plan for Area 5 was briefed to a Publicly held Technical Review Committee meeting in November of 92.
8. **REGULATORY ISSUES:**
  1. Army Regulation 50-6 defines Army policy regarding chemical agents. Army Policy is being developed for formerly used defense sites. Issues regarding recovery, on site storage, transportation, acceptability at receiving military installations, storage at receiving military installations, and demilitarization involving chemical surety material are being resolved.

## **AREA 5 FACT SHEET**

Additionally, all lessons learned from the on-going "Spring Valley" project will be incorporated at Raritan.

2. 40 CFR 300.120 (c).
  - (a) Department of Defense (DOD): Is the removal response authority with respect to incidents involving DOD military weapons and munitions. The Dept. of the Army (DA) made the U.S. Army Corps of Engineers the Executive agent for DERP.
  - (b) The Department of Defense: Is the removal response authority, therefore the DOD is in control of CERCLA response at Ordnance and Explosive Waste (OEW) sites. The Corp will meet the requirements under the law and environmental documentation. OEW CERCLA response actions will be executed under:
    1. The National Contingency Plan
    2. DA Safety Regulations
    3. DA Environmental Regulations
  - (c) The Army coordinates with the EPA and state regulatory agencies.

### **5. ALTERNATIVES FOR REMEDIATION THROUGH A STREAMLINE RI/FS:**

We will generate alternatives for remediation through the remedial investigation/feasibility study process.

### **6. TECHNICAL ISSUES THAT ARE BEING RESOLVED:**

- a. Army approved personal protective equipment will need to be upgraded (commercial equipment available).
- b. Transportation overpacking will be developed, certified and tested.
- c. Low level monitoring equipment needs to be upgraded (commercial equipment is available).
- d. A temporary on site laboratory will be developed to avoid costly delays in testing of samples.
- e. Detailed public risk assessment will be conducted.
- f. On site soil treatment must be addressed. Some soil treatment alternatives are:
  1. Drum, transport, store, and incinerate
  2. Drum and decon
  3. Incinerate on site sample, seal and transport
  4. Store on site

## **AREA 5 FACT SHEET**

### **7. AVAILABLE RESOURCES TO CONDUCT REMEDIATION:**

- a. U.S. Army Materiel Command Technical Escort Unit.
- b. Commercial Contractors

### **8. THE PLAN THE ARMY WILL USE AT AREA 5:**

- a. Prepare site
  - Surface sweep
  - Bush clearing
  - Fence Area 5 (enlarge work area, 10 acres)
- b. Characterize Site
  - Survey
  - Geo Technical Mapping
  - Monitor (Soil and Ground Water)
- c. Develop Alternatives Through the RI/FS Process
  - On site treatment
  - Off site shipment
  - 1. Considerations For Alternatives
    - Military Action Only
    - Contractor Action Only
    - Joint military and contractor (Recommended)
  - 2. Mediums to Remediate
    - Soil
    - Ground water
    - Ordnance
    - Ordnance debris
  - 3. Plans to Develop
    - Evacuation
    - Legal
    - Work Plans and SOP's
    - Site specific Health and Safety Plans
  - 4. Medical Support
    - On site
    - Off site
  - 5. Develop and construct Facilities
    - Personnel Decontamination
    - Ordnance Decontamination and Packaging
    - Helipad
    - Containment Facility
    - Security
    - Treatment (Soil, Ground Water, Ordnance)
  - 6. Public Involvement (Critical Element)
    - Discuss safety issues with public
    - Maintain public involvement
    - Land owner involvement
  - 7. Transportation
    - Aviation
    - Ground
- d. Select the alternative

## **AREA 5 FACT SHEET**

- e. Authorization and approval required for selected alternative
- f. Mobilize & Remediate the Site with the selected alternative.

### **9. CURRENT STATUS:**

Completion of Phase I site preparation occurred 23 December 1992. This phase involved a surface sweep to remove and/or segregate debris and trash. Surface (0-6") soil samples were taken and are currently being analyzed for Mustard. Assuming surface samples are negative





**US Army Corps  
of Engineers**

# RARITAN

## Former Raritan Arsenal Project Update *Review*

VOLUME 1

APRIL 2000

### SITE HISTORY

The Former Raritan Arsenal includes approximately 3,200 acres located along the Raritan River in Edison and Woodbridge Townships, Middlesex County, New Jersey. The Arsenal was used by the U.S. Army from 1917 until 1963.

During that time, Raritan was a major ordnance handling facility. Among the responsibilities of the Arsenal were ordnance storage, shipment, and salvage of conventional and chemical weapons. They also conducted research and development.

During this time, the Army routinely destroyed obsolete or damaged munitions by burning them in pits or chambers. Unwanted ordnance was occasionally buried on-site. Several explosions in magazine buildings, rail cars and other storage buildings resulted in scattering ordnance fragments in several areas of the former Arsenal.

Because of changing needs within the Department of Defense, Raritan Arsenal was phased out and closed in 1963. When it closed, many areas were surface cleared to remove ordnance and munitions. In the late 1980s, the Corps of Engineers initiated environmental investiga-

tions. Site investigations included records reviews, interviews with former employees, and direct inspection of all areas where the Arsenal conducted activities that could have adversely impacted the environment. In most cases, as ordnance was discovered it was removed.

Today most of the former arsenal is privately owned. The northern portion of the site is occupied by office buildings, warehouses light industrial operations, Middlesex Community College, and Thomas Edison Park. The southern portion of the site has not been developed and has not essentially changed since the Arsenal's operations ceased.

### SUMMARY OF ENGINEERING EVALUATION COST ANALYSIS (EE/CA) FINDINGS

An EE/CA was performed to analyze the results of all of the ordnance investigations and removal actions that were previously accomplished. To facilitate the assessment of the risk of exposure to ordnance, specific areas of concern were identified and evaluated. A comparison of various alternatives for each area was then performed, that looks at several factors including their effectiveness and cost.

### RECOMMENDED RESPONSE ACTIONS

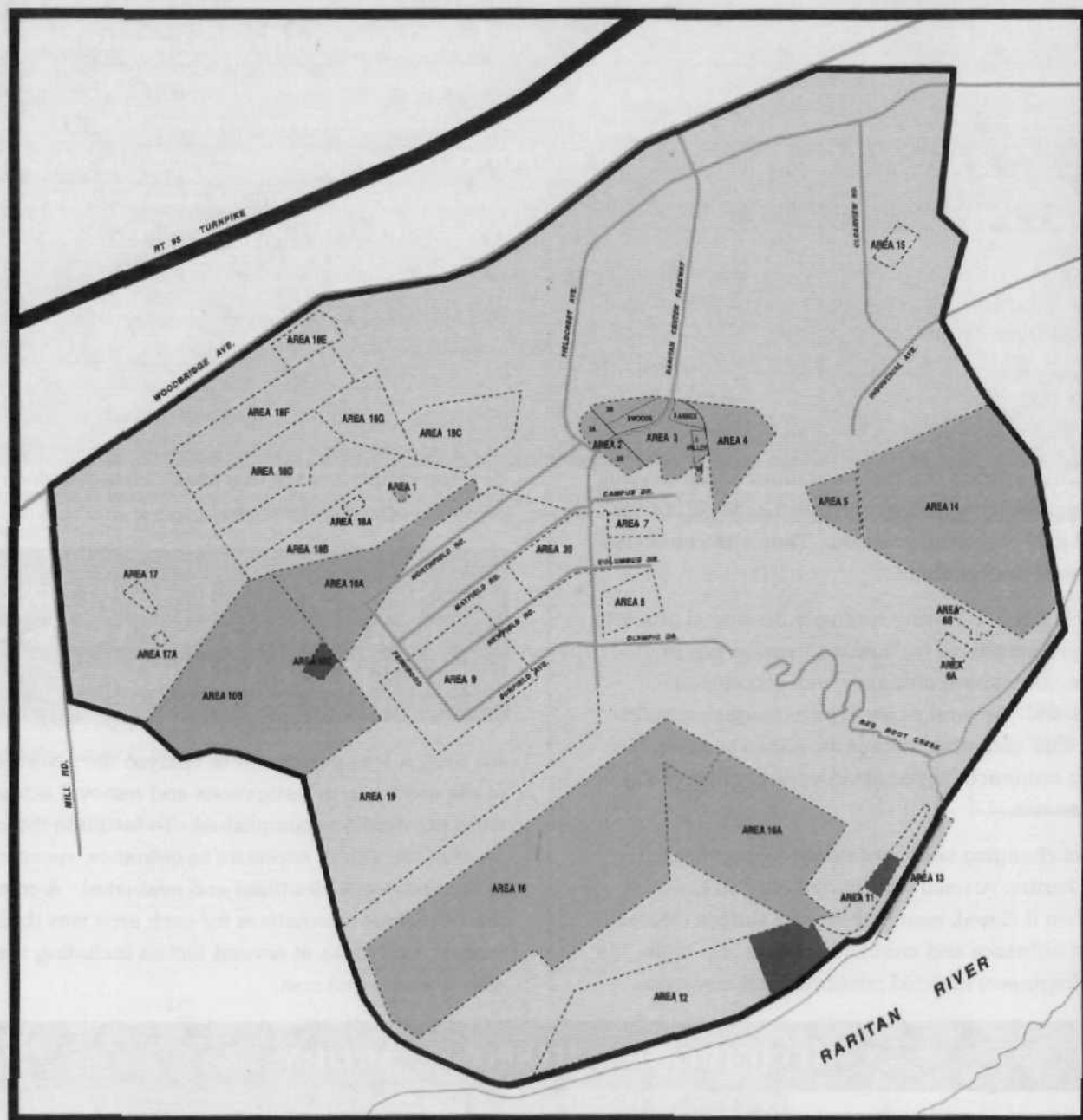
Based on the past removal activities and current land use for the various areas at the Former Raritan Arsenal, the following response actions are recommended. If at any time additional information is found to indicate more extensive measures are needed, the area will be re-evaluated.




Proposed Response Action	Area
Response Action - 1	None.
Response Action - 2	None.
Response Action - 3	All areas.
Response Action - 4	1, 2a, 2b, 3 (developed), 3 (valley), 3 (woods), 3A, 3N, 4 (developed), 4 (undeveloped), 5, 10A, 10B, 11, 12, 14, and 16.
Response Action - 5	None.
Response Action - 6	None.
Response Action - 7	10C, 11 (clearance in areas with known OE), and 12.

200.1f  
C02NJ008402\_08.11\_0013



## FORMER RARITAN ARSENAL AREA MAP



-  Alternative RA - 3: Institutional Control and Notification
-  Alternative RA - 4: Ordnance / Explosive (O/E) Construction Support
-  Alternative RA - 7: O/E Clearance to Depth

## FORMER RARITAN ARSENAL

### SUMMARY OF HISTORICAL ACTIVITIES BY AREA

Area	Site Summary and Historical activities
1	0.57 acres. Ordnance demolition area following World War I. Various testing methods have been used, but no live ordnance has been found.
2A	3.68 acres. Ordnance demolition area. Spent shells and ammunition components were found during site investigations. Ninety-eight ordnance items were found.
2B	4.48 acres. Ordnance demolition area. Site investigations were conducted, but no ordnance items were found.
3	Total area is 21.6 acres. Area was used until 1948 for ordnance demolition and burning. 22,779 ordnance items have been removed from Area 3.
3 Valley	1.32 acres. Former low lying area filled with soil from ordnance demolition area. Area cleared to 3 feet deep in 1992 and 1993 removing 1,087 OE items. Some ordnance and material remains below 3 feet.
3 Woods	5.07 acres. Ordnance demolition area. Surface investigation and magnetometer surveys revealed 158 ordnance items.
3 Annex	3.42 acres. Surface investigation and magnetometer surveys didn't reveal any ordnance.
3A	32,800 square feet. A low lying area that was filled with soil from the ordnance demolition area. 21,477 ordnance items were removed.
3N	5 acres. This area has been surveyed and 52 OE items were removed and destroyed.
4	21 acres. Used following World War I until the early 1920s to demilitarize ammunition. Trinitrotoluene (TNT) was melted out of shells during salvage operations in the northwestern corner of the area. A removal action was conducted in 1991 more than 12,000 pounds of bulk TNT and 70 ordnance components were removed. Fill from a wetlands restoration in 1995 at the southern tip of the area contained over 400 practice bombs.
5	9.75 acres. Area was used as a disposal site for mustard gas, red fuming nitric acid, and potassium cyanide. 661 significant ordnance items were recovered from this site including chemical agent test kits, empty 55-gallon drums, grenades, and M-70 and M-74 bombs. Low levels of chemical agents were detected during soil sampling.
6	4.56 acres. Area was used through 1963 as a burning area for demilitarization of ammunition components. Burning was conducted in cages and on open ground surfaces. Surface inspections have been conducted and more than 800 magnetometer anomalies were found on the site, of which 200 were investigated. No ordnance or explosives were found.
9	53.03 acres. Former location of Magazine H-65 which was destroyed by an explosion in November 1942. A cleanup was conducted following the incident and in 1963. Most of the area has been developed and no hazardous ordnance was discovered during 1988 and 1993 investigations.
10	140 acres, includes Thomas Edison Park. Area contained ammunition magazines and was used for depriming cartridge cases from the mid-1920s until after WWII. An explosion in 1919 in Magazine E-31 scattered French rifle grenades over a large area. A second explosion at the nearby Nixon Nitration Works in 1924 damaged several magazines. In 1942, an explosion in Magazine H-65 in Area 9 also scattered French rifle grenades into area 10. In 1963, the entire area was surface cleared. Some areas impacted by the previous explosions received additional clearing activities to about 6 inches below the surface. Surface checks and clearing activities took place in 1963, 1988, 1991, and 1992. A total of 1,752 ordnance items were found during these activities.
11	11.09 acres of wetland. Dredge material containing O/E from the Arsenal docks may have been placed in this area. A .52 acre parcel of this area was been fenced and identified as heavily contaminated 1963. In 1992, an ordnance team recovered the remnants of four 55-gallon drums of unexploded ordnance in this area. Two other removal actions were performed in this area and 59,448 ordnance items have been removed.
12	84.32 acres. Dredged materials from the Raritan River were deposited in this area, which may contain OE material. Since 1991, a portion of Area 12 has been used for on-site detonation of materials recovered from other areas of the former Arsenal. Investigations in 1995 and 1996 resulted in the recovery of 1,416 OE items.
13	This area is in the Raritan River in front of the former docks. It is strongly suspected that this area contains OE material from loading and off-loading operations. Dredged material disposal areas have <i>continued on other side</i>

## FORMER RARITAN ARSENAL

### SUMMARY OF HISTORICAL ACTIVITIES BY AREA—*Continued*

	been investigated including one used by Sayreville during installation of a sewage plant diffuser in the river bed, spoils area – see below. Further study of this off-shore area has been postponed until more effective underwater investigation and recovery methods are developed.
<b>14</b>	166.78 acres. This area contains dredge material from the Raritan River Channel (See Area 13). It also has received fill from several areas known or suspected to contain OE items. No ordnance was found in the dredged material. Surface clearing of fill from other areas has been conducted on 15 acres of this site. More than 400 practice bombs were recovered from fill in this area from the Area 4 wetland construction.
<b>15</b>	4.53 acres. This former Igloo area once included a pond used to dispose of burned scrap and other refuse from Area 6. Area 15 is now part of Raritan Center and two commercial buildings cover the former pond and most of the other areas. During construction in 1988, shell casings were recovered, and no ordnance was found during current investigations.
<b>16</b>	194 acres. This is a wetlands area and is not in active use. This area contained magazines. During investigation and sampling in 1988, 20 OE items were found.
<b>16A</b>	83.29 acres. This is a wetlands area and is not in active use. During investigation and sampling, in numerous partially buried 37mm projectiles were found. A complete ordnance search and removal was conducted in the areas of building 643 and 644. During this removal, 33,729 37mm projectiles were recovered. A more extensive investigation of the area was conducted in 1993 and 1995, but no additional live OE items were found.
<b>MCC-17</b>	1.87 acres. This area was used as a salvage yard from the late 1940s to early 1960s. In 1963, all suspected OE items were removed and a surface search conducted. No other items were found. This area is currently part of the Middlesex County College.
<b>MCC-17A</b>	0.52 acres. This area was reportedly used as a burning ground in the 1950s for small arms. This area is currently a baseball field and a removal action for lead contamination was completed. A dummy bomb was found at the bottom of the excavation, but no other O/E was detected.
<b>MCC-Building 118</b>	In 1992, 83,873 adapter boosters were found. In 1991-92, ground penetrating radar was used which found 7,654 anomalies. Test pits were dug in the area but no other OE materials were found.
<b>18A</b>	1.1 acre. This area was used to dispose of waste solvents, degreasers, and cosmoline, a Vaseline-type substance used for to coat weapons for storage. During cleanup of this area no OE items were found.
<b>18B</b>	42.98 acres. This area was a small arms training area in the 1920s. This area was surface cleared in 1963 and received a more extensive investigation in 1993. No OE materials were found in the 1993 investigation.
<b>18C</b>	30.40 acres. Reportedly used since the 1940s for oil and gas dumping. Numerous investigations and removal activities have taken place on this site, but no OE items have been found.
<b>18D</b>	31.28 acres. This area includes Building 229 which was used for small arms packing and a dump area used by Columbia salvage. A burial trench was located in 1993, which contained 33,673 OE items including cartridge casings and filled projectiles. Demilitarization was required for 10,768 of the items. Additional inspections in the area have not identified any additional OE items.
<b>18E</b>	9.32 acres. This area includes several of the original arsenal buildings including the armory building. The armory was used to overhaul, repair, service, test, and rust proof small arms. This area has been completely redeveloped and only ordnance avoidance surveys have been conducted.
<b>18F</b>	43.06 acres. Buildings 213 and 215 in this area were used for small arms packing. Building 214, a warehouse, had a fire in 1929. Items damaged in the fire such as fragmentation bombs, fuzes, and adapter, booster, or cartridge casings may have been buried in this area. No OE studies have been conducted.
<b>18G</b>	20.17 acres. This area was the site of the Arsenal construction camp and was used for outdoor storage starting in the 1940s. A portion of this area may have also been used as a dump by Columbia Salvage. A portion of the area was surface cleared and no OE was found. Two trenches measuring 360 and 560 feet long and two to four feet deep were also dug in the area resulting in finding one machine gun shell on the surface.
<b>19</b>	293.50 acres. A portion of this site is in the former storage magazine area. This area received an extensive magnetometer survey in 1993. 438 magnetic anomalies were identified and 289 were excavated. No OE was found.
<b>20</b>	23.18 acres. This area included a munitions renovation plant and a man-made pond. No OE investigations have been conducted in this area.
<b>Spoils Area</b>	8 acres. This area received dredge spoils from the river channel for a treated waste water discharge. A removal action was completed on this area at depths of four to eight feet resulting in the recovery of 14 MKII hand grenades and 231 French rifle grenades. All detectable ordnance items were removed from the site.

## PROPOSED ALTERNATIVES

The Corps of Engineers evaluated seven alternatives to address hazards posed by ordnance at the Former Raritan Arsenal. Each study area was evaluated based on historical military activities, past removal actions, and the current and future land use. The seven response action alternatives are:

### **Alternative RA-1: No Further DoD Action**

Under this alternative, no additional removal actions or access restrictions would take place. This alternative would be considered for those areas that have no evidence of ordnance or where other actions are not practical and the public is not at risk.

### **Alternative RA-2: Notification and Access Restriction**

This alternative includes formally notifying landowners and local utilities of the potential for ordnance to be buried on their property or right-of-ways. This could restrict construction activities (such as building fences, sheds, or planting shrubs), and could include posting warning signs. Periodic mailings could be made to landowners to remind them of the restrictions.

### **Alternative RA-3: Institutional Control and Notification**

This alternative is similar to RA-2, but it could be implemented in areas with lesser risk. It could involve the filing information with the property deeds. Alternatively, administrative procedures could be put in place to ensure that potential developers would receive notification of the potential to find O/E during construction and what to do if it is found.

### **Alternative RA-4: Ordnance/Explosive (O/E) Construction Support**

For areas that pose a higher risk of having O/E on the site, the U.S. Army Corps of Engineers would provide construction support in the event the area is developed, or redeveloped.

### **Alternative RA-5: 2-Foot O/E Clearance/Institutional Control/Notification**

This alternative includes O/E construction support to future development of Alternative RA-4, with additional site investigations and clearance to 2-feet.

### **Alternative RA-6: 4-Foot O/E Clearance/Institutional Control/Notification**

This alternative includes O/E construction support to future development of Alternative RA-4, with additional site investigations and clearance to 4-feet.

### **Alternative RA-7: OE Clearance to Depth**

This alternative O/E construction support to future development of Alternative RA-4, with additional site investigations and removing all ordnance or explosives in the soil regardless of depth.

It is proposed that all areas of the former arsenal will at a minimum, be subject to institutional control and notification. Specifically, it is recommended that Edison and Woodbridge Townships modify their Building Permit processes to notify individual working within the boundaries of the former Arsenal that ordnance could be encountered. In areas where there is likelihood that individuals could come in contact with ordnance or explosives, additional removal activities are proposed. This alternative involves additional investigation and clearing the area as deep as technically feasible. O/E construction support to future development in these areas and several others where removal actions were previously completed also is recommended.





**US Army Corps  
of Engineers**

## **Former Raritan Arsenal Fact Sheet**

200.1f

C02NJ008402\_08.11\_0014

**Edison, New Jersey**

**November 2004**



### **Restoration Advisory Board Sponsors Open House To Discuss Project Status**

The U.S. Army Corps of Engineers (Corps) invites you to attend a Restoration Advisory Board open house. The evening is an opportunity for you to learn about cleanup activities and the progress toward site closure; the recent ordnance removal actions; and our indoor air investigations underway at the Former Raritan Arsenal Site located in and around Raritan Center. Please join us:

**Tuesday, November 16, 2004 • 7:00 – 9:00 p.m.  
Edison Municipal Complex • Council Chambers  
100 Municipal Boulevard • Edison, NJ**

#### **Meeting Agenda**

**7:00 p.m. – Open House**

**7:30 p.m. – Army Corps Presentation**

**7:45 p.m. – Questions and Discussion**

For more information, please contact James Moore, Army Corps Project Manager, at 732-435-0079 or Jim Kelly, Army Corps Project Engineer, at 978-318-8227.

### **Corps Collects Indoor Air Samples To Determine Buildings' Air Quality**

Between June 2003 and September 2004, the Corps collected samples of air from various buildings to determine the indoor air quality. As discussed at the last RAB meeting, the Corps is evaluating the groundwater plumes with the most contamination (Areas of Concern 2 and 10) first, followed by the other groundwater areas of concern. This process has been carefully developed with the New Jersey Department of Environmental Protection (NJDEP) in coordination with the landowners. The process focuses on whether there are complete exposure pathways to determine if the groundwater plumes are impacting indoor air quality. The following is a list of buildings sampled and the indoor air sampling results to date.

- **165 Fieldcrest Avenue** – subsurface vapor remediation system installed in August 2003—in 5 rounds of sampling, no harmful vapors were detected.
- **151 Fieldcrest Avenue** – during 5 rounds of sampling, no harmful vapors were detected in the rounds 2 and 5. However, sporadic detections of chemicals were observed in rounds 1, 3 and 4. The Corps, NJDEP and the Edison Department of Health will continue to monitor this building.

- **160 Fieldcrest Avenue** – 3 rounds of sampling and results are no harmful vapors have been detected.
- **150 Fieldcrest Avenue** – 1 round of sampling was performed and chemicals relating to manufacture of adhesives affected sampling results.
- **2825 Woodbridge Avenue** – 1 round of sampling and results are no harmful vapors have been detected.
- **2815 Woodbridge Avenue** – 1 round of sampling and results are no harmful vapors have been detected.
- **Buildings within Campus Plazas 1 thru 8** – 1 round of sampling and results were non-detect except for one sample in Campus Plaza V. Confirmatory sampling was performed and results will be available in a few weeks.
- **20 Northfield Avenue** – 1 round of sampling and results will be available in a few weeks.
- **Middlesex County Prosecutors Training Office** – 1 round of sampling and results will be available in a few weeks.

### **Corps Removes Ordnance, Scrap Metal At 304 Raritan Center Parkway**

In March 2004, a Corps inspection of 304 Raritan Center Parkway revealed the presence of unexploded ordnance (UXO). The presence of UXO at that address created a potentially imminent and substantial endangerment to both the public health and to the environment. The Corps initiated a Time Critical Removal Action to remove ordnance and scrap metal related to former Army activities at the Former Raritan Arsenal site.

The Time Critical Removal Action was performed in May 2004. The landowner excavated areas of the property and removed ordnance. The Corps provided an Ordnance and Explosives Disposal Team to inspect the digging. A total of 40 - 37 mm shells, 20 inert stokes mortars were recovered and properly disposed of. With the completion of this removal, the property is now suitable for development.



*Pictured here are 37 mm shells that were excavated from the 304 Raritan Center Parkway property.*



## NJDEP Approves Corps' Process To Evaluate Indoor Air Quality

On July 20, 2004, NJDEP approved the Corps' process to evaluate the potential for indoor air quality impacts at the site. Generally, indoor air quality impacts are evaluated first based on groundwater data, second (if needed) based on sub-slab (basement) soil gas data, and last (if needed) based on indoor air data. The following list presents a general outline of the indoor air evaluation process:

1. Complete a preliminary inventory of AOC plumes and buildings.
2. Develop a conceptual model for each AOC plume.
3. Determine components of potential concern for further evaluation.
4. Prioritize the AOC plumes.
5. Compare groundwater concentrations to screening criteria.
6. Complete sub-slab soil gas sampling.
7. Compare soil gas concentrations to screening criteria.
8. Complete indoor sampling.
9. Complete confirmatory indoor air sampling.
10. Evaluate remedial alternatives, if necessary.
11. Implement remediation and collect confirmatory post remediation samples.
12. Prepare report documenting process and results.

The previous information regarding the process to evaluate indoor air quality impacts is detailed in a document entitled, *Attachment 1, Proposed Approach for Evaluating Potential Indoor Air Quality Impacts, Former Raritan Arsenal, Edison, New Jersey*, 5 November 2003, Revised 11 February 2004.



Left: Canister used to sample indoor air quality. Right: Canister samples soil gas beneath the floor slab (sub slab).

## Current Status of Ongoing Sampling, Investigations, Treatability Studies

The U.S. Army Corps of Engineers has been conducting ongoing soils and groundwater investigations in and around the Former Raritan Arsenal. A summary of investigations include:

- Area 18E Soils and Groundwater Remedial Investigation
- Site-wide Groundwater Plume Delineation
- Area W Soils and Groundwater Treatability Study
- Area 18C Groundwater Treatability Study

The following is a brief summary of cleanup work for each area:

### Area 18E Remedial Investigation

In September 2004, the Corps began a remedial investigation of Area 18E. Area 18E is a 9-acre area that contained several Army Arsenal buildings. Buildings 14, 15 and 19 were used for overhauling, repairing, servicing, maintaining, testing and rust-proofing of small arms. The area is fully developed with buildings, pavement and landscaping and is owned and occupied by the U.S. Environmental Protection Agency Region II (EPA).

Buildings 14, 15, and 19 were demolished by EPA in 1997. Groundwater investigations for this Groundwater Area of Concern-8 (AOC-8) have been on going since 1994; however, a majority of the investigations have occurred within or in close proximity to the central and southern portions of this Groundwater AOC footprint.

The historic compounds of concern in Groundwater AOC 8 are chlorinated volatile organics compounds (VOCs), including trichloroethylene (TCE) and tetrachloroethylene (PCE). One of the former source areas within Groundwater AOC 8 includes the former TCE degreasing operation and associated piping located within and near former Buildings 14, 15, and 19. This is the last soil area of concern requiring investigation and a report of our investigation results should be available in summer of 2005.

### Site-wide Groundwater Area of Concern Delineation

The Phase II RI identified eight groundwater AOCs located in the northern portion of the former Arsenal. These AOCs are designated as AOCs 2, 3, 4, 6, 7, 8, 9, and 10 and are the focus of the site-wide groundwater delineation evaluation. The primary groundwater contaminants of concern at each AOC (except AOC 9) are chlorinated VOCs, primarily TCE and PCE and their breakdown products.

The focus of this investigation will be to collect current groundwater data to redefine the extent of the plumes. This information will also be used in the evaluation of vapor intrusion and indoor air. This investigation work

will be completed in mid-December 2004 and results should be available in the spring of 2005.

**Area W Soils and Groundwater Treatability Study**  
Area W is located on the northwestern corner of the Former Arsenal and was the site of administrative and barracks activities during the Arsenal operation. This area is on property currently owned by Middlesex County College.

The Corps completed the removal and disposal of buried drums and grossly contaminated soil in Area W in 1998; however, low levels of chemicals remaining in the soil. To address this issue, a Treatability Study was performed to collect sufficient data to evaluate potential soil and groundwater remedial technologies for VOCs. A remedial action workplan will be prepared in the summer or fall of 2005, which will propose a clean up approach for Area W.

### Area 18C Groundwater Treatability Study

The NJDEP approved the Corps completed the removal and disposal of buried drums and grossly contaminated soil in Area 18C, however impacted groundwater remains a concern. To address this issue, a Treatability Study is being performed in Groundwater AOC 2 to collect sufficient data to design an effective bench-scale treatability study aimed at evaluating potential remedial technologies for VOCs at the former Arsenal.



A Geoprobe® machine can reach depths of 100 feet or more where the geology and soil conditions allow.

The first phase includes advancing a membrane inter-face probe (MIP) with a Geoprobe® rig. The MIP screens the area of contamination and provides real-time data. Based on the results of the MIP, the second phase will involve the collection of soil and/or "grab" groundwater samples for laboratory VOC analysis and/or laboratory bench-scale testing.

The third phase will entail the laboratory bench-scale testing of chemical oxidants. Once results of all three phases have been completed, a Groundwater Remedial Action Workplan will be submitted to the NJDEP. This workplan will detail the clean up strategy of AOC 2.

## Ecological Risk Assessment Activities

Building upon the results of the Screening Level Ecological Risk Assessment, the Corps will further evaluate the potential for ecological risks from several compounds present within the eight drainage areas at the Former Raritan Arsenal. The Corps has received NJDEP approval on its Problem Formulation document summarizing exposure pathways and is in the process of preparing a Baseline Ecological Risk Assessment workplan in cooperation with the NJDEP, National Oceanic Atmosphere Administration and U.S. Fish and Wildlife Service. This work plan will involve sampling and evaluation of eight drainage areas and include sampling of the Raritan River. This workplan is expected to be approved in the spring of 2005, and all work will be completed by the fall of 2005. The ultimate result will be an evaluation of total site risk, potential chemical transport pathways, receptors, and the areas of primary ecological concern.

## Planned Future Activities

In addition to the current and ongoing technical activities the Corps identified future technical activities. The following list presents the future plans for the site.

- Indoor air evaluation of remaining AOCs
- Remediation of ground water of AOC 2
- Remediation of soil in Area W and groundwater in AOC 10
- Baseline Ecological Risk Assessment for the site
- Future ordinance removal actions planned in Areas 11 and 12

## FUDS: Congress Established Program

Congress established the Formerly Used Defense Sites (FUDS) Program in 1986 to clean up properties that were formerly owned, leased, possessed or used by the Army, Navy, Air Force or other defense agencies. The U.S. Army Corps of Engineers manages the FUDS Program. The FUDS property known as the Former Raritan Arsenal site is comprised of approximately 3,200 acres located along the Raritan River in the Townships of Edison and Woodbridge in Middlesex County, New Jersey, approximately 20 miles south of Manhattan.

Site investigations and remediation have been performed at the Former Raritan Arsenal since 1988. All known soil sources of contamination have been investigated and/or remediated with the exception of Area 18E, which is currently underway.



U.S. Army Corps of Engineers – New York District  
ATTN: CENAN-PP-E / James T. Moore  
190 State Highway 18, Suite 202  
East Brunswick, NJ 00816-1407

## Former Raritan Arsenal RAB Open House on November 16, 2004

*Reproduced on Recycled Paper*

### Site History: Operations Began in 1917

The Former Raritan Arsenal was used extensively for U.S. Army operations from 1917 to 1963. Operations included receipt, storage, and maintenance of ammunition shipped from other ordnance facilities or returned from overseas; renovation of ammunition designated for long-term storage; the salvage of outmoded or seriously deteriorated ammunition; ordnance research and development; and shipment and receipt of weapons. During operations, waste materials including ordnance, were routinely buried on site as this was the standard method of disposal between 1920 and 1950s. The arsenal was closed in 1963.

Upon closure, areas of the site were identified for further study with respect to possible ordnance and explosives contamination. Many of the areas were surface cleared or partially decontaminated. Since that time, additional studies have been performed in an effort to characterize the presence of additional ordnance and explosives contamination.

### Corps Encourages Public Involvement

Public involvement is an important part of the FUDS Program. The Corps encourages public involvement in FUDS projects whenever possible. The Corps has formed a Restoration Advisory Board associated with the Former Raritan Arsenal. This board is a group of community members and leaders, stakeholders, other interested parties. The board meets periodically to discuss public and project issues and activities.

### For More Information

For information regarding the Former Raritan Arsenal or to review any project documents please contact:

James T. Moore  
Project Manager  
U.S. Army Corps of Engineers – New York District  
190 State Highway 18, Suite 202  
East Brunswick, NJ 00816-1407

Telephone: 732-435-0079  
E-mail: James.T.Moore@nan02.usace.army.mil





**US Army Corps  
of Engineers**  
New York District

## Former Raritan Arsenal Fact Sheet

**Edison, New Jersey  
November 2011**

### The USACE's Sponsors Public Information Meeting to Discuss Project

*The U.S. Army Corps of Engineers (USACE) invites you to attend an upcoming Public Meeting to learn about a number of cleanup activities the former Raritan Arsenal, including recent ordnance removal actions, indoor air investigations currently underway and the progress being made toward site closure. Additional information about these site activities is summarized on this fact sheet. Please join us:*

**Wednesday, November 9, 2011 • 7 – 9 p.m.**  
**Edison Municipal Complex • Edison Room (on 3rd Floor)**  
**100 Municipal Boulevard • Edison, New Jersey**

#### Meeting Agenda

**7:00 p.m. – USACE Presentation**

**8:00 p.m. – Questions and Discussion**

*For more information, please contact Sandra Pietto, USACE Project Manager, at 917-790-8487.*

### Ongoing Indoor Air Monitoring

The USACE evaluated indoor air quality in 48 buildings ranging in size from 1,225 square feet up to 243,000 square feet for levels of volatile organic compounds. Many of the buildings house multiple tenants, such as light industrial, warehouse, mixed-use office space and daycare centers. Evaluations of all buildings are summarized in indoor air reports, Indoor Air Quality Reports #1 thru 6. The latest report (#7) on indoor air evaluations will be issued in late 2011.

#### Current Status:

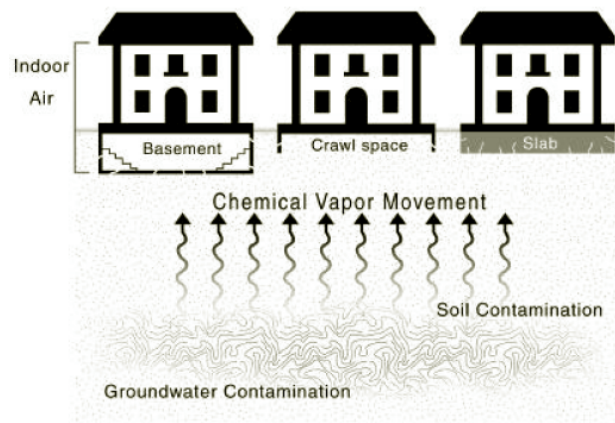
- 48 building evaluated
  - 39 buildings: Indoor air quality safe, no evidence of potential vapor intrusion
  - 9 buildings: Current monitoring efforts include sub-slab and indoor air
    - Indoor air quality safe in all 9 buildings
    - Potential vapor intrusion:
      - 2 buildings: Vapor intrusion not present; semiannual monitoring to confirm
      - 7 buildings: Mitigation system installed and monitored

The addresses of the 9 buildings currently undergoing USACE ongoing indoor air monitoring efforts include:

- 165 Fieldcrest Avenue
- 160 Fieldcrest Avenue
- Campus Plaza 4
- 102-168 Fernwood Avenue
- A series of EPA owned buildings (numbers 10, 18, 200, 205 and 209).

Most of these buildings are equipped with indoor air mitigation systems, and the USACE periodically monitors the air quality of these properties in cooperation with NJDEP.

### Vapor Intrusion



*Vapor intrusion can occur when vapors are present in the zone directly next to or under the foundation of the building, resulting in the seepage of those vapors into living spaces.*

Vapor intrusion occurs when gases from contaminated soil or ground water seep into cracks and holes in foundations or slabs of buildings and accumulate in basements, crawl spaces or living areas, as shown in the diagram above. A subsurface depressurization system, similar to a system to mitigate radon gas is an effective method to prevent vapor intrusion in affected buildings. A sub-slab depressurization system consists of PVC piping installed through the slab floor and a fan connected to the piping. When the system is on, the fan acts a vacuum beneath the slab, pulling the vapors from the soil beneath the building into the pipe, where they are safely dissipated in outside air.

## Groundwater

A groundwater remedial action work plan (GWRAWP) was completed in July 2008 and identifies a number of locations, identified as Areas of Concern (AOCs), requiring evaluation and monitoring. This work plan and report addressed known DOD-related groundwater concerns (except Area of Concern No. 2 and 8A/B) and recommended Monitored Natural Attenuation (MNA) as the preferred remedial method. MNA is the sum of natural processes that leads to the monitored reduction of contaminant concentrations in groundwater over time. The primary objective of MNA is to demonstrate that natural processes will reduce those concentrations in groundwater to levels below regulatory standards before a point of compliance, such as an off-site receptor, is reached.

This report concluded MNA is a feasible remedial alternative for AOCs 4A, 4B, 6A, 6B, 6C, 8C, 8D, 9, and 10, with a recommendation for long-term monitoring for a Classification Exception Area (CEA) that encompassed all AOCs within the former Raritan Arsenal. The report recommended No Further Action for AOCs 3, 7, and 4B, and received NJDEP approval for AOCs 3 and 7, with a request to sample one well for AOC 4B. AOCs 2 and 8A/B were excluded from the GWRAWP due to ongoing source investigations, groundwater treatability work and indoor air monitoring. These areas will be addressed under a separate GWRAWP in the future, and the results will be shared with the community.

USACE installed and completed long term monitoring wells and commenced the groundwater sampling effort as outlined in the USACE approved Groundwater RAWP, dated July 2008. The primary groundwater contaminants of concern at each AOC (except AOC 9) are chlorinated volatile organic compounds, primarily TCE (trichloroethylene) and PCE (tetrachloroethylene) and their breakdown products.

For Groundwater AOC 2, the USACE completed post injection monitoring of the pilot tests in summer 2010. Results to date indicate reduction in AOC 2 contaminants. The results of the pilot tests treatability study has been summarized in a report and issued to NJDEP for review in November 2010.

USACE implemented a site-wide well abandonment project consisting of two phases. Phase One: abandoning wells no longer needed at the site; proposing wells not located within or near any GW AOCs. Phase Two: abandoning wells no longer needed at the site;

proposing wells are part of the USACE's monitoring program under the approved GWRAWP.

USACE is generating a Groundwater / Vapor Intrusion (GW/VI) Feasibility Study (FS) to evaluate the need for, and possible alternatives to address, final remedies for the groundwater contamination at Areas of Concerns 2, 4A, 4B, 6A, 6B, 6C, 8A/B, 8C, 8D, 9, and 10.

## Munitions Clearance, Area 12

Through the use of state-of-the-art technologies, the USACE has made advances to clear buried munitions from Area 12 at the former Raritan Arsenal. A new technical approach using digital geophysical mapping (DGM) has allowed the USACE to detect buried items and distinguish if they are potential munitions. Based on the results of this survey, munitions locations were then mapped using high-resolution global positioning system (GPS) data.

This approach has enabled the USACE to make significant improvements in the detection and evaluation of subsurface anomalies before the digging takes place. Furthermore, this has also allowed for the identification of an 86-acre area where anomalies were spaced at a great enough distance to give the removal contractor exact GPS coordinates for each location they were to dig, also resulting in a shorter time period to complete the removal action.

The DGM survey also identified areas with concentrations of potential ordnance anomalies in Area 12. Using this information, the USACE completed an ordnance removal clearance of 21.423 acres in Area 12. Our contractor, USA Environmental, Inc. of Oldsmar, FL task order contract was worth \$7,615,856 in 2011. Intrusive work on this effort began in April 2009 and completed in October 2011.

Since the start of the project, USA Environmental, Inc. has located an estimated 130,000 pounds of munitions debris (MD). The MD processing team cut that estimate down to 80,000 pounds, documented, sealed and shipped the material off to an approved facility for shredding and smelting.

Most of the munitions recovered from Area 12 date to the period between World Wars I and II. All items containing explosives were safely destroyed and all metals were recycled.

USACE will be implementing Vegetation Clearing and Digital Geophysical Mapping utilizing the Air Force Research Laboratory of Tyndall Air Force Base, Panama City, FL to perform vegetation clearance of 10-17 acres at Area 12 and perform subsurface ordnance location with autonomous robotics equipment towing and EM-61 array. Work on this effort will begin winter 2011 (weather permitting). It is expected that this effort will result in the ability create way point navigation and path planning to tow an EM-61 sensor package for subsurface ordnance locating in the 10-17 acres in this area.

The following robotic platforms will be used:



***All-Purpose Remote Transport System (ARTS) with Brush Cutter attachment***



***Advanced Mobility Research and Development System (AMRADS) autonomous platform with EM-61 towed array***

A contract was awarded to CH2M Hill from Atlanta, GA in 2011, the current contract worth is \$4,250,383.66 to

perform the following within Areas 1, 6, 6A, 6B, 10, 10C, 11, 12, 13, 16, 18D and 19:

- Evaluate all previous historical data (HTRW & MMRP) investigations and removal actions
- Based on the findings/results, provide recommendations
- Generate a site specific Human Health Risk Assessment
- Generate a Remedial Investigation (RI), Feasibility Study (FS), Proposed Plan (PP) and Decision Document (DD) documenting all previous investigations, removal actions and findings
- Any munitions discovered during investigation contractor will perform removal action

A contract was awarded to Hydrogeologic, Inc (HGL) from Reston, VA in 2011, the current contract worth is \$206,254.60 to document all previous investigations and findings into a desktop Remedial Investigation in order to achieve state regulatory concurrence on a project close-out.

The USACE remains committed to protecting public safety by reducing the risk presented by the presence of military munitions to the maximum extent possible. Future ordnance removal operations will be conducted as funding is available. While these operations reduce the risk of encountering munitions items in the future, they cannot eliminate that risk entirely. For that reason, USACE recommends that ordnance construction safety support services are included in all development plans where digging will take place in area that areas previously contained ordnance.

## **Soil Investigation at Area 18E**

A draft remedial investigation work plan and site-specific sampling and analysis plan for Area 18E and adjacent EPA buildings was issued to NJDEP for review in September 2008. NJDEP completed its review in May 2009 and agreed with the elements of the work plan. The work plan calls for delineating VOCs and metals in soil, both vertically and horizontally. The investigation will determine whether VOCs and polychlorinated biphenyls (PCBs) have impacted specific soil AOCs which had not been investigated previously. The investigation results will show if contaminated soil identified within Area 18E has impacted groundwater within Groundwater AOC 8. The initial phase of the investigation consisted of Geoprobe soil sampling activities, Geoprobe shallow groundwater sampling activities, soil borings and the installation of monitoring wells.





*Site map of Area 18E and adjacent EPA buildings*

The results from this initial sampling show the delineation of VOCs and metals in soil, both vertically and horizontally, at former soil sample locations, resulting in the need for additional testing. The results of the investigation have been generated into a remedial investigation report. Additional investigation was performed and the results from this additional sampling were documented in a Supplemental Remedial Investigation Report dated September 2011 and issued to NJDEP for review.

A contract was awarded to H&S Environmental, Inc. of Westborough, MA to address shallow contaminated subsurface soils over the nine acre Area 18E. Work plans were approved by NJDEP in September 2011 and soil removal is scheduled for fall 2011. An estimated 1,850 cubic yards (approximately 90 truck loads) will be excavated and disposed of off-site.



*Site preparation and excavation activities. (File Photo)*

## Fiscal Year 2011 Completed Milestones

The following list presents a summary of recently completed site activity from October 1, 2010 to September 30, 2011:

- Final – Preliminary Remediation Goals (Human Health Risk Assessment) – October 2010
- Draft – Groundwater / Vapor Intrusion Feasibility Study currently being finalized – Winter 2011
- Preliminary Draft – Ecological Risk Management Report submitted to USACE for review – July 2011; currently being finalized
- Preliminary Draft – Groundwater Remedial Action Work Plan Progress report submitted to USACE for review – March 2011; currently being finalized
- Final – Phase I – Well Abandonment Work Plan and Trip Report submitted to NJDEP – August 2011
- Draft – Groundwater Compliance Monitoring Progress Report submitted to NJDEP – August 2011
- Final – Supplemental Remedial Investigation Report on Area 18E submitted to NJDEP – August 2011
- Revision 1 – Remedial Action Work Plan for Area 18E Removal Actions submitted to NJDEP. Soil removal actions to be completed – Winter 2011
  - Public review process of the Engineering Evaluation / Cost Analysis (EE/CA) for Area 18E Soil Removal Actions – Sept. thru Nov. 2011
- Continue indoor air quality evaluations and monitoring (9 buildings)
  - Final – Annual Indoor Air Quality monitoring report #6 submitted to NJDEP and landowners – Sept 2011
  - Annual Draft Final – Indoor Air Quality report #7 being finalized; final report will be submitted to NJDEP and landowners – Winter 2011
- Area 5: Generate a Remedial Investigation report to document the completion of chemical warfare materiel (CWM) removal actions; contract awarded – Sept 2011
- Site-wide Military Munitions Response Program (MMRP) contract awarded – Sept 2011
- Area 12: removal activity at Area 12 completed – Sept 2011

## Fiscal Year 2012 Planned Future Activities

The following list presents the future plans (October 1, 2011 to September 30, 2012) for the site.

- Continue indoor air and sub-slab monitoring at select buildings
- Area 5: Generate a desktop remedial investigation report to document removal of chemical warfare material (CWM) project
- Area 12: A Site Specific Final report will be generated and submitted to NJDEP for review – Winter 2011
- Area 18E: Soil removal action commences/completes; Prepare a Remedial Action Completion Report – Winter 2011
- Site-wide Military Munitions Response Program (MMRP): Commence investigation of the awarded areas; Prepare Remedial Investigation report GW Long Term Monitoring (Monitored Natural Attenuation) addendum – Summer 2012
- Prepare Annual Indoor Air Quality (IAQ) report #7 – Winter 2011
- Prepare PP / DD for Middlesex County College, Thomas Edison Park, Commercial / Industrial Area, USEPA property
- Prepare Final – Groundwater / Vapor Intrusion Feasibility Study
- Prepare Final – Preliminary Remediation Goals (Human Health Risk Assessment)
- Prepare Final – Ecological Risk Management Report
- Prepare Final – Groundwater Remedial Action Work Plan Progress Report
- Prepare Final – Groundwater Compliance Monitoring Progress Report
- Prepare Draft Phase II – Well Abandonment Work Plan
  - Revise Management Action Plan
  - Update Community Relations Plan

## About the Formerly Used Defense Sites Program

Congress established the Formerly Used Defense Sites (FUDS) Program in 1986 to clean up properties that were formerly owned, leased, possessed or used by the Army, Navy, Air Force or other defense agencies. The U.S. Army Corps of Engineers manages the FUDS Program. The New York District is responsible for various FUDS locations, including the former Raritan Arsenal site, which is comprised of approximately 3,200 acres located along the Raritan River in the Townships of Edison and Woodbridge, Middlesex County, New Jersey, approximately 20 miles south of Manhattan.

## Site History: Operations Began in 1917

The former Raritan Arsenal was used extensively for U.S. Army operations from 1917 to 1963. Operations included receipt, storage, and maintenance of ammunition shipped from other ordnance facilities or returned from overseas; renovation of ammunition designated for long-term storage; the salvage of outmoded or seriously deteriorated ammunition; ordnance research and development; and shipment and receipt of weapons. During operations, waste materials, including ordnance, were routinely buried on site as this was the standard method of disposal at that time. The arsenal was closed in 1963.

Following closure, areas of the site were identified for further study with respect to possible ordnance and explosives contamination. This preliminary remediation work resulted in many of the areas being surface cleared or partially decontaminated. More extensive investigations followed, including work under the FUDS program.



*Site map of the former Raritan Arsenal*

### For more information, please contact the following:

Sandra L. Pietro  
Project Manager  
U.S. Army Corps of Engineers – New York District  
Jacob K. Javits Federal Building  
26 Federal Plaza, Room 1811  
New York, NY 10278-0090  
Telephone: 917-790-8487  
Raritan Arsenal Website:  
[www.nan.usace.army.mil/business/buslinks/raritan/index.htm](http://www.nan.usace.army.mil/business/buslinks/raritan/index.htm)



## Munitions Remedial Investigation Planned, Begins Summer 2012

This fact sheet describes an upcoming investigation at the former Raritan Arsenal, called a Remedial Investigation/Feasibility Study (RI/FS). This effort will include a Military Munitions Response Program investigation for approximately 976 acres of the former Arsenal site (see Figure 1 on page 2).

Although munitions have been removed from many locations in the developed part of the site over the years, this will be the first comprehensive investigation of the large undeveloped wetlands area shown on Figure 1.

### Site History

The U.S. Army Corps of Engineers has been investigating the former Raritan Arsenal for over 20 years, under the Defense Environmental Restoration Program (DERP) for Formerly Used Defense Sites (FUDS). The New Jersey Department of Environmental Protection provides regulatory oversight.

The former Raritan Arsenal occupied approximately 3,200 acres and was bounded by Woodbridge Avenue and the Raritan River between Mill Road and Clearview Avenue.

It was used for U.S. Army operations from 1917 to 1963. The main function of the former Arsenal was to store, handle, and ship various classes of ordnance and military supplies.

During Arsenal operations, waste materials including ordnance were routinely buried on site. Some live ordnance was disposed of by open burning/open detonation. These were standard methods of disposal at that time.

Since closure in 1963, the former Arsenal has been redeveloped extensively, mainly for commercial and industrial uses, especially in the northern portion of the facility.

Corps investigations of the former Arsenal have found that ordnance and hazardous and toxic waste contamination were present. As significant health and safety threats were identified, they have been addressed.

### Remedial Investigation/Feasibility Study

Using advanced metal detection techniques and sampling soil and groundwater, the Remedial Investigation will identify safety or environmental hazards in 12 areas at the former Arsenal (see Table 1 on page 2). The goals of the investigation are to:

- Define the *nature* (how much, what kind) and *extent* (how large an area) of munitions and explosives of concern, munitions constituents (chemicals associated with munitions and explosives), and other hazardous and toxic waste
- Provide information to assess the risks and hazards to human health, safety, and the environment posed by munitions and other contaminants
- Provide the data needed to define remedial alternatives in the Feasibility Study
- Provide information to support development of a Proposed Remedial Action Plan (for public review and comments) and a Decision Document.

Table 1 lists the areas to be investigated and where they are located in reference to the Site Map (Figure 1).

Most are in the undeveloped wetlands area or in the industrial area. Area 18D is on Middlesex County College (MCC) property, adjacent to the Beechwood community. Area 10 includes part of Middlesex County property (Thomas Edison Park).

The work will be conducted in a way that will protect the safety of everyone in the area.

The remedial investigation is currently in the planning phase. More detailed information will be made available before the investigation begins in summer 2012.

### For More Information

Sandra L. Piettro, Project Manager  
U.S. Army Corps of Engineers, New York District

Jacob K. Javits Federal Building, 26 Federal Plaza,  
Room 1811, New York, NY 10278-0090

(917)790-8487 Sandra.L.Piettro@usace.army.mil



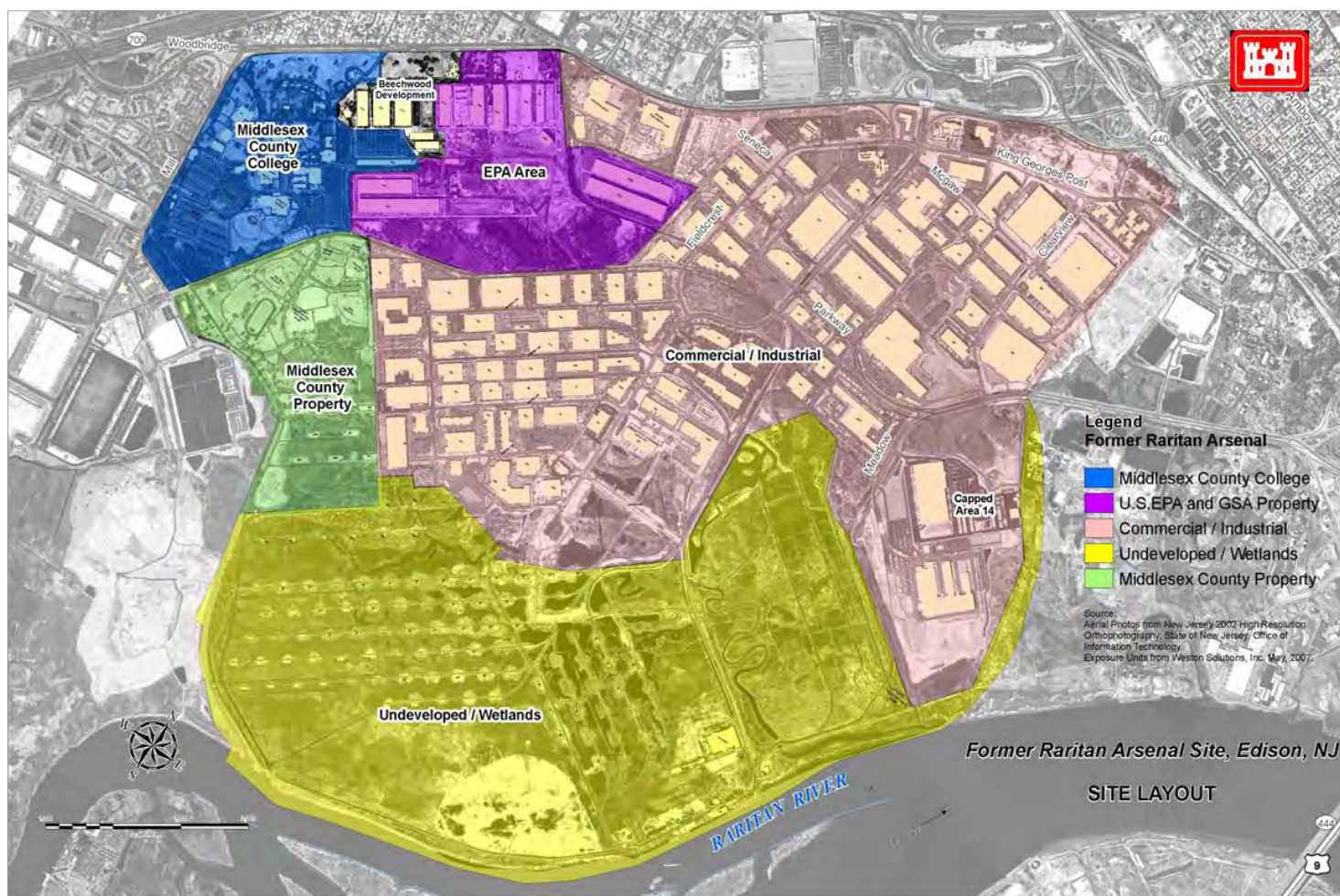


Figure 1 – Site Map of the former Raritan Arsenal showing current land uses

TABLE 1

Areas to be Investigated	Located in (see map above)	Acres	Investigation of	
			Munitions and Explosives of Concern	Munitions Constituents and Hazardous Waste
Area 1: Former Demolition Area	EPA/GSA	0.57		X
Areas 6, 6A, 6B: Former Burning Ground and Impoundment Area	Undeveloped Wetlands	130		X
Area 10, 10C: Former Waste Water Treatment and Magazine Area	Middlesex County	140	Area 10C only	X
Area 11: Former Dredged Material and Explosives Area	Undeveloped Wetlands	11		X
Area 12: Former Dredged Material and Explosives Detonation Area	Undeveloped Wetlands	84	X	X
Area 13: Submerged Dock Area (Raritan River shoreline)	Undeveloped Wetlands	8	X	X
Area 16: Former Magazine Area	Undeveloped Wetlands	277		X
Area 18D: Trench of Shell Casings	EPA/GSA, MCC	31	X	X
Area 19: Former Magazine Area	Industrial	294		X



**US Army Corps  
of Engineers®**  
New York District

## FORMERLY USED DEFENSE SITES (FUDS)

Former Raritan Arsenal

Edison, New Jersey

---

### FACT SHEET

January 2012

---

**DESCRIPTION:** Raritan Arsenal occupied approximately 3,200 acres and was bounded by Woodbridge Avenue and the Raritan River between Mill Road and Clearview Avenue in Edison, New Jersey, Congressional District NJ-6. The Former Raritan Arsenal was used extensively for U.S. Army operations from 1917 to 1963. Operations included receipt, storage, and maintenance of ammunition shipped from other ordnance facilities or returned from overseas; renovation of ammunition designated for long-term storage; the salvage of outmoded or seriously deteriorated ammunition; ordnance research and development; and shipment and receipt of weapons. During operations, waste materials, including ordnance, were routinely buried on site as this was the standard method of disposal at that time. The arsenal was closed in 1963. Following closure, areas of the site were identified for further study to address the disposal of ordnance and other wastes related to arsenal operations. This preliminary remediation work resulted in many of the areas being surface cleared or partially decontaminated. More extensive investigations followed, including work under the Defense Environmental Restoration Program (DERP) for Formerly Used Defense Sites (FUDS) program.

**AUTHORIZATION/PROJECT DESCRIPTION:** The former Raritan Arsenal is being investigated under the Defense Environmental Restoration Program (DERP) for Formerly Used Defense Sites (FUDS). The Superfund Amendments and Reauthorization Act of 1986 authorized that program. Corps investigations of the former arsenal concluded that conventional, high explosive ordnance and hazardous and toxic waste (HTW) contamination are present. As significant health and safety threats were identified, they have been addressed.

### STATUS:

- Area 5: Commenced Project Close-Out (PCO) process to document the completion of chemical warfare materiel (CWM) removal at Area 5. Generate a Remedial Investigation report.
- Area 12: Ordnance removal activity completed - October 2011; A Site Specific Final report will be generated and submitted to NJDEP for review – Winter 2011
- Area 18E: Public comment review period of the Engineering Evaluation Cost Analysis (EE/CA) for Area 18E Soil Removal Actions completed November 2011. Soil removal action completed – January 2012. Prepare a Remedial Action Completion Report – Spring 2011
- Site-wide Military Munitions Response Program (MMRP): Commence investigation of the awarded areas; Prepare Remedial Investigation report
- Continue an indoor air quality evaluations and monitoring (10 buildings)
- Annual Indoor Air Quality monitoring report #6 submitted to NJDEP and landowners.
- Annual Indoor Air Quality monitoring report #7 being finalized to be submitted to NJDEP and landowners – Winter 2011.
- Draft – Site-Wide Human Health Risk Assessment finalized.
- A Groundwater / Vapor Intrusion Feasibility Study currently in draft version being finalized.
- Draft – Ecological Risk Management Report currently being finalized.

- Final – Groundwater Remedial Action Work Plan Progress report currently submitted to NJDEP.
- Final – Groundwater Compliance Monitoring Progress Report submitted to NJDEP.
- Final – Supplemental Remedial Investigation Report on Area 18E submitted to NJDEP.
- Revision 1 – Remedial Action Work Plan for Area 18E Removal Actions submitted to NJDEP.
- Final – Phase I – Well Abandonment Trip Report submitted to NJDEP.
- GW Long Term Monitoring (Monitored Natural Attenuation) addendum – Summer 2012
- Prepare Proposed Plan / Decision Document for Middlesex County College, Thomas Edison Park, Commercial / Industrial Area, USEPA property
- Prepare Final – Preliminary Remediation Goals (Human Health Risk Assessment)
- Prepare Final – Ecological Risk Management Report
- Prepare Draft Phase II – Well Abandonment Work Plan
- Revise Management Action Plan
- Update Community Relations Plan

## **PROJECT COST:**

### Federal (FUDS Program):

Prior years funding plus current year: \$75 million (as of FY 2012)

Ordnance investigations and removals: \$25 million (as of FY 2012)

Hazardous, Toxic and Waste (HTW) remedial investigations: \$50 million (as of FY 2012)

Anticipated cost to complete (future years): \$50 million

**CONTACT:** Sandra L. Piettro, Project Manager, U.S. Army Corps of Engineers, New York District, Jacob K. Javits Federal Building, 26 Federal Plaza, Room 1811, New York, NY 10278-0090

Tele: (917)790-8487; email: [Sandra.L.Piettro@usace.army.mil](mailto:Sandra.L.Piettro@usace.army.mil)

A project website has been established at:

<http://www.nan.usace.army.mil/business/buslinks/raritan/index.htm>

Appendix H  
Locations for Meetings and Information Repository

# Locations for Meetings and Information Repository

---

## Information Repository

U.S. Army Corps of Engineers – New York District  
2890 Woodbridge Avenue  
Edison, NJ 08818

Call for appointment:  
Sandra L. Piettro, Project Manager  
917-790-8487  
Sandra.L.Piettro@usace.army.mil

## Meeting Locations

Edison Municipal Complex  
100 Municipal Boulevard  
Edison, New Jersey

Large room: Council Chambers (ground floor)  
Small room: Edison Room (3rd Floor)

## Appendix I

### Glossary

---



# Glossary

---

**Administrative Record:** A file that contains all information used by the lead agency to make its decision on the selection of a response action under CERCLA. A copy of this file is to be available for public review at or near the site, usually at the information repository.

**Cleanup:** Actions taken to deal with a release or threatened release of hazardous substances that could affect public health or the environment. The term is often used broadly to describe various response actions or phases of remedial responses, such as the RI/FS.

**Closed Range:** A military range that has been taken out of service as a range and that either has been put to new uses that are incompatible with range activities or is not considered by the military to be a potential range area. A closed range is still under the control of a Department of Defense (DoD) component.

**Comment Period:** A time period for the public to review and comment on various documents and actions. For example, a minimum 30-day comment period is held to allow community members to review and comment on a draft RI/FS and Proposed Plan; it must be extended an additional 30 days upon timely request. A comment period is required to amend the Decision Document.

**Community Relations Plan (CRP):** Formal plan for community involvement activities at a Superfund site. The CIP is designed to ensure citizen opportunities for public involvement at the site, determine activities that will provide for such involvement, and allow citizens the opportunity to learn more about the site.

**Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA):** A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The Act created a special tax that goes into a Trust Fund, commonly known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous waste sites that are not federally owned. Cleanup of sites that are owned or operated by other federal agencies, such as DoD, is funded directly by annual Congressional appropriations, not by the Superfund.

**Decision Document (DD):** A public document that explains which cleanup alternative will be used to remediate a non-Superfund site, or no further action if investigations and removal actions have adequately addressed environmental and human health risks. The Decision Document is based on information and technical analysis generated during the RI/FS and consideration of public comments and community concerns. The equivalent document for a Superfund site is a Record of Decision (ROD).

**Defense Sites:** Locations that are or were owned by, leased to, or otherwise possessed or used by the DoD. The term does not include any operational range, operating storage or manufacturing facility, or facility that is used for or was permitted for the treatment or disposal of military munitions.

**Detonation:** A violent chemical reaction within a chemical compound or mechanical mixture evolving heat and pressure. The result of the chemical reaction is exertion of extremely high pressure on the surrounding medium, forming a propagating shock wave that originally is of supersonic velocity. A detonation, when the material is located on or near the ground surface, is normally characterized by a crater.

**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.

**Explosive:** A substance or mixture of substances that can undergo a rapid chemical change without an outside source of oxygen, generating large quantities of energy generally accompanied by hot gases.

**Explosive Hazard:** A condition where danger exists because explosives are present that may react (e.g., detonate, deflagrate) in a mishap with potential unacceptable effects (such as death, injury, and damage) to people, property, operational capability, or the environment.

**Explosive Ordnance Disposal (EOD):** The detection, identification, onsite evaluation, rendering safe, recovery, and final disposal of UXO and of other munitions that have become an impending danger, for example, by damage or deterioration.

**Explosives Safety:** A condition where operational capability and readiness, people, property, and the environment are protected from the unacceptable effects or risks of potential mishaps involving military munitions.

**Five-Year Review:** If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at levels that do not allow for unlimited use and unrestricted exposure, the performance of the implemented remedy must be evaluated every 5 years to verify that the remedy remains protective of human health and the environment. The existing remedy may be modified if it is no longer protective of human health and the environment.

**Former Range:** An operational range that was (a) closed by a formal decision made by the Component with administrative control over the range, or (b) was put to a use that was incompatible with its continued use as an operational range. The term includes closed, transferring, and transferred ranges.

**Formerly Used Defense Site (FUDS):** Real property that was formerly owned, leased, or possessed by, or otherwise under the jurisdiction of, the Secretary of Defense or DoD components, including organizations that predate DoD. Some FUDS properties include areas formerly used as military ranges.

**Groundwater:** Water found beneath the earth's surface that fills pores between materials such as sand, soil, or gravel. In aquifers, groundwater occurs in sufficient quantities that it can be used for drinking water, irrigation, and other purposes.

**Hazardous Substance:** Any material that poses a threat to public health and/or the environment. Typical hazardous substances are materials that are toxic, corrosive, ignitable, explosive, or chemically reactive.

**Hydrology:** The science dealing with the properties, movement, and effects of water found on the earth's surface, in the soil and rocks below the surface, and in the atmosphere.

**Information Repository:** A file containing current information, technical reports, reference documents, and TAG application information on a Superfund 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.

**Land Use Control (LUC):** Physical, legal, or administrative mechanisms that restrict the use of, or limit access to, real property in order to manage risks to human health and the environment. Physical mechanisms include physical barriers to limit access to real property, such as fences or signs, providing potable water, as well as a variety of engineered remedies to contain or reduce contamination. Legal mechanisms include zoning, permits, and deed restrictions on property; for example, allowing only commercial or industrial use of a property where contaminants have not been remediated to residential levels.

- **Restricted:** No use permitted. Inspected, no decontamination performed; area fenced off and warning signs posted. Contamination is known to be present on surface, or below ground, or both.
- **Restricted-Surface Use Only:** Inspected, surface-cleaned only; area suspected of containing buried munitions contamination below detection capability of mine detector (approximately 18 inches).
- **Unrestricted Use:** Inspected, cleaned as required, and believed to be free of contamination.

**Long-Term Management:** The period of site management (including maintenance, monitoring, record keeping, Five-Year Review, and so forth) that may occur after a removal or remedial action's objectives have been met. This phase is required at sites where hazardous substances, pollutants, or contaminants remain after the Response Complete milestone has been achieved, and are above levels that would allow unlimited use and unrestricted exposure. This situation often arises when a site has been remediated to a level that requires restricted land use (commercial or industrial use but not residential use).

**Monitored Natural Attenuation:** Relies on naturally occurring processes to remove or reduce contaminants in soil and groundwater. Natural attenuation occurs at most polluted sites, but the right conditions must exist underground to clean sites properly. Groundwater and soil at sites are sampled on a regular schedule, as required by EPA, to make sure that natural attenuation is working.

**Monitoring Wells:** Special wells that are drilled at specific locations, on or off a hazardous waste site, where groundwater can be sampled at selected depths and studied to determine the direction of groundwater flow and the types and amounts of contaminants present.

**Military Munitions:** Ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of the DoD, the U.S. Coast Guard, the U.S. Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives, and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and their devices and components.

**Military Range:** A designated land or water area set aside, managed, and used to conduct research on, develop, test, and evaluate military munitions and explosives, other ordnance, or weapon systems, or to train military personnel in their use and handling.

**Munitions and Explosives of Concern (MEC):** Specific categories of military munitions that may pose unique explosives safety risks: (A) UXO; (B) discarded military munitions; or (C) munitions constituents (such as trinitrotoluene [TNT] or cyclotrimethylenetrinitramine [RDX]) present in high enough concentrations to pose an explosive hazard.

**Munitions constituents (MC):** Materials originating from UXO, discarded military munitions, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.

**Munitions Response Area:** Any area on a defense site that is known or suspected to contain UXO, discarded military munitions or munitions constituents). Examples include former ranges and munitions burial areas. A munitions response area is composed of one or more munitions response sites.

**Munitions Response Site:** A discrete location within a Munitions Response Area that is known to require a munitions response.

**Munitions Response Site Prioritization Protocol (MRSP):** The federal regulation that guides the Munitions Response Program (MRP).

**Operational Range.** A range that is under the jurisdiction, custody, or control of the Secretary of Defense and that is used for range activities; or, although not currently being used for range activities, that is still considered by the Secretary to be a range and has not been put to a new use that is incompatible with range activities.

**National Oil and Hazardous Substances Pollution Contingency Plan (NCP):** The federal regulation that guides the Superfund program. The NCP was revised in February 1990.

**Operable Unit (OU):** A collection of sites that will be treated together, often because of similar cleanup requirements. OUs address geographical portions of a facility or site.

**Preliminary Assessment:** The process of collecting and reviewing available information about a known or suspected hazardous waste site or release. EPA or states use this information to determine if the site requires further study. If further study is needed, a site inspection is undertaken.

**Proposed Remedial Action Plan (Proposed Plan):** A public involvement requirement of CERCLA, which summarizes for the public the preferred cleanup strategy, rationale for the preference, alternatives presented in the detailed analysis of the RI/FS, and any proposed waivers to clean up standards. The Proposed Plan may be prepared as a fact sheet or a separate document. In either case, it must actively solicit public review and comment on all alternatives under consideration.

**Remedial Action (RA):** The actual construction or implementation phase that follows the remedial design of the selected clean up alternative at a site.

**Remedial Design (RD):** An engineering phase that follows the Decision Document when technical drawings and specifications are developed for subsequent remedial action at a site.

**Remedial Investigation/Feasibility Study (RI/FS):** Investigative and analytical studies usually performed at the same time in an interactive, iterative process, and together referred to as the “RI/FS.” An RI/FS is intended to:

- Gather the data necessary to determine the type and extent of contamination at a Superfund site
- Establish criteria for cleaning up the site
- Identify and screen cleanup alternatives for remedial action
- Analyze in detail the remedial technology and costs of the alternatives

**Remedial Project Manager (RPM):** The USACE and regulatory officials — EPA at Superfund sites or state agency at non-Superfund sites — who are responsible for overseeing remedial response activities. NJDEP refers to this official as a Case Manager.

**Remedial Response:** A long-term action that stops or substantially reduces a release or threatened release of hazardous substances that is serious but does not pose an immediate threat to public health and/or the environment.

**Removal Action:** An immediate action taken over the short term to address a release or threatened release of hazardous substances.

**Response Action:** A CERCLA-authorized action at a Superfund site involving either a short-term removal action or a long-term response action that may include, but is not limited to, the following activities:

- Removing hazardous materials from a site to an EPA-approved, licensed hazardous waste facility for treatment, containment, or destruction

- Containing the waste safely onsite to eliminate further problems
- Destroying or treating the waste onsite using incineration or other technologies
- Identifying and removing the source of groundwater contamination and halting further movement of the contaminants.

**Responsiveness Summary:** A summary of oral and written public comments received by the lead agency during a comment period on key documents, and the agency's responses to those comments. The responsiveness summary is a key part of the Decision Document, highlighting community concerns for agency decision makers.

**Restoration Advisory Board (RAB):** A group made up of representatives from DoD (USACE in this case), state and (where applicable) federal environmental regulatory agencies, and interested community members who meet regularly to exchange information about the investigation and cleanup of sites on a DoD facility. A RAB is co-chaired by an appointed installation representative and an elected community member.

**Selected Alternative:** The cleanup alternative selected for a site based on technical feasibility, permanence, reliability, and cost. The selected alternative does not require choosing the least expensive alternative. It requires that if there are several cleanup alternatives available that deal effectively with the problems at a site, EPA (and the responsible federal agency where applicable) must choose the remedy based on permanence, reliability, and cost.

**Site:** (1) A single area where hazardous substances or wastes have been deposited, stored, disposed of, or placed. (2) A discrete area where suspected contamination has been verified, requiring further response action.

**Site Inspection (SI):** A technical phase that follows a preliminary assessment designed to collect more extensive information on a hazardous waste site. The information is used to score the site using the HRS to determine whether response action is needed.

**Superfund:** The common name used for CERCLA; also referred to as the Trust Fund. Funding for cleanup of DoD sites is provided by DoD, not by the Trust Fund.

**Superfund Amendments and Reauthorization Act of 1986 (SARA):** Modifications to CERCLA enacted on October 17, 1986.

**Surface Water:** Bodies of water that are above ground, such as rivers, lakes, and streams.

**Technical Assistance for Public Participation (TAPP) Program:** A DoD program that uses a streamline procurement process to obtain technical assistance with projects identified by a RAB, where such assistance will contribute to community understanding and input.

**Unexploded Ordnance (UXO):** Military munitions that (1) have been primed, fuzed, armed, or otherwise prepared for action; (2) have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and (3) remain unexploded either by malfunction, design, or any other cause.

#### **Sources:**

*Community Relations in Superfund: A Handbook.* Appendix E, Superfund Glossary and Acronyms, pages E-1 through E-6. Prepared by the U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, DC. EPA/540/R-92/009. January 1992. (Note: The 1992 Handbook is

superseded by the April 2002 *Superfund Community Involvement Handbook*, but remains a valid source for this Glossary.)

Unexploded Ordnance Glossary. U.S. Department of Defense Web site - DENIX Portal: Environment (accessed March 2008).