PROPOSED PLAN

FORMER RARITAN ARSENAL
AREA 5
FUDS PROJECTS NOS. CO2NJ008403 (MMRP MRS) AND CO2NJ008404 (MMRP/CWM MRS)
EDISON, MIDDLESEX COUNTY, NEW JERSEY

The Proposed Plan

The Proposed Plan explains why no further action is necessary for munitions response area 5, since there are no unacceptable exposures to risk for human health or the environment. This Proposed Plan was prepared by the U.S. Army Corps of Engineers (USACE) to review the investigation into historical disposal activities within Area 5 of the former Raritan Arsenal site in Edison and Woodbridge Townships, New Jersey. This plan summarizes the USACE rationale for recommending No Further Action at Area 5.

INTRODUCTION

This Proposed Plan provides information to the public regarding the investigation of historic disposal activities within Area 5 of the former Raritan Arsenal (FRA) site in Edison and Woodbridge Townships, New Jersey. Additionally, the Proposed Plan explains why no further action is necessary for munitions response area 5, since there are no unacceptable exposures to risk for human health or the environment. Area 5 is approximately 9.75 acres and consists of two separate munitions response sites (MRSs). One MRS is referred to as the Military Munitions Response Program (MMRP) site and has the designation of Defense Environmental Restoration Program (DERP)-Formerly Used Defense Site (FUDS) Project No. CO2NJ008403. This MRS comprises an area of approximately 8.37 acres. The other MRS is referred to as the MMRP/Chemical Warfare Materiel (CWM) site and has the designation of FUDS Project No. CO2NJ008404. This MRS comprises an area of approximately 1.38 acres.

This work is being conducted under the MMRP. The USACE, New York District (CENAN) is the lead agency responsible for managing the project and is providing the required direction and guidance for execution of the project. The U.S. Army Engineering and Support Center, Huntsville (USAESCH), and USACE, New England District (CENAE), provides technical support. The lead regulatory agency is the New Jersey Department of Environmental Protection (NJDEP).

Federal environmental laws govern characterization and response activities at former federal facilities. The investigation and environmental restoration of FRA has been conducted under DERP-FUDS. The overall goal under DERP-FUDS is to achieve environmental restoration of FRA and to address potential human health and environmental risks associated with past Department of Defense (DoD) activities. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), a federal environmental statute, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes procedures for site investigation, evaluation, and remediation. USACE has been working within the framework of CERCLA to identify the scope of the problem and an appropriate remedial response. NJDEP has been a partner in this process. In accordance with federal law and regulation, state involvement is sought in the form of reviews, and submission of potential Applicable, Relevant and Appropriate Requirement (ARARs) for Contaminants of Concern identified by the federal government. USACE has also been conferring with local stakeholders since 1990 about community concerns regarding the site.

As the lead agency implementing the environmental response program for FRA, USACE has prepared this Proposed Plan in accordance with CERCLA Section 117(a) and Section 300.430(f)(2) of the NCP to continue its community awareness efforts and to encourage public participation. After the public has had the opportunity to review and comment on this Proposed Plan, USACE will respond to the comments received during the public comment period, including any comments received during the public meeting. The comments will be included in the Responsiveness Summary of the Decision Document. Information about the public comment period and the public meeting is shown in the box below.

Public Comments Are Requested

PUBLIC COMMENT PERIOD

May 21, 2016 through June 22, 2016 (33 days, not to include start date)

Written comments on this Proposed Plan can be submitted to USACE during this comment period. Comments letters must be postmarked no later than June 22, 2016, and can sent to Ajmal Niaz (CENAN Project Manager):

U.S. Army of Corps of Engineers
Attn: Mr. Ajmal Niaz
2890 Woodbridge Ave.
Edison, NJ 08837

PUBLIC MEETING

June 9, 2016

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

The USACE will carefully consider all comments received from the public, and responses will be compiled into a Responsiveness Summary. The decision on which action is appropriate for the site will be detailed in a Decision Document, which will include the Responsiveness Summary.

This Proposed Plan highlights key information from previous reports prepared for the site, including site characterization details from the Remedial Investigation (RI) report. This and other documents that support this Proposed Plan are available for review at the Information Repository or through the CENAN website for the FRA:

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

Information Repository

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

SITE HISTORY AND BACKGROUND

FRA includes approximately 3,200 acres located along the northern bank of the Raritan River. A map depicting the location of FRA is presented as Figure 1.

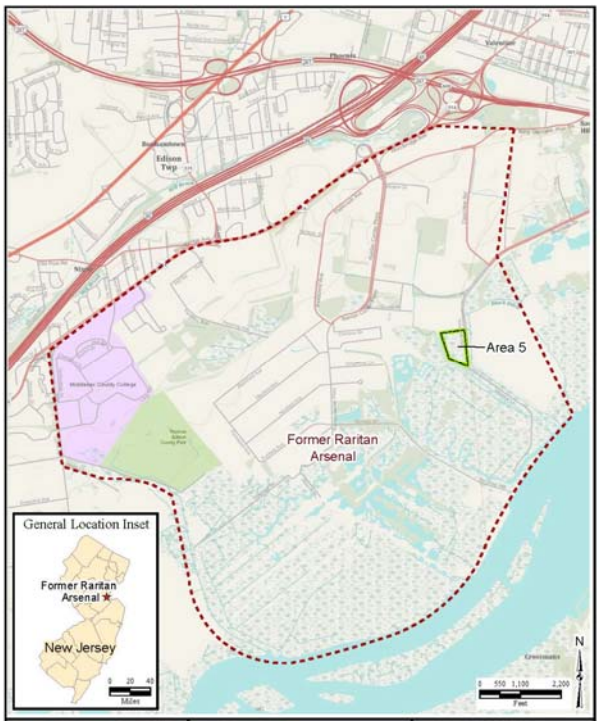

Figure 1. Location of Former Raritan Arsenal

The majority of the site is located in Edison Township, with a portion of the site located in Woodbridge Township, in Middlesex County, New Jersey, approximately 20 miles southwest of lower Manhattan. It is bordered to the north and northwest by Woodbridge Avenue, to the southwest by Mill Road and the Industrial Land Reclamation (ILR) Landfill, and to the east by vacant and industrial properties (Dames & Moore, 1993a).

The property on which FRA was built was largely agricultural before it was purchased by the U.S. Government in 1917. Between 1917 and 1918 the U.S. Army erected a major arsenal facility on the strategic New Jersey site. The facility included large cantonment areas, a hospital, barracks, storage and maintenance buildings, and a host of ordnance and munitions-related facilities, including munitions magazines, storage yards, shipping facilities, and disposal areas.

During the operational period from 1917 until 1963, FRA was a major ordnance handling facility. Among the responsibilities of FRA were ordnance storage and shipment, and salvage of conventional and chemical weapons. Research and development was also conducted at FRA. During this period, some waste material, including ordnance and CWM, were reportedly buried within the 1.38 acre MRS.

Currently, most of FRA is privately owned, and most of the land is zoned for industrial use.

Area 5 was not part of the original FRA as laid out for use during World War I. According to property records, the site was not purchased for arsenal use until 1942. Until that time, the Chemical Agent Disposal Area (Area 5) was the property of Heyden Chemical Corporation. The purposes for which Heyden Chemical Corporation was using the property have not been determined.

Available documentation indicates that after 1943 FRA was utilized as a shipping port for vessels transporting munitions and equipment overseas. Chemical munitions and containers that developed leaks were transported to Area 5 for disposal. The filler for some of these containers and munitions was reported to be mustard. Reportedly, the containers were 55-gallon drums, and the munitions were 100-pound bombs (M47 without fuse or burster).

A small detachment of Chemical Corps personnel, assisted by civilians, was assigned the task of disposing of these leaking munitions and containers between 1943 and 1945 (Dames & Moore, 1993b). The disposal procedure utilized by the detachment consisted of digging a pit 5 feet long, 5 feet wide, and 5 feet deep, pouring the liquid mustard agent out of the munition or container into the pit, which contained a decontaminating solution of lime (calcium hydroxide), and placing the empty containers or bomb casings into the pit. This disposal pit was then covered with earth and signs were posted around it, indicating the date of burial the type of agent buried, and warning against digging in the area.

SITE CHARACTERISTICS

Area 5 is located at the edge of the Raritan Center Industrial Park approximately 500 feet southeast of a United Parcel Service (UPS) facility at FRA in Edison. The site is bordered on the north by the UPS employee parking lot, to the east by East Patrol Road, and to the west by Black Ditch. Area 5 extends southward along East Patrol Road for about 950 feet (Foster Wheeler, 1998).

Area 5 is a V-shaped wooded area totaling 9.75 acres (Figure 2). Area 5 consists of two separate MRSs, a 1.38-acre MRS reported to contain both MMRP and CWM elements, and an MRS with only MMRP elements within the remaining 8.37 acres of Area 5. The 1.38-acre area, identified as the MMRP/CWM site, is where disposal pits were identified. The outer boundary of Area 5, as well as the inner 1.38-acre MMRP/CWM site, has been fenced for security.

Figure 2. Location of MMRP MRS and MMRP/CWM MRS

Physical and Environmental Setting

The site lithology at Area 5 generally consists of fill material overlying the site to depths of 5 to 6 feet below ground surface (bgs). The soil at the site consists primarily of 28 to 30 feet of fine to coarse sand, which is underlain by gray/white silty, sandy clay. The sand ranges from silty/clayey to clean and occasionally gravelly. In addition, at some locations residual top soils (dark organic clayey/sandy silt and roots) have been encountered in the subsurface soil beneath the fill materials.

The geology across FRA is characterized by an overburden layer, approximately 10 to 80 feet thick, composed of unconsolidated sediments underlain by bedrock consisting of shales, metamorphosed shales, and an igneous diabase sill (EODT, 1993; Weston, 1996). The thickness of the clay and the depth to bedrock have not been determined; however, the site geology suggests that bedrock occurs between 35 and 40 feet below grade, and that the clay layer overlying the bedrock is up to 8 feet thick.

Three monitoring wells were installed around the periphery of the 1.38-acre area (MMRP/CWM MRS) located within Area 5 in 1989, and three more monitoring wells were installed south of the MMRP/CWM MRS in 1993. Groundwater was encountered approximately 4 feet bgs during the installation of monitoring wells in Area 5; however, subsequent investigations noted groundwater levels at depths less than 4 feet bgs. The Area 5 groundwater contour map indicates that groundwater flow is to the south to southwest, with a hydraulic gradient of 0.004 foot per foot. The flow direction may change based on seasonal variations in the water table. The general groundwater gradient is toward the south, although a groundwater gradient toward the southeast had been anticipated. The groundwater flow in this and other marsh areas may be influenced by the Raritan River, Black Ditch, and other bodies of surface water in the marshlands.

Currently there is no use of groundwater on site. All buildings at FRA are connected to municipal water, and groundwater is not expected to be used in the future.

Black Ditch is the primary surface water feature at Area 5. It originates north of Area 5 and follows the western boundary of the site. Where it is upgradient from Area 5, Black Ditch is about 15 feet wide. Water depths range from 1 inch near the shoreline to 1.5 feet in pools toward the center of the ditch. The water in this section of the ditch is fairly clear. Where it is downgradient of Area 5, Black Ditch is tidally influenced and flows southeast, eventually discharging into the Raritan River.

A small freshwater pond is located south of the UPS facility, just east of Black Ditch, and is part of the Black Ditch drainage. Its depth was estimated at 2 to 4 feet, and its areal extent at less than 0.1 acre.

PREVIOUS INVESTIGATIONS AND ACTIVITIES

Previous investigation activities conducted at Area 5 have included the following:

- Preliminary Site Investigation, 1989 (OBG, 1989a);
- Phase I RI, 1990–1992 (Dames & Moore, 1993a);
- Site Investigation (EODT, 1993);
- Supplemental Site Investigation (Weston, 1993);
- Geophysical Investigation (Australian Defense Industries, 1994);
- RI and Removal Actions, 1995/1996 (UXB International, Inc., 1996); and
- Phase II RIs, 1997 (Weston, 1997).

Previous Area 5 investigations and studies have included several geophysical surveys and have consisted of drilling soil borings and monitoring wells, and collecting soil, groundwater, and surface water/sediment samples from across the area. In addition, excavation activities have been conducted and removal actions were completed from 1995 to 1996 (UXB International, Inc., 1996).

Removal actions excavated eight large anomalies that were suggestive of disposal trenches, along with 150 individual subsurface anomalies. A total of 661 CWM-related items were removed during excavation of the anomalies, which included among other items, M70 115-pound Bombs (lewisite contaminated), M47 100-pound bombs (sulfur mustard or sulfur HD contaminated), and empty containers. Confirmatory soil samples were collected from the excavations for analysis of CWM-related compounds. CWM compounds were either not detected or were detected at concentrations well below NJDEP and U.S. Army cleanup levels in these samples. The excavated areas have since been backfilled and covered with clean fill material.

The studies conducted by OBG in 1989/1990 and by Dames & Moore in 1990/1992 focused on groundwater and surface water/sediment sampling. Groundwater samples were analyzed for metals, VOCs, SVOCs and explosive compounds. The laboratory analysis indicated that either the compounds were not detected or were detected at concentrations below NJDEP screening criteria. It should also be noted that there is currently no use of groundwater on site and that all buildings are connected to municipal water. Groundwater is not expected to be used in the future because new buildings will connect to municipal water as well.

The Dames & Moore study showed the presence of some metals in the sediment samples at concentrations slightly above applicable criteria. However, risk to human health from exposure to sediment was determined to be within acceptable range in the HHRA conducted during the 2016 RI (HGL, 2016).

The documents associated with the previous investigations are part of the Information Repository and are available for review at the location identified above in this Proposed Plan. In addition, summaries of data, results, and recommendations associated with these reports were extracted from the individual reports and incorporated into the current RI report (HGL, 2016) to provide a comprehensive summary of the site-specific investigation activities conducted at Area 5. Activities and analysis associated with the current RI report are summarized below.

Remedial Investigation

Although previous investigations had compiled an extensive amount of site-specific data for Area 5, NJDEP remained concerned about the lack of a geophysical record for the 1.38-acre parcel that was subjected to removal actions. Additionally, NJDEP determined there was inadequate geophysical data or area reconnaissance information to confirm whether additional disposal trenches or ordnance items were present in the MMRP MRS. Accordingly, NJDEP recommended additional characterization of potential munitions and explosives of concern (MEC) using digital geophysical mapping (DGM) and intrusive investigations of anomalies as necessary throughout Area 5.

To address the identified data gaps, supplemental fieldwork was completed during the current RI to verify the presence or absence of MEC/CWM/munitions debris (MD) at Area 5. USAESCH completed a DGM survey of Area 5 in 2012 and contracted the reacquisition and intrusive investigation of 19 grids containing 274 anomalies, of which 228 discrete anomalies (identified targets) were selected for intrusive investigation.

During completion of the intrusive investigation activities conducted in 2013, no MEC/CWM/MD items were discovered within Area 5. Intrusive investigations confirmed that no buried munitions or CWM-related materials were present at the anomaly locations identified during the DGM survey. The intrusive investigation also confirmed that no residual disposal trenches or significant anomalies (that is, anomalies that might indicate the presence of ordnance items) were present within the grid areas.

No supplemental munitions constituent (MC) samples were collected for laboratory analysis during the investigation because no MEC/CWM/MD items were found during intrusive RI field activities. However, a human health risk assessment (HHRA) was conducted based on data collected during historical environmental investigations, as summarized in the RI and in Weston's electronic database.

The chemicals of potential concern (COPCs) identified during completion of the HHRA screening evaluation were defined as the detected analytes potentially associated with CERCLA releases from military-related operations at the site. COPCs associated with non-military related operations were evaluated separately.

Trichloroethylene (TCE), lewisite, bis(2-chlorethyl)sulfide (sulfur mustard or sulfur HD), and 2,4,6-trinitrotoluene (TNT) were identified as COPCs considered to be associated with potential CERCLA releases from military-related operations. The remaining COPCs, including chloroform, aluminum, antimony, arsenic, cadmium, cobalt, iron, manganese, mercury, nickel, thallium, vanadium, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene, were considered to be associated with releases from non-military operations.

According to the HHRA results, the noncancer and cancer risk estimates for exposure to COPCs associated with military operations in all media are acceptable.

The results of the HHRA for the RI indicate that the noncancer hazard indices (HIs) summed across media for potential future residential exposure to COPCs associated with non-military operations were above the upper limit for cobalt and manganese. The noncancer HIs for cobalt (12) and manganese (4) exceed the U.S. Environmental Protection Agency's (USEPA's) acceptable level of 1. These noncancer HIs were driven by the risk estimates for groundwater. Cobalt is represented by provisional toxicity values that have not yet been approved by USEPA, and the maximum detection of cobalt in groundwater is less than the corresponding NJDEP Groundwater Quality Criterion. However, cobalt and manganese contamination is from non-military sources and will present no risk to a future resident as long as they are not drinking the groundwater directly. Regardless, this contamination is outside of the authority of the USACE and DOD to remediate.

The cancer risk estimate for potential residential exposure to soil, groundwater, sediment, and surface water combined does not create an unacceptable risk. The HHRA, therefore, identified no unacceptable risks associated with potential exposure to COPCs associated with potential CERCLA releases from military operations. Further response actions are not necessary to mitigate risk to human health, resulting in unlimited use/unrestricted exposure (UU/UE) determination for the site.

A baseline ecological risk assessment (BERA) was conducted for the entire FRA, including the sediments at Area 5, and results were incorporated into the RI report (Weston, 2008). The objective of the BERA was to determine whether contaminated soils and sediments at FRA posed ecological risks. No evidence of ecological risks to the freshwater habitat, estuarine habitat, and Raritan River from Area 5 was found.

RI Conclusions and Recommendations

No MEC, CWM, or MD items were found during intrusive RI field activities, supporting that no MEC/CWM items remain at Area 5. The intrusive investigation also confirmed that no residual disposal trenches or munitions-like anomalies are present within the investigated area. Therefore, no additional investigations or removal actions are required for MEC or MC at Area 5.

Because no evidence of MEC contamination and no unacceptable risks associated with potential exposures to COPCs were identified, the RI did not recommend a Feasibility Study (FS) for Area 5. Preparation of a No Further Action Proposed Plan and Decision Document was recommended to document the results of the investigation.

SCOPE AND ROLE OF THE ACTION

The RI concluded that no evidence of MEC contamination was found and no unacceptable risks associated with potential exposures to COPCs were identified within Area 5. Consequently, this Proposed Plan proposes No Further Action for Area 5.

SUMMARY OF SITE RISKS

Land Use

Under current site conditions, Area 5 is a fenced, undeveloped parcel of land within a commercial/industrial setting (HGL, 2013). As such, the only current receptors would be trespassers and ecological receptors. Anticipated future use of Area 5 is for light industry, warehouse, and office space.

Human Health Risks

During the recent intrusive DGM activities, no MEC, CWM, or MD items were discovered within Area 5. A MEC Hazard Assessment (HA) was not necessary as part of the RI.

The HHRA conducted during the RI did not identify an unacceptable risk associated with the exposure of current or future receptors at the site to COPCs associated with DoD releases, allowing for UU/UE.

Ecological Risks

Ecological receptors do not typically engage in activities that expose them to MEC hazards, meaning that MEC exposure pathways for ecological receptors are considered incomplete. For this reason, it can be reasonably concluded that there are no ecological risks from MEC hazards at Area 5.

A BERA evaluating soil and sediments was conducted for the entire FRA, including the sediments at Area 5, and results did not show an unacceptable risk to ecological receptors from Area 5.

CONCLUSIONS

Based on the results of the MEC and MC characterization activities conducted during the RI and in previous investigations, no further investigative or removal actions are necessary for Area 5, including the MMRP MRS (FUDS Project No. CO2NJ008403) and the MMRP/CWM MRS (FUDS Project No. CO2NJ008404). Therefore, No Further Action for Area 5 is proposed.

It is the USACE's judgment that No Further Action will protect public health or welfare and the environment from actual or threatened military releases of hazardous substances, minimizing exposure to explosive safety hazards, and allowing for UU/UE at the site. The final decision presented in this Proposed Plan can change based on public comments and new information.

COMMUNITY PARTICIPATION

One of the purposes of this Proposed Plan is to obtain comments from members of the public. USACE encourages the public to gain a more comprehensive understanding of the site and the activities that have been conducted there. USACE maintains the

Information Repository for FRA. Detailed information about the previous studies and restoration activities can be found in the reports and documents contained in the Information Repository located at the address below:

Information Repository

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

Information can also be found through the CENAN website for FRA:

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

The ***public comment period*** for this Proposed Plan is May 21, 2016 – June 22, 2016.

For further information on Area 5, please contact:

Mr. Ajmal Niaz
Project Manager
U.S. Army Corps of Engineers
2890 Woodbridge Ave.
Edison, NJ 08837
Phone No.: 732-549-1179
Email Address: Ajmal.Niaz@usace.army.mil

Mr. Anthony Cinque
Case Manager
NJDEP - Bureau of Case Management
401 East State Street
5th Floor CN-028
Trenton, NJ 08625-0420
Phone No.: 609-633-1455
Email Address: Anthony.Cinque@dep.state.nj.us

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ACRONYMS

BERA	baseline ecological risk assessment
bgs	below ground surface
CENAN	U.S. Army Corps of Engineers, New York District
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPC	chemical of potential concern
CWM	chemical warfare materiel
Dames & Moore	Dames & Moore, Inc.
DERP	Defense Environmental Restoration Program
DGM	digital geophysical mapping
DMM	discarded military munitions
DoD	U.S. Department of Defense
EODT	EOD Technology, Inc.
FRA	former Raritan Arsenal
FS	Feasibility Study
FUDS	Formerly Used Defense Site
GSA	General Services Administration
HA	hazard assessment
HGL	HydroGeoLogic, Inc.
HHRA	human health risk assessment
HI	hazard index
ILR	Industrial Land Reclamation
LUC	land use control
MC	munitions constituents
MD	munitions debris
MEC	munitions and explosives of concern
MMRP	Military Munitions Response Program
MRA	munitions response area
MRS	munitions response site
NJDEP	New Jersey Department of Environmental Protection
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OBG	O'Brien and Gere
RAO	remedial action objective
RI	Remedial Investigation
SVOC	semivolatile organic compound
TCE	trichloroethylene
TNT	trinitrotoluene
UPS	United Parcel Service
USACE	U.S. Army Corps of Engineers
USAESCH	U.S. Army Engineering and Support Center, Huntsville
USEPA	U.S. Environmental Protection Agency
UU/UE	unlimited use/unrestricted exposure
UXO	unexploded ordnance
VOC	volatile organic compound
Weston	Roy F. Weston, Inc. (Weston Solutions, Inc.)

GLOSSARY OF TERMS

Anomaly: A subsurface irregularity observed by geophysical investigation. This irregularity should deviate from the expected subsurface ferrous and nonferrous material at a site (that is, pipes, power lines, etc.).

Chemical Warfare Materiel (CWM): An item configured as a munition containing a chemical substance that is intended to kill, seriously injure, or incapacitate a person through its physiological effects. Also includes V- and G- series nerve agent, H- series blister agent, and lewisite in other-than-munition configurations. Due to their hazards, prevalence, and military-unique application, chemical agent identification sets (CAIS) are also considered CWM. CWM does not include: riot control agents, chemical herbicides, smoke and flame producing items, or soil, water, debris or other media contaminated with chemical agent.

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

Defense Environmental Restoration Program (DERP): Congressionally authorized in 1986, DERP promotes and coordinates efforts for the evaluation and cleanup of contamination at Department of Defense installations and Formerly Used Defense Sites.

Digital Geophysical Mapping (DGM): A method used to acquire geophysical data using self-recording instruments. The data acquired are post-processed to identify geophysical anomalies for further investigation.

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

Feasibility Study (FS): During the FS, the Remedial Investigation (RI) data are analyzed and remedial alternatives are identified. The FS serves as the mechanism for the development, screening, and detailed evaluation of alternative remedial actions.

Formerly Used Defense Sites (FUDS) Property: A FUDS is defined as a facility or site (property) that was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances. By the Department of Defense Environmental Restoration Program (DERP) policy, the FUDS program is limited to those real properties that were transferred from DoD control prior to 17 October 1986. FUDS properties can be located within the 50 States, District of Columbia, Territories, Commonwealths, and possessions of the United States.

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

Information Repository: A repository, generally located at libraries or other publicly accessible locations in or near the community affect by the FUDS project, which contains accurate and up to date documents reflecting the on-going environmental restoration activities. This may include the EE/CA, PIP, RAB meeting minutes, public notices, public comments and responses to those comments, etc.

Land Use Controls (LUCs): Any type of physical, legal, or administrative mechanisms that restrict the use of, or limit access to, contaminated property to reduce risk to human health and the environment. Physical mechanisms encompass a variety of engineered remedies to contain or reduce contamination and physical barriers to limit access to property, such as fences or signs. The legal mechanisms are generally the same as those used for institutional controls (ICs) as discussed in the National Contingency Plan. ICs are a subset of LUCs and are primarily legal mechanisms imposed to ensure the continued effectiveness of land use restrictions imposed as part of a remedial decision. Legal mechanisms include restrictive covenants, negative easements, equitable servitudes, and deed notices. Administrative mechanisms include notices, adopted local land use plans and

ordinances, construction permitting, or other existing land use management systems that may be used to ensure compliance with use restrictions.

Lewisite: An organic arsenical blister agent in the form of an amber to dark brown (colorless when pure) oily liquid with a geranium-like odor.

Munitions Constituents (MC): Any materials originating from unexploded ordnance, 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 Debris (MD): Remnants of munitions remaining after munitions use, demilitarization, or disposal.

Munitions and Explosives of Concern (MEC): This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means: unexploded ordnance (UXO); Discarded Military Munitions (DMM); or Munitions constituents (e.g., TNT, RDX) present in high enough concentrations to pose an explosive hazard.

Munitions Response Area (MRA): Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples are former ranges and munitions burial areas. An MRA comprises one or more munitions response sites.

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

Mustard: Mustard, also known as bis[2-chlorethyl]sulfide, sulfur HD, or sulfur mustard, is a strong blister agent, or vesicant commonly referred to as “mustard gas.” Mustard is usually a yellow to brown oily liquid (colorless when pure) with a slight garlic or mustard odor.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): Revised in 1990, the NCP provides the regulatory framework for responses under CERCLA. The NCP designates the Department of Defense as the removal response authority for ordnance and explosives hazards.

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

Risk Assessment: In the context of public health, risk assessment is the process of quantifying the probability of a harmful effect to individuals or populations from exposure to chemicals found in the environment.

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

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