

Final

**Record of Decision
for Soil and Dry Sediment
for the RVAAP-12 Load Line 12**

**Ravenna Army Ammunition Plant
Ravenna, Ohio**

March 20, 2009

**GSA Contract No. GS-10F-0076J
Delivery Order No. W912QR-05-F-0033**

Prepared for:



**US Army Corps
of Engineers®**

**United States Army Corps of Engineers
Louisville District**

Prepared by:



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14. ABSTRACT This Record of Decision discusses exposure, future land use, and necessary remedial actions for soil and dry sediment at Load Line 12. This ROD summarizes the findings of the feasibility study, includes the responsiveness summary from the public comment period and public meeting, and presents a preferred alternative to remove dry sediment from the Main Ditch to meet soil and dry sediment exposure requirements for National Guard Trainee land use at Load Line 12.					
15. SUBJECT TERMS Human health risk, cleanup goals, remediation, ecological risk					
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CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Science Applications International Corporation (SAIC) has completed the Final Record of Decision for Soil and Dry Sediment for the RVAAP-12 Load Line 12 at the Ravenna Army Ammunition Plant, Ravenna, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of data quality objectives; technical assumptions; methods, procedures, and materials to be used; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing USACE policy.



Jed Thomas, P.E.
Study/Design Team Leader

3/19/09

Date



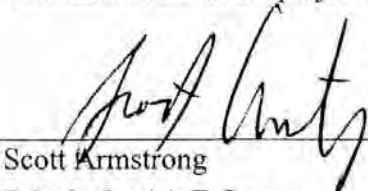
W. Kevin Jago
Independent Technical Review Team Leader

03-20-2009

Date

Significant concerns and the explanation of the resolution are as follows:

Internal SAIC Independent Technical Review comments are recorded on a Document Review Record per SAIC quality assurance procedure QAAP 3.1. This Document Review Record is maintained in the project file. Changes to the report addressing the comments have been verified by the Study/Design Team Leader. As noted above, all concerns resulting from independent technical review of the project have been considered.



Scott Armstrong
Principal w/ A-E firm

March 20, 2009

Date

Final

**Record of Decision
for Soil and Dry Sediment
for the RVAAP-12 Load Line 12**

Volume I – Main Report

Version 1.0

Ravenna Army Ammunition Plant
Ravenna, Ohio

GSA Contract No. GS-10F-0076J
Delivery Order No. W912QR-05-F-0033

Prepared for:

U.S. Army Corps of Engineers
600 Martin Luther King, Jr. Place
Louisville, Kentucky 40202

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March 20, 2009

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for the RVAAP-12 Load Line 12
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Ravenna, Ohio

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Ohio EPA-NEDO = Ohio Environmental Protection Agency-Northeast District Office
Ohio EPA-SWDO = Ohio Environmental Protection Agency-Southwest District Office
OHARNG = Ohio Army National Guard
REIMS = Ravenna Environmental Information Management System
RVAAP = Ravenna Army Ammunition Plant
SAIC = Science Applications International Corporation
USACHPPM = United States Army Center for Health Promotion and Preventive Medicine
USACE = United States Army Corps of Engineers
USAEC = United States Army Environmental Command

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LIST OF ATTACHMENTS

Attachment A. Description of ARARs

LIST OF ACRONYMS

AOC	Area of Concern
ARAR	Applicable and Relevant or Appropriate Requirements
BGS	Below Ground Surface
BRA	Baseline Risk Assessment
BRAC	Base Realignment and Closure
BRACD	Base Realignment and Closure Division
CAMU	Corrective Action Management Unit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Act Information System
COC	Chemical of Concern
DoD	U.S. Department of Defense
DOT	U.S. Department of Transportation
EPC	Exposure Point Concentration
FBQ	Fuze and Booster Quarry Ponds/Landfill
FS	Feasibility Study
HHRA	Human Health Risk Assessment
IRP	Installation Restoration Program
LDR	Land Disposal Restrictions
LL12	Load Line 12
LUC	Land Use Control
LUCRD	Land Use Control Remedial Design
MEC	Munitions and Explosives of Concern
MMRP	Military Munitions Response Program
MTR	Minimum Technical Requirements
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NGB	National Guard Bureau
OAC	Ohio Administrative Code
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
O&M	Operation and Maintenance
PAH	Polycyclic Aromatic Hydrocarbons
PPE	Personal Protective Equipment
RAB	Restoration Advisory Board
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
RQL	Ramsdell Quarry Landfill

LIST OF ACRONYMS (CONTINUED)

RVAAP	Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation
SVOC	Semivolatile Organic Compound
S/S	Stabilization/Solidification
TCLP	Toxicity Characteristic Leaching Procedure
TERP	Transportation and Emergency Response Plan
UHC	Underlying Hazardous Constituent
U.S. Army	U.S. Department of Army
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
UTS	Universal Treatment Standard
UXO	Unexploded Ordnance

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PART I: THE DECLARATION

A. SITE NAME AND LOCATION

This Record of Decision (ROD) addresses soil and dry sediment contaminants at the Load Line 12 (LL12), Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio (Figure 1). LL12 is identified in the Army Environmental Database for Restoration as RVAAP-12. The RVAAP is located in east-central Portage County and southwestern Trumbull County, Ohio, approximately 4.8 km (3 miles) east-northeast of Ravenna and approximately 1.6 km (1 mile) northeast of the city of Newton Falls. The LL12 Area of Concern (AOC) is located in the southeastern portion of the RVAAP. The Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) Identifier for the RVAAP is OH5210020736.

B. STATEMENT OF BASIS AND PURPOSE

The U.S. Department of Army (U.S. Army) is the lead agency and has chosen the selected remedy for LL12 soil and dry sediment in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information contained in the Administrative Record file for LL12.

The Ohio Environmental Protection Agency (Ohio EPA), the lead regulatory agency, approved the *Final Feasibility Study (FS) for Load Line 12* (USACE 2006). This FS evaluated contaminated soil and dry sediment remedies at LL12 and recommended Excavation of Soil/Dry Sediment with Offsite Disposal – National Guard Trainee Land Use. Ohio EPA concurs with the above recommendation. Excavation and offsite disposal of contaminated soil and dry sediment at LL12 satisfies the requirements of the Ohio EPA Director's Final Findings and Orders, dated June 10, 2004 (Ohio EPA 2004).

C. ASSESSMENT OF THE SITE

The response action selected in this ROD is to protect public health, welfare, and the environment from actual or potential releases of hazardous substances into the environment.

D. DESCRIPTION OF THE SELECTED REMEDY

The selected remedy was one of several Alternatives evaluated (Part II, Section I) and involves the removal of chemical contaminants in soil and dry sediment at LL12 that exceed the clean-up goals for the reasonably anticipated future land use (National Guard Trainee). Other land uses were evaluated; however, the selected remedy addresses risks to the National Guard Trainee. The selected remedy

was chosen because it is protective for the reasonably anticipated future land use, is cost effective, and can be performed in a timely manner.

Soil and dry sediment will be disposed at an offsite facility licensed and permitted to accept these wastes. An estimated 1,161 yd³ (ex-situ) of contaminated soil and dry sediment will require excavation.

Confirmation sampling will be conducted to determine whether clean-up goals have been attained.

The cost for the selected remedy is estimated to be \$364,789. The U.S. Army and Ohio Army National Guard (OHARNG) will develop and implement land use controls to deter unauthorized access and to protect human receptors. Five-year reviews will be conducted in accordance with CERCLA 121(c) to ensure protectiveness of the remedy. The remedial action includes an operation and maintenance (O&M) period to account for the post-implementation activities, including land use controls.

E. STATUTORY DETERMINATION

The selected remedy is protective of human health and the environment, complies with Federal and State laws and regulations that are applicable or relevant and appropriate to the remedial action, is cost effective, and utilizes permanent solutions to the maximum extent practicable.

The remedy does not satisfy the statutory preference for treatment. The treatment technologies evaluated for soil were not found to be feasible for implementation at LL12. Some treatment technologies were not applicable considering the anticipated future land use.

Because this remedy will result in chemicals of concern (COCs) remaining onsite above concentrations that allow for unrestricted land use and exposure, five-year reviews will be performed in compliance with CERCLA Section 121(c) to ensure the remedy remains protective of human health and the environment.

F. RECORD OF DECISION DATA CERTIFICATION CHECKLIST

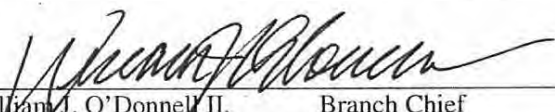
Table 1 provides the location of key remedy selection information contained in Part II, Decision Summary. Additional information can be found in the Administrative Record file for LL12.

Table 1. ROD Data Certification Checklist

ROD Data Checklist Item	ROD Section	Page
COCs and their respective concentrations	II.G	10, 11
Baseline risk represented by the COCs	II.G	10, 11
Clean-up goals established for COCs and the basis for these goals	II.H	11, 12
How source materials constituting principal threats are addressed	II.K	18
Current and reasonably anticipated future land use assumptions used in the baseline risk assessment and ROD	II.F	10
Suitable potential land uses, following the selected remedy	II.L.4	23
Estimated capital, annual O&M, and the total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected	II.J.7 II.L.3	17, 18 22
Key factor(s) that led to selecting the remedy	II.L.1	19

COC - Chemical of concern.
 O&M - Operation and maintenance.
 ROD - Record of Decision.

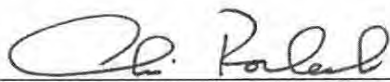
G. AUTHORIZING SIGNATURES AND SUPPORT AGENCY ACCEPTANCE OF REMEDY



 William J. O'Donnell II, Branch Chief
 Operational Army and Medical Branch
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 Base Realignment and Closure Division (DAIM-ODB)

20 Aug 09

 Date



 Chris Korleski
 Director
 Ohio Environmental Protection Agency

10/13/09

 Date

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PART II: DECISION SUMMARY

A. SITE NAME, LOCATION, AND DESCRIPTION

LL12 was identified as an AOC at the RVAAP in the Preliminary Assessment (USACE 1996). When the RVAAP Installation Restoration Program (IRP) began in 1989, the RVAAP (CERCLIS Identification Number OH5210020736) was identified as a 21,419-acre installation. The property boundary was resurveyed by OHARNG over a 2-year period (2002 and 2003) and the actual total acreage of the property was found to be 21,683 acres. As of February 2006, a total of 20,403 acres of the former 21,683 acre RVAAP have been transferred to the National Guard Bureau (NGB) and subsequently licensed to OHARNG for use as a military training site. The current RVAAP consists of 1,280 acres scattered throughout the OHARNG Camp Ravenna Joint Military Training Center (Camp Ravenna).

Camp Ravenna is in northeastern Ohio within Portage and Trumbull counties, approximately 4.8 km (3 miles) east-northeast of the city of Ravenna and approximately 1.6 km (1 mile) northwest of the city of Newton Falls. The RVAAP portions of the property are solely located within Portage County. Camp Ravenna and RVAAP is a parcel of property approximately 17.7 km (11 miles) long and 5.6 km (3.5 miles) wide bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad on the south; Garret, McCormick, and Berry roads on the west; the Norfolk Southern Railroad on the north; and State Route 534 on the east (see Figures 1 and 2). Camp Ravenna is surrounded by several communities: Windham on the north; Garrettsville 9.6 km (6 miles) to the northwest; Newton Falls 1.6 km (1 mile) to the southeast; Charlestown to the southwest; and Wayland 4.8 km (3 miles) to the south.

When the RVAAP was operational, Camp Ravenna did not exist and the entire 21,683-acre parcel was a government-owned, contractor-operated industrial facility. The RVAAP IRP encompasses investigation and clean-up of past activities over the entire 21,683 acres of the former RVAAP. References to the RVAAP in this document include the historical extent of the RVAAP, consisting of the combined acreages of the current Camp Ravenna and RVAAP, unless otherwise specifically stated.

The only activities still being carried out at the RVAAP are environmental restoration, ordnance clearance and infrequent demolition of any unexploded ordnance (UXO) discovered during investigation and remediation activities, and building decontamination and demolition.

LL12, designated as RVAAP-12, is situated in the southeastern portion of the facility and is 80 acres in size (Figures 2 and 3).

The U.S. Army is the lead agency for any remediation, decisions, and any applicable clean-up at LL12. These activities are being conducted under the IRP. The Ohio EPA is the lead regulatory agency.

B. SITE HISTORY AND ENFORCEMENT ACTIVITIES

The RVAAP was constructed in 1940 and 1941 for depot storage and ammunition assembly/loading and placed on standby status in 1950. Production activities resumed from 1954 to 1957 and 1968 to 1972. Demilitarization activities, including disassembly of munitions and explosives melt-out and recovery, continued until 1992.

LL12 was originally known as the Ammonium Nitrate Plant and started operations on November 25, 1941. Structures related to the production of the ammonium nitrate were the Neutral Liquor Building (Building FF-19) and seven evaporation/crystallization units (Buildings 900, 901, 902, 903, 904, 905, and 906) (Figure 3). Other structures, such as Water Works No. 2 and Power House No. 3 (Building FE-17), housed support operations. A drainage ditch (Main Ditch) approximately bisects the AOC. Soil and dry sediment west of the Main Ditch was included in a Western Soil Aggregate for risk assessment purposes and soil east of the Main Ditch was included in an eastern soil aggregate. The western half of LL12 contained former production areas. The eastern half was previously cleared, but did not contain any known production facilities. The Remedial Investigations (RIs) also identified an area immediately north of LL12 (informally termed the Team Track Area) that was apparently used for offloading and staging of materials used in production activities.

In May 1943, production of ammonium nitrate was terminated. From 1946 to 1950, a private contractor leased LL12 to produce fertilizer-grade ammonium nitrate. From 1965 to 1967, a private contractor leased Building FF-19 for the production of aluminum chloride. The U.S. Army terminated the lease early due to environmental concerns related to air emissions and wastewater discharges to Cobbs Pond.

In June 1944, Buildings 900, 904, and 905 were converted for demilitarization of munitions. Rinsate from demilitarization operations resulting from building washdown activities and overflow of condensate collection systems was initially allowed to flow directly onto the ground or to drainage ditches. In 1981, the LL12 Pink Water Treatment Plant was built to treat the demilitarization effluent prior to discharge. After the termination of demilitarization operations, the treatment plant was used under a National Pollutant Discharge Elimination System permit to treat explosives-tainted stormwater from LL12 and other RVAAP locations.

Currently, there are no above-grade structures remaining at LL12. Demolition of Buildings 901, 902, 906, and FF-19 took place from 1973 to 1975. Building FN-54 (bagging and shipping facility) was demolished in the 1980s. In 1999, approximately 1,500 ft³ of soil was removed from four pits near Building 904 and taken to a former warehouse at Load Line 4 as part of an explosives composting pilot study. Demolition of all remaining structures took place from 1998 to 2000. A former blast berm near Building 903 was removed and used as fill/groundcover for areas around Buildings 903 and FE-17.

The following investigations have been completed for LL12:

- *Preliminary Assessment for the Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 1996);
- *Phase I Remedial Investigation Report for the Phase I Remedial Investigation of High Priority Areas of Concern at the Ravenna Army Ammunition Plant, Ravenna Ohio* (USACE 1998);
- *Phase II Remedial Investigation Report for Load Line 12 at the Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2004);
- *Preliminary Draft Characterization of 14 Ravenna Army Ammunition Plant Areas of Concern, Ravenna, Ohio* (MKM 2005); and
- *Phase II Remedial Investigation Supplemental Report for Load Line 12 at the Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2005).

C. HIGHLIGHTS OF COMMUNITY PARTICIPATION

Using the RVAAP community relations program, the U.S. Army and Ohio EPA have interacted with the public through news releases, public meetings, reading materials, direct mailings, an internet website, and receiving and responding to public comments. Specific items of the community relations program include the following:

Restoration Advisory Board: The U.S. Army established a Restoration Advisory Board (RAB) in 1996 to promote community involvement in the U.S. Department of Defense (DoD) environmental clean-up activities and allow the public to review and discuss the progress with decision makers. RAB meetings are held every two months and are open to the public.

The RVAAP Community Relations Plan: The RVAAP Community Relations Plan (USACE 2003) was prepared to establish processes to keep the public informed of activities at the RVAAP. The plan is available in the Administrative Record at the RVAAP.

The RVAAP Internet Website: The U.S. Army established an internet website in 2004 for the RVAAP. This internet website is accessible to the public at www.rvaap.org.

In accordance with Section 117(a) of CERCLA and Section 300.430(f)(2) of the NCP, the U.S. Army released the *Proposed Plan for Soil and Dry Sediment at Load Line 12* (USACE 2007) to the public on April 4, 2007. The Proposed Plan and other project-related documents were made available to the public in the Administrative Record maintained at the RVAAP and in the Information Repositories at Reed Memorial Library in Ravenna, Ohio and Newton Falls Public Library in Newton Falls, Ohio. A notice of availability for the proposed plan was sent to the media outlets: radio stations television stations, and newspapers (*Newton Falls Press, Youngstown Vindicator, Warren Tribune-Chronicle, Akron Beacon Journal, and Ravenna Record Courier*), as specified in the RVAAP Community

Relations Plan (USACE 2003). The notice of availability initiated the 30-day public comment period beginning April 4, 2007, and ending May 3, 2007.

The U.S. Army held a public meeting on April 10, 2007 at the Newton Falls Community Center to present the proposed plan to the public. At this meeting, representatives of the U.S. Army provided information and answered questions about soil and dry sediment contamination at LL12. A transcript of the public meeting is available to the public and has been included in the Administrative Record. Responses to the verbal comments received at this meeting are included in the Responsiveness Summary, which is Part III of this ROD. No additional written comments were received during the public comment period.

The U.S. Army considered public input from the public meeting on the Proposed Plan in selecting the remedial alternative to be used for soil and dry sediment at LL12.

D. SCOPE AND ROLE OF RESPONSE ACTIONS WITHIN SITE STRATEGY

The overall program goal of the IRP is to clean up previously-contaminated lands to reduce contamination to concentrations that are not anticipated to cause risks at the RVAAP with primary emphasis on those areas that may impact human health and environment. LL12 is one of 51 AOCs at the RVAAP. This ROD addresses soil and dry sediment and does not address other potentially-contaminated media in LL12. The selected remedy described in the ROD is consistent with the stated future action(s) to be performed at the RVAAP. Other media at LL12 and other AOCs at the RVAAP will be managed as separate actions or decisions by the U.S. Army and will be considered under separate RODs.

This ROD addresses the soil and dry sediment at LL12. The contamination present at LL12 poses a potential risk to human health because the COC concentrations exceeded the clean-up goals. Implementation of the remedy described in this ROD will address a principal threat at LL12 through removal and offsite disposal of contaminated soil.

E. SUMMARY OF SITE CHARACTERISTICS

Characteristics, nature and extent of contamination, and the conceptual site model of LL12 are based on the RIs conducted from 1998 through 2005 (USACE 1998, USACE 2004, and USACE 2005).

E.1 Topography/Physiography

Elevations across LL12 range from approximately 970 to 987 ft above mean sea level. The land surface gently slopes from the west and east boundaries towards the Main Ditch and elevations are generally lower on the north end of the AOC. All buildings have been demolished to grade. The original LL12 security fence and access gates are currently intact. Unimproved access roads and former rail beds traverse portions of LL12.

E.2 Geology

Silty to clayey soil and glacial sediment overlie shale bedrock at LL12, except where disturbed by the RVAAP activities. A majority of LL12 was re-graded and soil was disturbed during demolition activities that occurred between 1998 and 2000. Soil in the former production areas contains a mix of sandy fill, sand, ballast material, slag, and residual debris (e.g., metal, brick, and concrete).

E.3 Hydrogeology

The water table at LL12 is typically less than 15 ft below the surface. The general groundwater flow pattern in most of the AOC is to the north, which mimics the topography and surface water drainage patterns. In the southernmost portion of the AOC, groundwater flow is to the southeast. Results of slug tests performed during the RI phase showed horizontal hydraulic conductivities ranging from 2.35×10^{-6} to 2.64×10^{-4} cm/sec.

Surface water drainage flows generally from south to north across LL12. A prominent drainage ditch (Main Ditch) divides the AOC in half, as seen in Figure 3. A stream traverses LL12 from west to east and intercepts the Main Ditch near the northern boundary of the AOC. Beaver activity produced a large marshy area in the western portion of LL12 near Buildings 904, 905, and 906. Drainage ditches within LL12 are primarily dry, except during rain storms.

E.4 Ecology

Ecological habitats within LL12 include forests, grasslands, herbaceous fields, and low, marshy areas. Four drainage ditches at LL12 receive stormwater runoff from within the AOC and adjacent areas. There is one small unnamed pond and one former settling pond within LL12. Two of the ditches and the small unnamed pond contain water year-round. These habitats support a variety of wildlife, including small mammals, birds, insects, and fish. There are currently no federally-listed species or critical habitats on RVAAP property. State-endangered, State-threatened, State species-of-concern, and State special-interest species have been identified at the RVAAP. LL12 has not been previously surveyed for State-listed species; therefore, none have been documented at LL12.

E.5 Nature and Extent of Contamination

Contamination in soil at LL12 is primarily confined to between 0 and 4 ft below ground surface (BGS). Contaminants identified in soil include metals and explosive compounds and some residual semivolatile organic compounds (SVOCs) from the burning of fossil fuel at the former power plant. The highest concentrations of metals occur in the vicinity of former Building FF-19 and in the southern part of the Main Ditch. Explosive compounds were detected primarily in the soil and drainage ditches in the vicinity of former Buildings 900, 904, and 905.

F. CURRENT AND POTENTIAL FUTURE LAND USES

The intended future land use for LL12 is for National Guard training. Specifically, this area will be used for mounted training. Maneuver damage may occur up to 4 ft BGS. This future use could include the three National Guard receptor types: Trainee, Security Guard/Maintenance Worker, and Fire/Dust Suppression Worker, as well as the Hunter/Trapper.

G. SUMMARY OF SITE RISKS

The Baseline Risk Assessment (BRA) estimated risks that LL12 potentially poses to both human and ecological receptors under current conditions. The BRA identifies the exposure pathways, COCs, if any, and provides a basis for the remedial decisions. This section of the ROD summarizes the results of the BRA for LL12, specifically for soil and dry sediment, as presented in detail in the following documents located in the Administrative Record and Information Repositories:

- *Phase II Remedial Investigation Report for Load Line 12 at the Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2004); and
- *Final Feasibility Study for Load Line 12 (RVAAP-12), Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2006).

G.1 Human Health Risk Assessment

A human health risk assessment (HHRA) evaluated potential risks from current and predicted future exposures to soil and dry sediment contaminants at LL12 (USACE 2004). Currently, installation personnel visit the AOC infrequently to conduct power line maintenance, perform timber harvesting, and check the status of beaver dams. OHARNG plans to use LL12 for National Guard mounted training. The HHRA evaluated the Security Guard/Maintenance Worker, Hunter/Trapper, Child Trespasser, National Guard Trainee, Open Recreator, Open Industrial Worker, and Resident Farmer (adult and child) as receptors to address a range of possible future land uses.

The RVAAP will be retained by the U.S. government (i.e., a federal facility) for use by the OHARNG for military training. The HHRA identified the National Guard Trainee as the representative receptor for the reasonably anticipated future land use. Three other receptors (Security Guard/Maintenance Worker, Fire/Dust Suppression Worker, and Hunter/Trapper) were also considered under the planned OHARNG future use. The National Guard Trainee is the most sensitive receptor under planned future land use. Potential exposures for the remaining three receptors are less than the National Guard Trainee and clean-up goals for the National Guard Trainee are also protective for these other receptors. The Resident Subsistence Farmer (adult and child) provided a full comparative range of risks for development and analysis of remedial alternatives. Risk information for other receptors is located in the HHRA (USACE 2004) and feasibility study (FS) (USACE 2006).

Nine soil and three sediment COCs were identified for the National Guard Trainee in the HHRA for LL12 (USACE 2004). All of these COCs, except arsenic, were eliminated from further consideration because the corresponding exposure point concentrations (EPCs) did not exceed the clean-up goals. Also, the distribution of COCs in soil was limited to isolated occurrences (e.g., no definite areas of contamination).

Arsenic in dry sediment in the Main Ditch was evaluated as a COC for remedial alternatives in the FS. Arsenic exceeds the National Guard Trainee clean-up goal in the southern portion of the Main Ditch. Total carcinogenic risk to a National Guard Trainee exposed to contaminated sediment at the Main Ditch was calculated as 1.8E-05, which slightly exceeds the Ohio EPA target risk of 1E-05. The chemical hazard index was 0.23, indicating no unacceptable hazard. Based on these results, dry sediment in the Main Ditch was identified as a candidate for remedial action.

G.2 Ecological Risk Assessment Summary

The ecological risk assessment for LL12 evaluated risk to plants and animals from contaminants in soil, surface water, and wet sediment. Contaminants of ecological concern identified for these media include metals, one explosive compound, pesticides, and SVOCs. The FS (USACE 2006) presents a weight-of-evidence evaluation that no quantitative ecological clean-up goals be developed at LL12. This weight-of-evidence includes field survey results showing the existing ecosystem is healthy with abundant surrounding high-quality habitat. Remediation to meet human health clean-up goals will reduce overall contaminant concentrations and ecological risk. Additional removal of soil and dry sediment to further reduce any adverse ecological effects would destroy habitat (vegetation) temporarily in the narrow main ditch at LL12.

G.3 Basis for Action Statement

Results of the risk assessment for LL12 indicate that exposure to soil and dry sediment under current and anticipated future land use scenarios may result in unacceptable risks to human receptors, unless remediation is undertaken to reach established clean-up goals. The response action selected in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

H. REMEDIAL ACTION OBJECTIVES

The remedial action objective (RAO) references clean-up goals and target risk levels that are considered protective of human health under current and reasonably anticipated future use scenarios. The RAO for this remedy is to prevent National Guard Trainee exposure to contaminants in soil and dry sediment that exceed the clean-up goals to a depth of 4 ft BGS. Soil and dry sediment to be remediated under the selected remedy extend to a maximum depth of 4 ft BGS because future land use will not require disturbance of soil below that depth. Table 2 presents the clean-up goals.

Table 2. Chemical of Concern and Clean-up Goal for a National Guard Trainee for Soil and Dry Sediment at LL12

COC ^{a b}	Target Risk	Clean-up Goal (mg/kg)
Arsenic	1E-05	31

^aSediment from the Main Ditch aggregate.

^bTotal carcinogenic risk to a National Guard Trainee from contaminants in the Main Ditch was calculated as 1.8E-05. The chemical hazard index was 0.23 (less than 1) indicating no unacceptable hazard.

COC – Chemical of concern.

I. DESCRIPTION OF ALTERNATIVES

The FS developed and evaluated remedial alternatives for soil and dry sediment at LL12 based on the RI results. Six remedial alternatives were developed:

- No action;
- Limited Action;
- Excavation and Offsite Disposal (National Guard Trainee Land Use);
- Excavation and Offsite Disposal (Resident Subsistence Farmer Land Use);
- Treatment and Offsite Disposal (National Guard Trainee Land Use); and
- Treatment and Offsite Disposal (Resident Subsistence Farmer Land Use).

This section includes a description of the various components of the six remedial alternatives identified in the FS, including land use controls and monitoring, removal, treatment, and disposal and handling.

I.1 Feasibility Study Alternative 1 – No Action

This remedial alternative provides no further remedial action and is required under NCP as a baseline for comparison with other remedial alternatives. Under this alternative, there is no reduction in toxicity, mobility, or volume of contaminated soil and dry sediment. Access restrictions and environmental monitoring would be discontinued. LL12 would have no legal, physical, or administrative land use controls. Environmental monitoring would not be performed. Five-year reviews would not be conducted in accordance with CERCLA 121(c).

I.2 Feasibility Study Alternative 2 – Limited Action

This remedial alternative involves implementation of land use controls by the U.S. Army and OHARNG to deter unauthorized access and protect human receptors, as well as periodic monitoring to detect any changes in the nature or extent of contamination at LL12. Five-year reviews would be conducted in accordance with CERCLA 121(c). The remedial alternative includes an O&M period to detect any changes in soil and dry sediment nature and extent at LL12.

I.3 Feasibility Study Alternative 3 – Excavation of Soil/Dry Sediment with Offsite Disposal – National Guard Trainee Land Use

This remedial alternative involves the removal of chemical contaminants in soil and dry sediment exceeding the clean-up goal for the National Guard Trainee and disposal offsite at a licensed disposal facility. Approximately 1,161 yd³ of contaminated dry sediment in the Main Ditch would be excavated and transported to an offsite disposal facility licensed and permitted to accept these wastes. Confirmation sampling would be conducted to ensure the National Guard Trainee clean-up goal has been achieved. Areas successfully remediated would be backfilled with clean soil.

The U.S. Army and OHARNG would develop and implement land use controls to deter unauthorized access and to protect human receptors. Environmental monitoring would be conducted to evaluate future conditions at LL12. Five-year reviews would be conducted in accordance with CERCLA 121(c). The remedial action includes an O&M period to account for the post-implementation activities, including land use controls.

I.4 Feasibility Study Alternative 4 – Excavation of Soil/Dry Sediment with Offsite Disposal – Resident Subsistence Farmer Land Use

This remedial alternative involves the removal of chemical contaminants in soil and dry sediment above Resident Subsistence Farmer land use clean-up goals and disposal offsite at a licensed disposal facility. Approximately 18,197 yd³ (ex situ) of soil and dry sediment would be excavated and transported to an offsite disposal facility licensed and permitted to accept these wastes. Confirmation sampling would be conducted to ensure residential land use clean-up goals have been achieved. Areas successfully remediated would be backfilled with clean soil. Alternative 4 does not include O&M or land use controls because this alternative achieves clean-up goals allowing for unrestricted (e.g., residential) land use.

I.5 Feasibility Study Alternative 5 – Excavation of Soil/Dry Sediment, Treatment, and Offsite Disposal – National Guard Trainee Land Use

This remedial alternative involves the removal of chemical contaminants in soil and dry sediment exceeding the clean-up goal for the National Guard Trainee followed by treatment and disposal offsite at a licensed disposal facility. Approximately 1,161 yd³ of contaminated dry sediment in the Main Ditch would be excavated and transported to a central treatment area. Treatment would include

mixing chemicals with the soil to stabilize and solidify the material. A treatability study to identify the proper types and amounts of treatment chemicals would be performed prior to remediation. Treated soil and dry sediment would then be transported to an offsite disposal facility licensed and permitted to accept the wastes. Confirmation sampling would be conducted to ensure the National Guard Trainee land use clean-up goal has been achieved.

The U.S. Army and OHARNG would develop and implement land use controls to deter unauthorized access and to protect human receptors. Environmental monitoring would be conducted to evaluate future conditions at LL12. Five-year reviews would be conducted in accordance with CERCLA 121(c). The remedial action includes an O&M period to account for the post-implementation activities, including land use controls.

I.6 Feasibility Study Alternative 6 – Excavation of Soil/Dry Sediment, Treatment, and Offsite Disposal – Resident Subsistence Farmer Land Use

This remedial alternative involves the removal of chemical contaminants in soil and dry sediment exceeding the clean-up goals for the Resident Subsistence Farmer followed by treatment and disposal offsite at a licensed disposal facility. Approximately 18,197 yd³ (ex situ) of contaminated soil and dry sediment would be excavated and transported to a central treatment area. Treatment would include mixing chemicals with the soil to stabilize and solidify the material. A treatability study to identify the proper types and amounts of treatment chemicals would be performed prior to remediation. Treated soil and dry sediment would then be transported to an offsite disposal facility licensed and permitted to accept the wastes. Confirmation sampling would be conducted to ensure the Resident Subsistence Farmer land use clean-up goals have been achieved. Alternative 6 does not include O&M or land use controls because this alternative achieves clean-up goals allowing for unrestricted (e.g., residential) land use.

J. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

The alternatives were evaluated with respect to the nine comparative analysis criteria, as outlined by CERCLA (Table 3). The nine criteria are categorized into three groups: threshold criteria, primary balancing criteria, and modifying criteria. These criteria are as follows:

Threshold Criteria – Must be met for the alternative to be eligible for selection as a remedial option.

1. Overall protection of human health and the environment.
2. Compliance with applicable or relevant and appropriate requirements.

Primary Balancing Criteria – Used to weigh major trade-offs among alternatives.

3. Long-term effectiveness and permanence.
4. Reduction of toxicity, mobility, or volume through treatment.
5. Short-term effectiveness.

6. Implementability.
7. Cost.

Modifying Criteria – FS consideration to the extent that information was available. Evaluated fully after public comment period on the Proposed Plan.

8. State acceptance.
9. Community acceptance.

Table 3. CERCLA Evaluation Criteria

Overall Protection of Human Health and the Environment – considers whether or not an alternative provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
Compliance with Applicable or Relevant and Appropriate Requirements – considers how a remedy will meet all the applicable or relevant and appropriate requirements of other federal and state environmental statutes and/or provide grounds for invoking a waiver.
Long-term Effectiveness and Permanence – considers the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time once clean-up goals have been met.
Reduction of Toxicity, Mobility, or Volume Through Treatment – considers the anticipated performance of the treatment technologies that may be employed in a remedy.
Short-Term Effectiveness – considers the speed with which the remedy achieves protection, as well as the potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.
Implementability – considers the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.
Cost – considers capital costs and operation and maintenance costs associated with the implementation of the alternative.
State Acceptance – indicates whether the state concurs with, opposes, or has no comment on the preferred alternative.
Community Acceptance – considers public input following a review of the public comments received on the Remedial Investigation Report, Focused Feasibility Study, and the Proposed Plan.

CERCLA – Comprehensive Environmental Response and Liability Act

J.1 Overall Protection of Human Health and the Environment

This criterion must be met for an alternative to be considered for final selection. Alternative 1 (No Action) will not reduce the short- or long-term risks for human or environmental receptors from potential exposure to the COCs, and are thus not protective. Alternative 2 (Limited Action) does not offer protectiveness because of its reliance entirely on land use controls. The remaining alternatives (Alternatives 3 through 6) provide long-term protection of human health by removing the source of potential human exposure through ingestion, inhalation, or contact. These alternatives also reduce the potential for migration of COCs from soil and dry sediment into surrounding media. Removing soil and sediment with concentrations of COCs exceeding clean-up goals will protect National Guard Trainee receptors in the long term. Alternatives 4 and 6 provide additional protection and allow future residential land use, but are much more difficult and expensive to implement. Remediation of

LL12 to achieve residential clean-up goals is not warranted at this time because the reasonable and foreseeable land use at LL12 will be for National Guard training purposes. Alternatives 5 and 6 include the addition of soil treatment, which satisfies the CERCLA preference for alternatives that reduce contaminant mobility, toxicity, and volume, but do not offer increased overall protectiveness compared to Alternatives 3 and 5.

J.2 Compliance with Applicable or Relevant and Appropriate Requirements

CERCLA Section 121 specifies that remedial actions must comply with requirements or standards under federal or more stringent state environmental laws that are “applicable or relevant and appropriate to the hazardous substances or particular circumstances at the site.” There are no identified chemical-specific or location-specific applicable and relevant or appropriate requirements (ARARs) for any of the six Alternatives. Action-specific ARARs were identified for Alternatives 3 through 6.

J.3 Long-Term Effectiveness and Permanence

Alternative 1 (No Action) is neither effective nor permanent in the long term. Alternative 2 (Limited Action – Land Use Controls) would offer some degree of protectiveness but relies entirely on land use controls to protect human receptors from exposure to contaminated soil and sediment. The remaining four alternatives all have a high rating for long-term effectiveness and permanence because they remove contaminants that exceed acceptable risk levels.

J.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternative 1 (No Action), Alternative 2 (Limited Action – Land Use Controls), Alternative 3 (Excavation and Offsite Disposal – National Guard Trainee Land Use), and Alternative 4 (Excavation and Offsite Disposal – Resident Subsistence Farmer Land Use) do not include treatment as a principal element and; therefore, offer no reduction in toxicity, mobility, or volume through treatment. Alternatives 5 and 6, which include treatment options, offer a moderate improvement in alternative performance, but do not offer increased overall protectiveness or long-term effectiveness compared to Alternative 3.

J.5 Short-Term Effectiveness

Short-term effectiveness addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community, and environment during construction and operation of the remedy until clean-up goals are achieved. No short-term human health risks are associated with Alternatives 1 (No Action) and 2 (Limited Action – Land Use Controls) beyond baseline conditions.

The short-term effectiveness of Alternative 3, 4, 5, and 6 includes the potential for worker exposure during the excavation process, as well as the exposure to the community during transportation of soil

and dry sediment. The overall risk in implementing Alternative 5 and 6 is increased due to the increased handling of wastes during treatment. Workers would follow a health and safety plan and wear appropriate personal protective equipment (PPE) to minimize exposures. Mitigation measures would be used to minimize short-term impacts, such as erosion and dust control during construction.

Excavated soil and dry sediment will be transported by truck to a disposal facility. Risks will be mitigated during transport by inspecting vehicles before and after use, decontaminating when needed, covering the transported material, observing safety protocols, following pre-designated routes, and limiting the distance the waste is transported in vehicles. Transportation risks (e.g., from continuous leaks) increase with distance and volume. Transportation of contaminated materials to an offsite disposal facility would strictly comply with all applicable state and federal regulations. Pre-designated routes would be traveled and an emergency response program developed to facilitate accident response.

J.6 Implementability

No actions are proposed for Alternative 1. Alternative 2 (Limited Action - Land Use Controls) can easily be implemented. Access restrictions are currently in effect at LL12 and implementing additional AOC-specific land use controls would require minimal resources. Alternatives 3 and 4 are technically implementable. Excavation of contaminated sediment, construction of temporary roads, and waste handling are conventional construction activities. Multiple disposal facilities are available that can accept generated waste. However, special engineering techniques may be required during construction activities to deal with potential MEC issues at LL12. Post-action land use controls can easily be implemented.

Alternatives 5 and 6 are considered to be technically implementable provided treatment performance criteria can be attained. Commercial stabilization/solidification (S/S) technologies are currently available, although AOC-specific treatability/pilot studies would be required prior to remedial action to determine applicability to LL12.

J.7 Cost

The present net worth costs for the alternatives, not including Alternative 1 (No Action), range from \$0.2 million (Alternative 2) to \$4 million (Alternative 6). Present worth costs were estimated using base year 2005 dollars with a discount rate of 3.1%. Cost summaries for the six alternatives are shown in Table 4.

Table 4. Estimated Cost of Alternatives

Alternative	Capital Cost	O&M Cost	O&M Period	Total Present Worth Cost
1	\$0	\$0	NA	\$0
2	\$20,888	\$188,306	30 years	\$209,194
3	\$176,483	\$188,306	30 years	\$364,789
4	\$1,794,453	\$0	NA	\$1,794,453
5	\$466,757	\$188,306	30 years	\$655,064
6	\$3,958,169	\$0	NA	\$3,958,169

O&M – Operation and maintenance.

J.8 State Acceptance

State acceptance was evaluated formally after the public comment period on the Proposed Plan. Ohio EPA concurs that Alternative 1 (No Action) or Alternative 2 (Limited Action – Land Use Controls) does not provide adequate protection of human health and the environment. The capital costs for soil removal in Alternative 3 are less than in Alternative 4, Alternative 5 and Alternative 6. Ohio EPA concurs that the treatment step of Alternative 5 does not provide any increased overall protection or long-term effectiveness at the AOC compared to Alternative 3. Therefore, Ohio EPA has expressed its support for Alternative 3 (Excavation and Offsite Disposal – National Guard Trainee Land Use).

J.9 Community Acceptance

Community acceptance was evaluated formally after the Proposed Plan public comment period. During the public meeting, the community voiced few objections to Alternative 3 (Excavation and Offsite Disposal – National Guard Trainee Land Use) as indicated in Part III of this ROD, the Responsiveness Summary.

K. PRINCIPAL THREAT WASTES

Principal threat wastes, as defined by U.S. Environmental Protection Agency (USEPA), are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained, or would present a significant risk to human health or the environment should exposure occur. Given the reasonable foreseeable planned future land use for LL12 for National Guard Trainee, principal threat wastes at LL12 would be those media posing a potential risk of 10^{-3} or greater. Current risk for National Guard Trainee exposure to soil and dry sediment is about two orders of magnitude less than this threshold. Thus, soil and dry sediment at LL12 do not constitute principal threat wastes.

L. THE SELECTED REMEDY

Alternative 3 (Excavation and Offsite Disposal – National Guard Trainee Land Use) is selected for implementation at LL12. This remedy is consistent with the planned future land use of National Guard Trainee.

L.1 Rationale for the Selected Remedy

The selected remedy meets the threshold criteria and provides the best overall balance of tradeoffs in terms of the five balancing criteria:

- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, and volume;
- Short-term effectiveness;
- Implementability; and
- Cost.

The selected remedy is protective for the reasonably anticipated future land use, is cost effective, and can be performed in a timely manner. Based on the available risk assessment information, the selected remedy will achieve the RAO, which is to prevent National Guard Trainee exposure to contaminants in soil and dry sediment that exceed the clean-up goals to a depth of 4 ft BGS. In addition, low risks to ecological receptors will be further reduced.

Using engineering controls, PPE, erosion and sediment controls, proper waste handling practices, and monitoring will mitigate short-term effects during construction. Following remediation, land use controls will be implemented by the U.S. Army and OHARNG to deter unauthorized access to LL12. CERCLA five-year reviews will be conducted to ensure long-term protectiveness of the remedy.

The selected remedy addresses State and community concerns by removing contaminated soil and dry sediment from LL12.

L.2 Description of the Selected Remedy

Alternative 3 includes excavation and offsite disposal of contaminated soil and dry sediment above National Guard Trainee clean-up goals. An estimated 1,161 yd³ (ex situ) of arsenic-contaminated soil and dry sediment would be excavated and shipped offsite to a licensed disposal facility. Other technologies included in this alternative are land use controls, monitoring, and handling.

Utilization of LL12 is assumed to correspond to OHARNG established future land use. Alternative 3 will require coordination of remediation and monitoring activities with OHARNG and the U.S. Army. Such coordination will minimize health and safety risks to onsite personnel and potential disruptions during remediation activities. Although the amount of time to complete this remedial action is

relatively short, it includes an O&M period (30 years assumed duration for cost estimating purposes). Components of this remedial alternative include:

- Remedial Design (RD) Plan;
- Excavation;
- Handling of waste materials;
- Offsite disposal;
- Confirmatory sampling;
- Restoration;
- Land use controls; and
- Five-year reviews.

Remedial Design Plan. An RD Plan will be developed prior to the initiation of remedial actions. This plan will detail preparation activities, the extent of the excavation, implementation, sequence of construction activities, decontamination, and segregation, transportation, and disposal of various waste streams. Short-term land use controls will be developed during the active construction period to ensure a safe remediation.

Excavation. Soil and dry sediment with contaminants above the National Guard Trainee land use clean-up goals will be excavated and transported to a staging area for loading trucks. The extent of contaminated soil and dry sediment at LL12 is depicted in Figure 3. Total disposal volume (i.e., ex situ) is estimated to be 1,161 yd³. Contaminated soil and dry sediment removal would be accomplished using standard construction equipment such as excavators, bulldozers, front-end loaders, and scrapers. Excavation would be guided using a limited quantity of analytical samples. Oversize debris would be crushed or otherwise processed to meet disposal facility requirements. Movement of contaminated soil and dry sediment would be performed using dump trucks and conventional construction equipment. Erosion control materials such as silt fences and straw bales would be installed to minimize erosion. Contaminated soil and dry sediment would be kept moist or covered with tarps to minimize dust generation. Excavation would take place in stages to limit impacts to current RVAAP activities. The safety of remediation workers, onsite employees, and the general public would be covered in a site-specific health and safety plan. The health and safety plan would address potential exposures and monitoring requirements to ensure protection.

Handling. Contaminated soil and dry sediment would be hauled to a licensed and permitted disposal facility by truck. Trucks would be lined with polyethylene sheeting and covered with specially designed tarps or hard covers to prevent release of contaminated soil and dry sediment. All trucks would be inspected prior to use and prior to leaving LL12. Appropriate bills-of-lading [in accordance with the U.S. Department of Transportation (DOT) regulations for shipment of contaminated materials on public roads] would accompany waste shipments. Only regulated and licensed transporters and vehicles would be used. All trucks will travel pre-designated routes and an emergency response plan will be developed in the event of a vehicle accident.

Transportation activities would be performed in accordance with a specific Transportation and Emergency Response Plan (TERP) developed in the remedial design plan. The TERP would evaluate the types and number of vehicles to be used; the safest transportation routes including considerations to minimize use of high traffic roads, public facilities, or secondary roads not designed for trucks; and emergency response procedures for responding to a vehicle accident.

Offsite Disposal. Contaminated soil and dry sediment would be disposed of at an existing facility licensed and permitted to accept the characterized waste stream. The selection of an appropriate facility will consider the types of wastes, location, transportation options, and cost. Waste streams with different constituents and/or characteristics may be generated. Disposal cost savings may be possible by utilizing specific disposal facilities for different waste streams.

Confirmatory Sampling. Sampling would be conducted after excavation of each area. The sampling would confirm the National Guard Trainee land use clean-up goals have been achieved.

Restoration. Excavated areas that have attained the clean-up goals will be backfilled with clean soil and re-vegetated. Fill would be tested prior to placement to ensure compliance with acceptance criteria established in the design work plan.

Land Use Controls. Land use controls (LUCs) shall be maintained until the concentrations of hazardous substances in the soil and groundwater are reduced to levels that allow for unrestricted use. If the LL12 AOC is subsequently remediated to unrestricted use, this ROD will be changed to remove the LUCs as part of the remedy. If the Army proposes to modify the LUCs for LL12, the Army shall submit a modified Land Use Control Remedial Design (LUCRD) to Ohio EPA for review and approval. CERCLA 121(c) five year reviews shall be conducted to assess the long-term effectiveness of the remedy, including LUCs.

The RD Plan shall include a LUC component describing the details of LUC implementation and maintenance, including periodic inspections. The Army is responsible for implementation, maintenance, periodic reporting, and enforcement of LUCs in accordance with the RD Plan. Although the Army may transfer these responsibilities to another party by contract, property transfer agreement, or through other means, the Army remains responsible for remedy integrity to include (1) CERCLA 121(c) 5-year reviews; (2) notification of the appropriate regulators and/or local government representatives of any known LUC deficiencies or violations; (3) provision of access to the property to conduct any necessary response; (4) the ability to change, modify, or terminate LUCs and any related deed or lease provisions; and (5) assurance that the LUC objectives are met to maintain remedy protectiveness.

If the Army determines that there is non-compliance with a LUC, the Army will address the effectiveness of the LUC, including any required notifications and corrective measures. The Army will seek Ohio EPA approval prior to a land use change that is inconsistent with the LUC objectives, the use assumptions of the remedy, or results in the termination of LUCs.

The Army will provide notice to Ohio EPA prior to any transfer or sale of the LL12 AOC or any portion thereof.

If the Army transfers ownership of the LL12 AOC or any portion thereof to another federal agency, department or entity, the transfer documents shall require that the federal transferee include the LUCs in its property management plan or equivalent document. The Army shall advise the federal transferee of all obligations contained in this ROD and the LUCRD.

If the Army transfers ownership of the LL12 AOC or any portion thereof to a non-federal entity, the Army will provide information to that entity in the draft deed and transfer documents regarding necessary LUCs.

The Army will, upon transfer of fee title, ensure that the transferee executes and records an environmental covenant acceptable to Ohio EPA that would impose the LUC terms and conditions of this ROD and the LUCRD against the transferee(s), as well as subsequent property owner(s) or user(s) or their contractors, tenants, lessees, or other parties. This covenant will be recorded in the deed records of the Portage County Recorder's office immediately following the recording of the transfer deed and will run with the land in accordance with state law. Ohio EPA's right to enforce the LUCs would supplement, not replace, the Army's right and responsibility to enforce the LUCs. As a condition of property transfer, lease, or license, the Army may require the transferee or lessee in cooperation with other stakeholders to assume responsibility for various implementation actions. Third-party LUC responsibility will also be incorporated into pertinent contractual, property, and remedial documentation, such as a purchase agreement, deed, lease, license, or permit and a remedial design addendum.

Five-Year Reviews. Pursuant to CERCLA, a review will be conducted every 5 years to assess remedy performance since COCs would remain onsite above unrestricted (i.e., residential) land use clean-up goals. Environmental monitoring will be conducted to evaluate future conditions at the AOC.

L.3 Summary of the Estimated Remedy Costs

Total present worth costs for the selected remedy (Alternative 3) are estimated at \$364,789. As summarized in Table 4, the estimated capital cost is \$176,483 and the estimated present worth O&M cost is \$188,306 (assuming 30 years of operation and using a 3.1% discount rate). These estimates assume that LL12 is remediated to the clean-up goals established for land use for National Guard Trainee. Costs are based on excavation and offsite disposal of soil and dry sediment with concentrations of COCs exceeding the clean-up goals to a depth of 4 ft BGS.

The cost estimate is based on the best available information regarding the anticipated scope of the selected remedy. This is an order-of-magnitude engineering cost estimate that is expected to be within -30 to +50% of the actual project cost in accordance with USEPA guidance (USEPA 1988).

L.4 Expected Outcomes of the Selected Remedy

Table 2 provides a summary of the clean-up goals to be achieved for soil and dry sediment at LL12 at the end of the construction phase. Residual risks after implementation of the selected remedy will be within the acceptable risk range for the intended future land use. Removal of contaminated soil and dry sediment to attain human-health cleanup goals will (1) alter a small area of habitat of less than 0.30 acre (within the 80 acre AOC); and (2) require only a relatively-short recovery period to return present ditch habitat and ditch banks to the same or similar species composition of old field vegetation and trees.

No negative socioeconomic and community revitalization impacts are expected from this remedial action. Positive socioeconomic impacts are expected from the excavation and removal of soil exceeding the clean-up goals because additional resources will be available for use by the OHARNG training mission.

M. STATUTORY DETERMINATION

The selected remedy satisfies the statutory requirements of CERCLA Section 121 and the NCP, as described below.

M.1 Protection of Human Health and the Environment

Human exposure to COCs will be eliminated or controlled to levels that are protective through excavation and offsite disposal of soil and dry sediment at LL12. The selected remedy will comply with the clean-up goals listed in Table 2.

M.2 Compliance with ARARs

The selected remedy will comply with the action-specific ARARs listed in Attachment A.

M.3 Cost-Effectiveness

The selected remedy meets the statutory requirement for a cost-effective remedy. Cost effectiveness is concerned with the reasonableness of the relationship between the effectiveness afforded by each alternative and its costs compared to other available options.

M.4 Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable

The selected remedy represents the maximum extent to which permanent solutions and treatment are practicable for soil and dry sediment at LL12. The selected remedy represents the best balance of tradeoffs between the alternatives because it provides a permanent solution for contaminated media, and cost-effectively remediates soil and dry sediment at LL12.

M.5 Preference for Treatment as a Principal Element

The selected remedy uses permanent solutions to the maximum extent practicable. The remedy does not satisfy the statutory preference for treatment. The treatment technologies evaluated in the early stages of the FS were found to be technically infeasible and cost prohibitive for implementation at LL12.

M.6 Five-Year Review Requirements

Five-year reviews will be conducted in compliance with CERCLA Section 121(c) and the NCP Section 300.430(f)(4)(ii). Five year reviews will be required until land use controls are no longer required at LL12.

N. DOCUMENTATION OF NO SIGNIFICANT CHANGE

The *Proposed Plan for Load Line* (USACE 2007) was released for public comment in April 2007. The Proposed Plan identified Alternative 3 – Excavation and Offsite Disposal – National Guard Trainee Land Use, for soil and dry sediment at LL12 as a recommended alternative. After the public comment period, no significant changes regarding the recommended alternative, as originally identified in the Proposed Plan, were necessary or appropriate.

PART III: RESPONSIVENESS SUMMARY FOR PUBLIC COMMENTS ON THE U.S. ARMY PROPOSED PLAN FOR THE LL12 AT RAVENNA ARMY AMMUNITION PLANT, RAVENNA, OH

O. OVERVIEW

In April 2007, the U.S. Army released the *Proposed Plan for Soil and Dry Sediment at Load Line 12 (RVAAP-12) at the Ravenna Army Ammunition Plant* for public comment. A 30-day public comment period was held from April 4, 2007 to May 3, 2007. The U.S. Army hosted a public meeting on April 10, 2007 to present the Proposed Plan and take questions and comments from the public for the record. The public meeting included presentation of the recommended alternative for LL12, as well as Ramsdell Quarry Landfill (RQL), and the Fuze and Booster Quarry Landfill/Ponds (FBQ).

For soil and dry sediment at LL12, the U.S. Army recommended Alternative 3 – Excavation of Soil/Dry Sediment with Offsite Disposal – National Guard Trainee Land Use. During the public meeting Ohio EPA concurred with the recommendation of this alternative. Several oral comments were received at the public meeting and are addressed under Section B.

Based on comments received, the community voiced few objections to excavation of soil and dry sediment with offsite disposal, National Guard Trainee land use, and this alternative is selected as the final remedy for soil and dry sediment at LL12 in this ROD.

P. SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES

Comments were received verbally during the public meeting. No written comments were received during the 30-day public comment period.

P.1 Oral Comments from Public Meeting

Oral comments received during the public meeting are grouped together in the following general topic categories: vadose zone contamination, ditch flow, disposal facility selection, groundwater monitoring, removal tonnage, polycyclic aromatic hydrocarbons (PAHs), bid and contracting process, soil remediation, sample locations, contaminant levels, AOC history, and disposal. The transcript from the meeting was incorporated into the Administrative Record. Oral comments and responses are paraphrased, as required for brevity and presentation in this section.

1. Vadose Zone Contamination

Comment: One commenter asked if there was contamination in the vadose zone.

Response: The vadose zone by definition is the unsaturated zone above the water table and includes the soil column at LL12. The investigations at LL12 showed contamination in the soil column. The Proposed Plan addresses these soil contaminants.

2. Ditch Flow

Comment: One commenter asked where the heavily contaminated ditches flow, and asked if they flow into a waterway.

Response: At LL12, the main ditch that bisects the central part of the area of concern flows to the north, into drainage ditches north of the AOC. Ultimately the drainage flows into the Cobbs Pond complex (Upper/Lower Cobbs Pond) several hundred yards to the north of LL12.

3. Disposal Facility Selection

Comment: One commenter asked if a site has been selected for disposal of removed soils. The commenter also asked if Countywide Landfill in the Canton area would be excluded from soil disposal options because of trouble with underground fires.

Response: A disposal facility has not yet been selected for disposition of the soils. Disposal site selection is a part of a future remedial design activity, which follows the Proposed Plan phase and ROD.

Any facility considered, will be evaluated as to its appropriateness. Evaluation and selection will include whether they are licensed, qualified to accept the materials, the engineering specifications of the facility, and any regulatory issues.

4. Groundwater monitoring

Comment: One commenter asked if Science Applications International Corporation (SAIC) would conduct the groundwater testing or if it was instead planned for another contractor.

Response: The LL12 Proposed Plan addresses soil and dry sediment. Surface water and groundwater will be evaluated during future studies. A contractor has not been selected for those studies.

5. Removal Tonnage

Comment: One commenter asked the tonnage of soil to be removed in the three proposals (RQL, LL12, and FBQ). The commenter also asked if a cubic yard was approximately equivalent to a ton.

Response: Estimated soil volume to be removed includes about 1,200 cubic yards at LL12, about 420 cubic yards at RQL, and about 70 cubic yards at FBQ. A cubic yard is approximately 1.5 tons.

6. PAHs

Comment: One commenter asked for the definition of PAHs.

Response: The definition for PAHs is polycyclic aromatic hydrocarbons.

7. Bid and Contracting Process

Comment: One commenter asked for clarification into the bidding and contracting process for projects at RVAAP, and particularly how it limits the scope for a contractor like SAIC. The commenter also asked how many environmental corporations have been contracted since the beginning of the program at Ravenna.

Response: When a contract is issued, or requested by the U.S. Army, a scope of work is prepared and submitted to the contracting arm of the Army. In the case of BRAC (Base Realignment and Closure Command), who manages demolition activities at the RVAAP, contracting is handled by the Tank Automotive Command based out of Rock Island Arsenal, Illinois. In the case of environmental requirements, such as LL12, the Corps of Engineers in Louisville, Kentucky, handles contracting on behalf of BRAC. There are two scenarios that follow from here. One is many of the contracts are set aside for what is called an 8(a) contractor (small business designation). Small business contractors are supplied through the Small Business Administration. Other contracts are general contracts for open bidding, and any qualified contractor can bid on those. Proposals are solicited and evaluated, along with estimated costs. A selection board decides which contractor will receive the bid. The scopes of work for each contract are extremely restrictive, and contractors are forbidden to do any work outside of what is specified in the contract. Over the past 4.5 years, approximately five or six different contractors have been employed on RVAAP projects.

8. Soil Remediation

Comment: One commenter asked if it is an option to use a soil remediation facility to not just process the soil for offsite disposal but to remediate the soils to a level appropriate for onsite disposal and reintroduction into the environment, amortizing the value of the facility into a longer range plan.

Response: The RQL, LL12, and FBQ Proposed Plans did not evaluate an alternative for a site-wide integrated soil treatment facility. A facility-wide implementation for onsite treatment would primarily consider cost-benefit analysis. The cost of equipment, machinery, utilization over time, manpower to staff and operate an onsite treatment facility is greater than offsite disposal at an existing facility. As an example, RVAAP established an onsite flashing furnace for facility-wide utilization. RVAAP projects did not generate sufficient material to allow a return on capital investment and maintenance costs.

9. Sample Locations

Comment: One commenter asked if grid sampling was used to determine risk in the proposed areas. The commenter also asked how the hand auger locations were determined from other sampling methods, and whether it was from historical documentation.

Response: The Phase II RI for LL12 employed random statistical grid sampling in that portion of the AOC east of the Main Ditch (non-production area). During the Phase II RI, 22 samples were collected in this portion of the AOC from a depth of 0 to 1 foot. West of the Main Ditch (former

Production Area) discrete hand auger boring samples were collected for subsurface soils and surface soil samples were collected using trowels, scoops and hand augers.

A number of factors are included in the development of a sampling and analysis plan, which preceded the investigations at RQL, LL12, and FBQ. When writing a sampling and analysis plan, the project team compiles historical data, reviews aerial photographs, and any other available historical information is reviewed and evaluated. On the basis of the operations that may have been, or were known to be, conducted, the team identifies specific areas to sample, such as ditches where sediments may accumulate over time and run-off. In large open areas, samples may be collected on a grid-type pattern. At RQL, LL12, and FBQ, the focus was on discrete sampling around known buildings and within ditches and accumulation points, based on the operational histories.

10. Contaminant Levels

Comment: One commenter asked if 200 to 400 parts per million was the highest level of arsenic found at LL12.

Response: The maximum arsenic detection at LL12 was 418 milligrams per kilogram (parts per million) in the Main Ditch.

11. AOC History

Comment: One commenter asked why production of aluminum chloride in building FF-19 ceased in 1967, and if the shutdown was initiated by the U.S. Army.

Response: The available information indicates there were air emissions concerns and that the U.S. Army terminated the lease arrangement.

12. Contaminant Levels

Comment: One commenter asked if the levels of arsenic that exceed the clean-up goals for intended land use in the southern half of the main ditch at LL12 are related to industrial processes there or if they are naturally occurring.

Response: The levels of arsenic present in soil in the southern main ditch segment are approximately 200 to 400 parts per million, which exceeds the background values at RVAAP by a substantial margin. Based on the levels that are present, the former industrial operations at the unit are assumed to be the source.

13. Disposal

Comment: One commenter asked why offsite disposal would be required for the LL12 alternative if onsite treatment were employed.

Response: Treatment is necessary to remove contaminants to the level where soil and dry sediment could be disposed of in a licensed facility [i.e. below any potential Resource

Conservation and Recovery Act (RCRA) disposal restrictions]. The treatment cost and treatment element is not used to reduce contaminants to background levels or risk-based clean-up goals. The treatment is needed to reduce contaminants to a point where the soil and dry sediment can be disposed of in an engineered facility. The cost to design/build a treatment facility onsite is more than a facility that already has a treatment option established and that could accept the soil, treat it, and then dispose of it.

P.2 Written Comments

No written comments were received for LL12 during the public comment period.

Q. TECHNICAL AND LEGAL ISSUES

There were no technical or legal issues raised during the public comment period.

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REFERENCES

- MKM (MKM Engineers, Inc.) 2005. *Preliminary Draft Characterization of 14 Ravenna Army Ammunition Plant Areas of Concern. Ravenna, Ohio.* August 2005.
- Ohio EPA (Ohio Environmental Protection Agency) 2004. Director's Final Findings and Orders in the matter of U.S. Department of the Army, Ravenna Army Ammunitions Plant. June 2004.
- USACE (U.S. Army Corps of Engineers) 1996. *Preliminary Assessment for the Ravenna Army Ammunition Plant, Ravenna, Ohio*, DACA62-94-D-0029, Delivery Order 0009. February 1996.
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- USACE 2004. *Phase II Remedial Investigation Report for Load Line 12 at the Ravenna Army Ammunition Plant, Ravenna, Ohio.* March 2004.
- USACE 2005. *Phase II Remedial Investigation Supplemental Report for Load Line 12 at the Ravenna Army Ammunition Plant, Ravenna, Ohio.* December 2005.
- USACE 2006. *Feasibility Study for Load Line 12 (RVAAP-12), Ravenna Army Ammunition Plant, Ravenna, Ohio*, GS-10F-0076J, Delivery Order No. W912QR-05-F-003, Final. March 2006.
- USACE 2007. *Final Feasibility Study for Load Line 12 (RVAAP-12), Ravenna Army Ammunition Plant, Ravenna, Ohio*, DACA62-00-D-0001, DO No. CY08, Final, August 2007.
- USEPA (U.S. Environmental Protection Agency) 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA Interim Final*, Document No. EPA/540/G. October 1988.

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FIGURES

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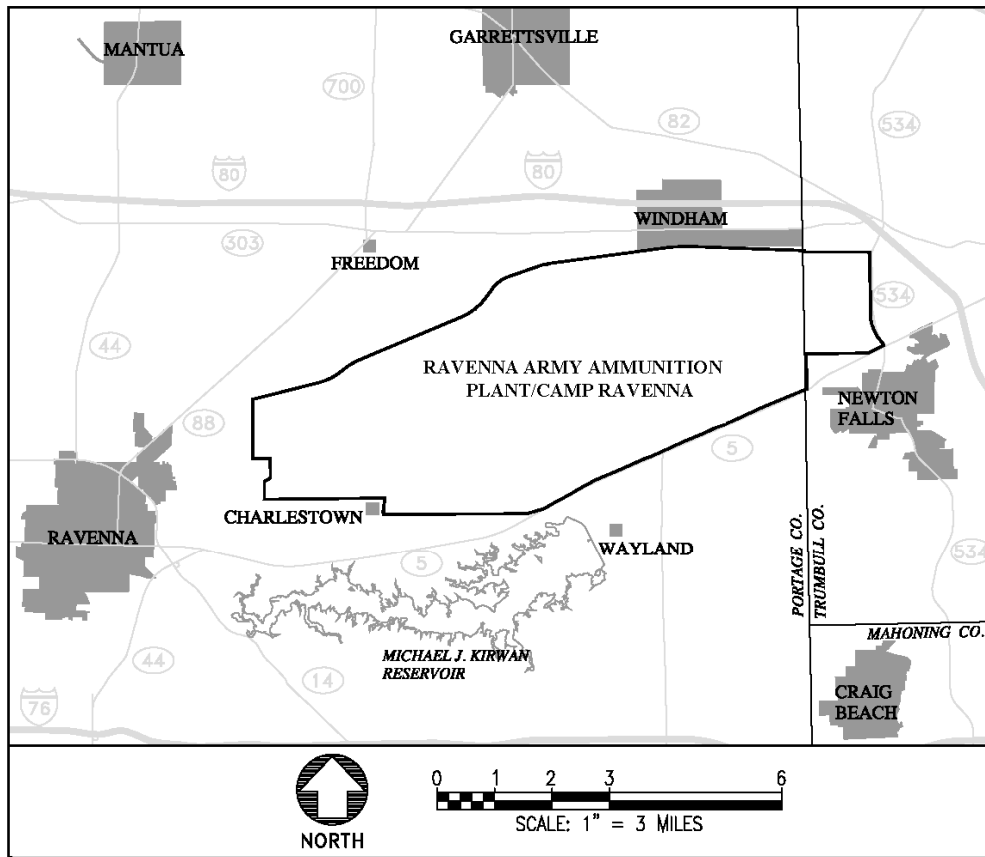


Figure 1. General Location and Orientation of the RVAAP/Camp Ravenna

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LEGEND:

1..... RAMSDALE QUARRY LANDFILL	13..... BUILDING 1200 AND DILUTION/SETTLING POND	25..... BUILDING 1034 MOTOR POOL WASTE OIL TANK	37..... PESTICIDE STORAGE BUILDING T-4452	49..... CENTRAL BURN PITS
2..... ERIE BURNING GROUNDS	14..... LOAD LINE 6, EVAPORATION UNIT	26..... FUZE BOOSTER AREA SETTLING TANKS	38..... NACA TEST AREA	50..... ATLAS SCRAP YARD
3..... DEMOLITIONS AREA #1	15..... LOAD LINE 6, TREATMENT PLANT	27..... BUILDING 854 PCB STORAGE	39..... LOAD LINE 5/FUZE LINE 1	51..... DUMP ALONG PARIS-WINDHAM ROAD
4..... OPEN DEMOLITIONS AREA #2	16..... FUZE AND BOOSTER QUARRY LANDFILL/PONDS	28..... MUSTARD AGENT BURIAL SITE	40..... LOAD LINE 7/BOOSTER LINE 1 CERCLA
5..... WINKLEPECK BURNING GROUNDS	17..... DEACTIVATION FURNACE	29..... UPPER AND LOWER COBB'S POND COMPLEX	41..... LOAD LINE 8/BOOSTER LINE 2 RCRA
6..... C BLOCK QUARRY	18..... LOAD LINE 12 PINK WASTEWATER TREATMENT	30..... LOAD LINE 7 PINK WASTEWATER TREATMENT PLANT	42..... LOAD LINE 9/DETONATOR LINE OTHER REGULATORY
7..... BUILDING 1601 HAZARDOUS WASTE STORAGE	19..... LANDFILL NORTH OF WINKLEPECK BURNING GROUND	31..... ORE PILE RETENTION POND	43..... LOAD LINE 10/PERCUSSION ELEMENT RAILROAD TRACKS
8..... LOAD LINE 1 AND DILUTION/SETTLING POND	20..... SAND CREEK SEWAGE TREATMENT PLANT	32..... 40- AND 60-MM FIRING RANGE	44..... LOAD LINE 11/ARTILLERY PRIMER FENCE LINE
9..... LOAD LINE 2 AND DILUTION/SETTLING POND	21..... DEPOT SEWAGE TREATMENT PLANT	33..... FIRESTONE TEST FACILITY	45..... WET STORAGE AREA PROPERTY BOUNDARY
10..... LOAD LINE 3 AND DILUTION/SETTLING POND	22..... GEORGE ROAD SEWAGE TREATMENT PLANT	34..... SAND CREEK DISPOSAL ROAD LANDFILL	46..... BUILDINGS F-15 AND F-16 STREAM OR CREEK
11..... LOAD LINE 4 AND DILUTION/SETTLING POND	23..... UNIT TRAINING SITE WASTE OIL TANK	35..... BUILDING 1037 LAUNDRY WASTEWATER SUMP	47..... BUILDING T-5301 DECONTAMINATION	
12..... LOAD LINE 12	24..... RESERVE UNIT MAINTENANCE AREA WASTE OIL TANK	36..... PISTOL RANGE	48..... ANCHOR TEST AREA	

U.S. ARMY ENGINEER DISTRICT
 US Army Corps of Engineers
 Louisville District

CORPS OF ENGINEERS
 LOUISVILLE, KENTUCKY

RAVENNA ARMY AMMUNITION PLANT/CAMP RAVENNA

DRAWN BY: P.H. / S.D. REV. NO./DATE: REV. 2 / 07-27-04 CAD FILE: /00064/DWGS/R73SITE2

Figure 2. RVAAP/Camp Ravenna Installation Map

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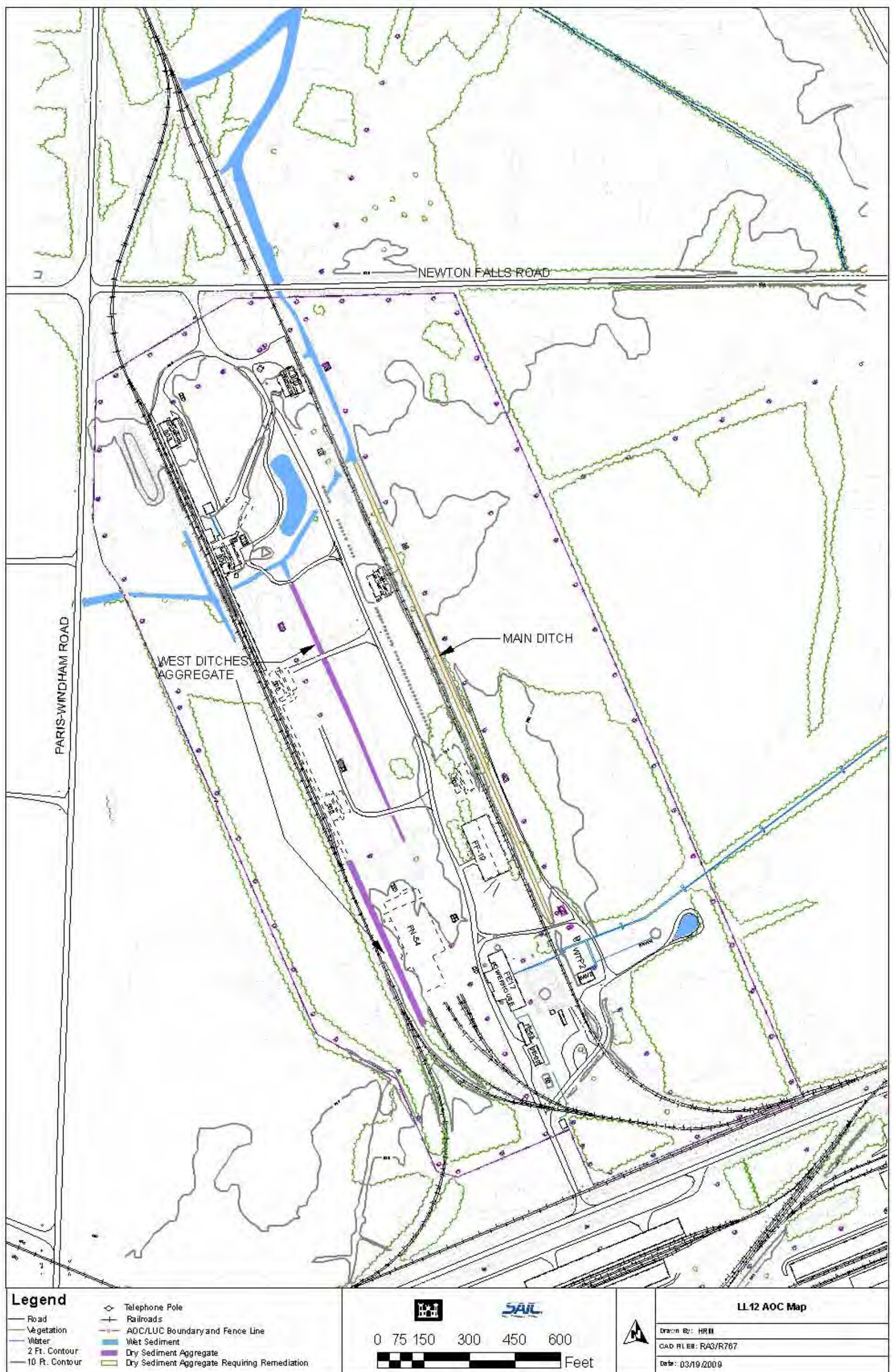


Figure 3. Load Line 12 Area of Concern Map

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ATTACHMENT A
DESCRIPTION OF ARARs

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Potential Action ARARs for Disposal of RCRA Hazardous Waste

Media and Citation	Description of Requirement	Potential ARAR Status	Standard
<p>Soil Contaminated with RCRA Hazardous Waste</p> <p>OAC § 3745-400-49 OAC § 3745-400-48 UTS</p>	<p>These rules prohibit land disposal of RCRA hazardous wastes subject to them, unless the waste is treated to meet certain standards that are protective of human health and the environment. Standards for treatment of hazardous contaminated soil prior to disposal are set forth in the two cited rules. Use of the greater of either technology-based standards or UTS is prescribed.</p>	<p>LDRs apply only to RCRA hazardous waste. This rule is considered for ARAR status only upon generation of a RCRA hazardous waste. If any soils are determined to be RCRA hazardous, and if they will be disposed of onsite, then this rule is potentially applicable to disposal of the soils.</p>	<p>All soils subject to treatment must be treated as follows:</p> <p>1) For non-metals, treatment must achieve 90% reduction in total constituent concentration (primary constituent for which the waste is characteristically hazardous as well as for any organic or metal UHC), subject to 3) below</p> <p>2) For metals and carbon disulfide, cyclohexanone, and methanol, treatment must achieve 90% reduction in constituent concentrations as measured in leachate from the treated media (tested according to the TCLP or 90% reduction in total constituent concentrations when a metal removal treatment technology is used), subject to 3) below.</p> <p>3) When treatment of any constituent subject to treatment to a 90% reduction standard would result in a concentration less than 10 times the UTS for that constituent, treatment to achieve constituent concentrations less than 10 times the UTS is not required. This is commonly referred to as “90% capped by 10xUTS.”</p>
<p>Debris Contaminated with RCRA Hazardous Waste</p> <p>OAC § 3745-400-49 OAC § 3745-400-47</p>	<p>These rules prescribe conditions and standards for land disposal of debris contaminated with RCRA hazardous waste. Debris subject to this requirement for characteristic RCRA contamination that no longer exhibits the hazardous characteristic after treatment does not need to be disposed of as a hazardous waste. Debris contaminated with listed RCRA contamination remains subject to hazardous waste disposal requirements.</p>	<p>If RCRA hazardous debris is disposed of onsite, then these rules are potentially applicable to disposal of the debris.</p>	<p>Standards are extraction or destruction methods prescribed in OAC § 3745-400-47.</p> <p>Treatment residues continue to be subject to RCRA hazardous waste requirements.</p>
<p>Soils/Debris Contaminated with RCRA Hazardous Waste – Variance</p> <p>OAC § 3745-400-44</p>	<p>The Director will recognize a variance approved by the EPA from the alternative treatment standards for hazardous contaminated soil or for hazardous debris.</p>	<p>Potentially applicable to RCRA hazardous soil or debris that is generated and placed back into a unit and that will be land disposed of onsite.</p>	<p>A site-specific variance from the soil treatment standards can be used when treatment to concentrations of hazardous constituents greater (i.e., higher) than those specified in the soil treatment standards minimizes short- and long-term threats to human health and the environment. In this way, on a case-by-case basis, risk-based LDR treatment standards approved through a variance process could supersede the soil treatment standards.</p>

Potential Action ARARs for Disposal of RCRA Hazardous Waste (continued)

Media and Citation	Description of Requirement	Potential ARAR Status	Standard
<p>Soils Disposed of in a CAMU</p> <p>OAC § 3745-57-53</p>	<p>Only CAMU-eligible waste can be disposed of in a CAMU. CAMU-eligible waste includes hazardous and non-hazardous waste that are managed for implementing clean-up, depending on the Director's approval or prohibition of specific wastes or waste streams. Use of a CAMU for disposal does not trigger LDRs or MTRs as long as the standards specified in the rule are observed. The Director will incorporate design and treatment standards into a permit or order.</p>	<p>Potentially applicable to RCRA hazardous waste that is disposed of in a CAMU.</p>	<p>Design standards include a composite liner and a leachate collection system that is designed and constructed to maintain less than a 30 cm depth of leachate over the liner. A composite liner means a system consisting of two components; each of which has detailed specifications and installation requirements. The Director may approve alternate requirements if he can make the findings specified in the rule. Treatment standards are similar to LDR standards for contaminated soil, although alternative and adjusted standards may be approved or required by the Director, as long as the adjusted standard is protective of human health and the environment.</p> <p>Treatment standards are de facto clean-up standards for wastes disposed of in a CAMU.</p>
<p>Clean Water Act 33 USC § 1344 Sections 401, 404</p>	<p>Section 404 of the Clean Water Act of 1977 governs the discharge of dredged and fill material into waters of the U.S., including adjacent wetlands.</p>	<p>Potentially applicable if the main ditch at Load Line 12 is categorized as a jurisdictional wetland by the USACE Pittsburgh District. Section 401 water quality certification would apply regardless of jurisdictional status under Section 404. Ohio EPA addresses Section 401 certification through their Wetland Antidegradation Policy (See below).</p>	<p>The wetland in question is currently considered jurisdictional. However, USACE would have to make a jurisdictional determination regarding the wetland's status under Section 404 of the CWA.</p> <p>Both EPA and USACE have jurisdiction over wetlands. EPA's Section 404 guidelines are promulgated in 40 CFR § 230; USACE guidelines are promulgated in 33 CFR § 320.</p>
<p>Executive Order 11990 Protection of Wetlands</p>	<p>EO 11990 requires that federal agencies minimize the destruction, loss, or degradation of wetlands; preserve and enhance the natural and beneficial value of wetlands; and avoid support of new construction in wetlands if a practicable alternative exists.</p>	<p>Potentially applicable. Requires federal agencies to consider all alternatives to avoid or minimize activities with adverse impacts to wetlands.</p>	<p>EO 11990 requirements were addressed through the CERCLA evaluation of alternative actions for remediation.</p>

Potential Action ARARs for Disposal of RCRA Hazardous Waste (continued)

Media and Citation	Description of Requirement	Potential ARAR Status	Standard
Wetland Antidegradation OAC Section 3745-1-54	These rules prescribe the steps to categorize the existing wetland and outline the procedures for the antidegradation of wetlands.	Potentially applicable unless the main ditch is categorized as a jurisdictional wetland by the USACE Pittsburgh district. In which case the wetland would fall under requirement in the Clean Water Act for CERCLA wetlands.	The impact as a result of excavation in the main ditch would not result in significant degradation to the aquatic ecosystem - as determined consistent with 40 CFR part 230.10(2). The results of the action would result in better water quality. Ohio EPA could require mitigation for loss of wetland habitat.

ARAR = Applicable and Relevant or Appropriate Requirements.

CAMU = Corrective action management unit.

LDR = Land disposal restrictions.

MTR = Minimum Technical Requirements.

OAC = Ohio Administrative Code.

RCRA = Resource Conservation and Recovery Act.

TCLP = Toxicity Characteristic Leaching Procedure.

UHC = Underlying hazardous constituent.

UTS = Universal Treatment Standard.

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**DRAFT RECORD OF DECISION FOR SOIL AND DRY SEDIMENT AT THE RVAAP-12 LOAD LINE 12
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
FEBRUARY 27, 2009**

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
USACHPPM (A. Deck)					
A-1.	N/A	N/A	The U.S. Army Center for Health Promotion and Preventive Medicine reviewed the subject document on behalf of the Office of The Surgeon General pursuant to Army Regulation 200-1 (Environmental Protection and Enhancement). We appreciate the opportunity to review this report.		Comment acknowledged.
A-2.	p. 11 p. 23	p.11 p.23	Overall the Record of Decision for the site adequately meets all of the requirements noted in regulation 40 CFR 300.430. However, it does not mention whether the removal of soils at the site as per the selected remedy will contradict the conclusions of the Feasibility Study by adversely affecting the health of the existing ecosystem. Consider adding information to illustrate whether the selected remedy will affect the health of the existing ecosystem, how the health of the existing ecosystem will be monitored after the selected remedy is implemented and a contingency if the selected remedy does adversely affect the health of the existing ecosystem.		<p>Agree. The text in Section G.2, Ecological Risk Assessment Summary, Page 11, lines 23-27 was revised to: “This weight-of-evidence includes field survey results showing the existing ecosystem is healthy with abundant surrounding high-quality habitat. Remediation to meet human health clean-up goals will reduce overall contaminant concentrations and ecological risk. Additional removal of soil and dry sediment to further reduce any adverse ecological effects would destroy habitat (vegetation) temporarily in the narrow main ditch at LL 12.”</p> <p>The text in Section L.4, Expected Outcomes of the Selected Remedy, Page 23, lines 7-8 was revised to: “Removal of soil and dry sediment to attain human-health cleanup goals will (1) alter a small area of habitat of less than 0.30 acre (within the 80 acre AOC) and</p>

**DRAFT RECORD OF DECISION FOR SOIL AND DRY SEDIMENT AT THE RVAAP-12 LOAD LINE 12
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
FEBRUARY 27, 2009**

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
					<p>(2) will require only a relatively-short recovery period to return present ditch habitat and ditch banks to the same or similar species composition of old field vegetation and trees.”</p> <p>For clarification on how the remedy affects the existing ecosystem, Section G.2 of the ROD states “...remediation to meet human health clean-up goals will reduce overall contaminant concentrations and ecological risk, ...”. No additional text changes are proposed.</p> <p>With respect to future monitoring, Section L.2 specifies that pursuant to CERCLA, 5-year reviews will be conducted to assess remedy performance at Load Line 12. No additional text changes are proposed.</p>
A-3.	N/A	N/A	The document was reviewed by Mr. Adam Deck, Environmental Health Risk Assessment Program. He can be reached at DSN 584-9039, commercial (410) 436-9039 or electronic mail adam.t.deck@us.army.mil.		Comment acknowledged.
Ohio EPA (Todd Fisher)					
O-1.	General	N/A	Before the Winklepeck ROD was approved, the Ohio EPA reviewed and approved the design language for the land use control (LUC). The LL-12 ROD contains the same ROD language as WBG, but the Ohio EPA has not		<p>Agree.</p> <p>The text developed for the Land Use Control language for Load Line 12 Remedial Design for Soil and Dry Sediment is presented as an attachment to this comment response table.</p>

**DRAFT RECORD OF DECISION FOR SOIL AND DRY SEDIMENT AT THE RVAAP-12 LOAD LINE 12
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
FEBRUARY 27, 2009**

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			<p>received the design language for the LUCS to review. The Ohio EPA does not anticipate either LL-12 or RQL would be as complicated as WBG, however the Ohio EPA would like to review the language and make sure everyone (including OHARNG) is in agreement with what activities are restricted for both LL-12 and RQL. This is even more crucial based on current discussion with OHARNG, where they have raised questions as to whether certain activities fall under “mounted training, no digging” – the proposed land use for LL-12. The Ohio EPA would also like to see the Army’s list of restrictions for Ramsdell, especially if they are supposed to enhance the existing controls from the closure of the permitted landfill.</p>		
O-2.	General/ p. 18	p. 18	<p>Under “state acceptance of the proposed remedial action”, it states that Ohio EPA agrees with the proposed alternative because it will allow the proposed reuse of the site. This is only partially correct. The Ohio EPA agreed to the cleanup based on the proposed reuse because it was not practical for LL-12 or RQL to be remediated to levels that would allow unrestricted use. For LL-12, the costs were not justified (based on the ROD, the remedy would cost 4 times as much to cleanup to unrestricted reuse versus the cleanup with LUCs to National</p>		<p>Agree. Section J.8 revised as follows: “State acceptance was evaluated formally after the public comment period on the Proposed Plan. Ohio EPA concurs that Alternative 1 (No Action) or Alternative 2 (Limited Action – Land Use Controls) do not provide adequate protection of human health and the environment. The capital costs for soil removal in Alternative 3 is less than Alternative 4, Alternative 5 and Alternative 6. Ohio EPA concurs that the treatment step of Alternative 5 does not provide any increased overall protectiveness or long-term</p>

**DRAFT RECORD OF DECISION FOR SOIL AND DRY SEDIMENT AT THE RVAAP-12 LOAD LINE 12
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
FEBRUARY 27, 2009**

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Guard Trainee scenario). For RQL, with both the sanitary landfill and MEC issues at the site, cleaning up the soil to unrestricted would not be possible since the site would still have to be restricted. At other sites, we have agreed to remedies that would allow for unrestricted reuse of the site (e.g. Fuze and Booster Quarry landfill). The Ohio EPA does not want these RODs (LL-12, RQL) to imply that reuse is Ohio EPA's only criteria in determining which remedy is the most appropriate.		effectiveness at the AOC compared to Alternative 3. Therefore, Ohio EPA has expressed its support for Alternative 3 (Excavation and Offsite Disposal, National Guard Trainee Land Use)."
O-3.	Document Distribution List	Document Distribution List	The Document Distribution list incorrectly identifies Base Realignment and Closure Office as an organization for distribution.	Please change "Base Realignment and Closure Office" to "Base Realignment and Closure Division"	Agree. Text was revised to reflect recommendation.
O-4.	Document Distribution List	Document Distribution List	The Document Distribution list incorrectly identifies United State Army Environmental Center as an organization for distribution	Please change "Center" to "Command"	Agree. Text was revised to reflect recommendation.
O-5.	Part I, page 2, lines 15-18	p. 2	The text states that "the U.S. Army plans to investigate munitions and explosives of concern (MEC) and complete any necessary response actions, inclusive of any additional land use controls, under the Military Munitions Response Program (MMRP). The approved May 2008 Final Site Inspection Military Munitions Response Program Report has indicated No Further Action (NFA) for LL-12 with	Please make the appropriate changes to the text.	Agree. See response to comment number R-2

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			respect to MEC, and; therefore, all remedial actions will fall under IRP.		
O-6.	Part I, page 3, line 16	p. 3	Christopher Korleski is listed as signator for the Ohio EPA for this ROD.	Please change "Christopher" to "Chris" in signature,	Agree. Text was revised to reflect recommendation.
O-7.	Part II, page 9, lines 41-42	p. 8	The text states that "the original LL12 security fence is intact and access gates are currently kept secured."	Please verify with RVAAP Installation Manager that these conditions currently exist at the AOC.	Agree. Access gates are not kept secured. Text on Page 8, lines 41-42 will be revised as follows: "The original LL12 security fence and access gates are currently intact."
Ohio EPA (B. Buthker and T. Fisher) comments received pertaining to RQL Land Use Control Language issued on 11/20/08.					
O-8.	General	N/A	RTLS has been renamed.	Please consult with Ohio Army National Guard for correct name usage. All text, figures, and tables should be updated to reflect this change.	Agree. Text will be revised in accordance with comment R-8.
O-9.	General	N/A	Since Load Lines 1, 2, 3, 4, and 12 are in close proximity of each other and have similar future land usage, it would make sense to combine all of these AOCs into one LUC representing one mounted training maneuver block. Otherwise, how would it be demonstrated that the areas between these AOCs would remain free from environmental impacts such as the spread of contaminated soil by vehicular means.	The Ohio EPA would like to discuss this concept with the Army and the OHARNG.	Clarification. As agreed to during the 2/13/09 comment resolution meeting, SAIC will develop land use controls specific to Load Line 12. Ohio EPA would like to discuss an alternative of having one LUCRD that encompasses Load Lines 1, 2, 3, 4, and 12 in the future with the Army.

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O-10.	Page 2-1, line 12	Figure 3 p. 39	The text states that Figures 1-2 and 1-3 depict the LUC boundaries for LL-12. It is not clear where this boundary lies. Figure 1-3 suggests that the LUC boundary is the same as the AOC boundary fence. Is this correct? Discussion regarding exact LUCs boundary will be required. Please see General comment #2.	Please clarify.	Agree. The symbol currently depicting the "Fence Line" in Figure 3 of the ROD and Figure 1-3 of the LUCRD will be changed to represent the "AOC Boundary and Fence Line".
RTLS-Environmental (K. Elgin)					
R-1.	Pg 2, Line 12	p. 2	"Environmental monitoring will be conducted to evaluate future conditions at LL12." What is meant here by 'environmental monitoring'? You already mention in the next line that 5 year reviews will be completed. Therefore, I recommend deleting this line. (This statement also appears on Page 13. Please delete as well.)	Delete "Environmental monitoring will be conducted to evaluate future conditions at LL12."	Agree. Text revised as recommended.
R-2.	Pg 2, Line 15-18	p. 2	"The U.S. Army plans to investigate munitions and explosives of concern (MEC) and complete any necessary response actions, inclusive of any additional land use controls, under the MMRP." Recommend deleting this line as the LL12 MMRP site is NFA. No additional MMRP work will be completed at this site.	Delete "The U.S. Army plans to investigate munitions and explosives of concern (MEC) and complete any necessary response actions, inclusive of any additional land use controls, under the MMRP."	Agree. The sentence on lines 15-18 on Page 2 is deleted from the text.

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R-3.	Pg 8, Line 41	p. 8	<p>“The original LL12 security fence is intact and access gates are currently kept secured.” Is this statement accurate? I thought all load line gates are unlocked now. Please verify.</p>		Agree. See response to comment number O-7.
R-4.	Pg 9, Line 25	<p>Figure 3 p. 39</p> <p>Text p. 9</p>	<p>“Four drainage ditches at LL12 receive stormwater runoff from within the AOC and adjacent areas. There are also two unnamed ponds within LL12. Two of the ditches and the smaller of the unnamed ponds contain water year-round.”</p> <ol style="list-style-type: none"> 1. Do we need to mark somewhere on a map, which ditches/ponds were considered as wet sediment and are not currently being addressed and which were considered dry sediment and are being addressed under the current contract? That way we have it for future reference when we address wet sediment and surface water at a future date. 2. If one pond does not have water in it year-round, should it even be called a pond? It is probably actually a wetland. Please verify. 		<p>Agree:</p> <p>Figure 3 will be changed to reflect which areas of LL12 were addressed as dry sediments. These dry sediment aggregates are the following:</p> <ol style="list-style-type: none"> 1) The main ditch; 2) The western ditches aggregate; <p>The wet sediment aggregates are as follows:</p> <ol style="list-style-type: none"> 1) The Active Area Channel, 2) Streams to the north of LL12, and 3) The sedimentation pond. <p>The “dry” pond will be referred to as the “former settling” pond in the text. Text on Page 9, line 25 will be revised as: “There is one small unnamed pond and one former settling pond within LL12. Two of the ditches and the small unnamed pond contain water year-round”.</p>

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R-5.	Pg 10, Section F, Current and Potential Future Land Use, Lines 3-9	p. 10	<p>“The intended future land use for LL12 is for National Guard training. Specifically, this area will be used for mounted training. All digging is prohibited in this area. Digging and occupying fighting positions, tank defilade positions, tank ditches and battle positions that extend below ground surface are prohibited. Tracked and wheeled operations are permitted only as directed in Section 16 of the Adjutant General of Ohio Pamphlet (Pam) 210-1. Maneuver damage may occur up to 4 ft BGS. This future use could include the three National Guard receptor types: Trainee, Security Guard/Maintenance Worker, and Fire/Dust Suppression Worker.” Based on recent discussions regarding future activities at AOCs, the OHARNG will be able to have ground disturbance in this area to a depth of 4 feet bgs, which may include digging. Therefore, I recommend that we keep this description a little more generic so we do not limit ourselves. Suggested rephrase: “The intended future land use for LL12 is for National Guard training. Specifically, this area will be used for mounted training. Maneuver damage may occur up to 4 ft BGS. This future use could include the three National Guard receptor types: Trainee, Security Guard/Maintenance Worker, and Fire/Dust Suppression Worker.”</p>	<p>Suggested rephrase: “The intended future land use for LL12 is for National Guard training. Specifically, this area will be used for mounted training. Maneuver damage may occur up to 4 ft BGS. This future use could include the three National Guard receptor types: Trainee, Security Guard/Maintenance Worker, and Fire/Dust Suppression Worker.”</p> <p>Additionally, the National Guard Trainee scenario also covers the Hunter/Trapper scenario. Please make sure this is clear in the ROD and RD text.</p>	<p>Agree. Text will be revised to reflect recommendation. In addition, the recommended revision will be adjusted to include the Hunter/Trapper. Text revision as follows:</p> <p>“The intended future land use for LL12 is for National Guard training. Specifically, this area will be used for mounted training. Maneuver damage may occur up to 4 ft BGS. This future use could include the three National Guard receptor types: Trainee, Security Guard/Maintenance Worker, and Fire/Dust Suppression Worker, as well as the Hunter/Trapper.”</p> <p>Additionally, page 1-4, lines 36-38 in the LUCRD for LL12 is revised as follows:</p> <p>“This future use is inclusive of three National Guard receptors: National Guard Trainee, Security Guard/Maintenance Worker, Fire/Dust Suppression Worker, as well as a Hunter/Trapper receptor.”</p>

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R-6.	Pg 25, Line 18-19	p. 25	“Based on comments received, the community voiced few objections to excavation of soil and dry sediment with offsite disposal, Security Guard/Maintenance Worker land use...” The land use reference is incorrect. I think this may be a carry over. Change ‘Security Guard/Maintenance Worker land use’ to ‘National Guard Trainee land use’.	Change ‘Security Guard/Maintenance Worker land use’ to ‘National Guard Trainee land use’.	Agree. Text will be revised to reflect recommendation.
R-7.	Attachment A	Attachment A	The ARARs listed on the last page of the LL12 comments are specific to Ramsdell Quarry Landfill (RQL). Do the RQL ARARs regarding wetlands also apply to LL12 or is this a typo? Please clarify.		Clarification. The ARARs are specific to Load Line 12. References to Ramsdell Quarry Landfill have been changed to the main ditch at Load Line 12.
RTLS-Environmental (K. Elgin and T. Morgan) comments received pertaining to RQL Land Use Control Language issued on 11/20/08.					
R-8.	General	N/A	The RTLS has been changed to the Camp Ravenna Joint Military Training Center with the compressed name of Camp Ravenna (not CRJMTC).	All references to RTLS should be changed to Camp Ravenna. First reference to the facility name, Camp Ravenna Joint Military Training Center (Camp Ravenna) should be used. Then just reference the site as Camp Ravenna.	Agree. The text will undergo a global search. The first reference of RTLS will be changed to Camp Ravenna Joint Military Training Center (Camp Ravenna). Subsequent of RTLS will be changed to Camp Ravenna. Additionally, Figures 1 and 2 will be updated to change RTLS to Camp Ravenna.
R-9.	Pg 1-4, Line 1-2	p. 1-4	“Implementation of LUCs (e.g., security procedures, fencing, warning signs, and restricted access) at LL12; and.” We need to be a little more specific to LL12 here.	Change to: “Implementation of LUCs (e.g., security procedures, installation perimeter fencing, markers, and operational administrative controls) at LL12; and;”	Agree. Text revised as recommended.

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R-10.	Pg 1-4, Line 3	p. 1-4	<p>“Conducting 5 year reviews and environmental monitoring of the performance of the selected remedy as described in the LL12 Record of Decision (ROD) (USACE 2008).” Environmental monitoring is a very broad term. I think what you mean is monitoring of the LUCs. Therefore, it should be stated that way.</p>	<p>Change to: “Conducting 5 year reviews and monitoring of the performance of the selected remedy (i.e., monitoring of the LUC effectiveness) as described in the LL12 Record of Decision (ROD) (USACE 2008).”</p>	<p>Agree. Text revised as recommended.</p>
R-11.	Pg 1-4, Line 36-37	p. 1-4	<p>“The intended future land use for LL12 is for National Guard training. Specifically, this area will be used for mounted training. Maneuver damage may occur up to 4 feet bgs. This future use could include the three National Guard receptor types: Trainee, Security Guard/Maintenance Worker, and Fire/Dust Suppression Worker.” The intended use will actually include 4 receptor types as indicated in the prior section of the report (i.e., it will also include the Hunter/Trapper).</p>	<p>Change to “The intended future land use for LL12 is for National Guard training. Specifically, this area will be used for mounted training. Maneuver damage may occur up to 4 feet bgs. This future use is inclusive of these receptor types: Trainee, Security Guard/Maintenance Worker, Hunter/Trapper, and Fire/Dust Suppression Worker.”</p>	<p>Agree. Text revised as recommended.</p>
R-12.	Pg 1-5, Line 20-21	p. 1-5	<p>“Soil and dry sediment to be remediated under the selected remedy extend to a maximum depth of 4 ft bgs because future land use will not require disturbance of soil below that depth.” This statement is a little confusing as it sounds like the contamination just extends to 4 feet.</p>	<p>Change to: “Soil and dry sediment contamination will be remediated to a maximum depth of 4 ft bgs because the future land use will not require disturbance of soil below that depth.”</p>	<p>Agree. Text revised as recommended.</p>

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R-13.	Pg 1-8, Figure 1-3 Load Line 12 Area of Concern Map	Figure 1-3 p. 1-8	We need to identify the AOC boundary on this map. The boundary must be discussed with all stakeholders. Our idea is to remove the fence fabric from the fencing around LL12 and leave the corner fence posts (spaced approximately 50-100 feet apart). Then mount Siebert stakes on those existing remaining posts to identify the AOC boundary.	Need to discuss the location of the AOC boundary.	Agree. See response to Comment O-10.
R-14.	Pg 2-1, Line 6	p. 2-1	“Maintain AOC hazards communication (HAZCOM) training program.” HAZCOM is a broad training term. Need to be more specific.	Change to: “Maintain Land Use Control training program.”	Agree. Text revised as follows: 3. Maintain LUC training program.
R-15.	Pg 2-1, Line 10	p. 2-1	“Prohibit excavation, digging, and battle positions beyond 4 feet bgs at LL12.” Excavation and battle positions are inherent in digging. Therefore, they don’t need to be called out specifically.	Change to: “Prohibit digging beyond 4 feet bgs at LL12.”	Agree. Text revised as recommended.
R-16.	Section 3.1.1	p. 3-1	“Land Restrictions at RVAAP/RTLS: Land use of LL12 shall be limited by the maintenance of the existing RTLS perimeter fence...” The header is related to the facility and the text is related to LL12. Since this requirement is specific to LL12, I recommend that it be moved to Section 3.1.2 which identifies the Land Restrictions at Load Line 12.	“Land use of LL12 shall be limited by the maintenance of the existing RTLS perimeter fence...” Move this to Section 3.1.2.	Agree. Heading 3.1 is changed to “Land Restrictions at Load Line 12”. Heading 3.1.1 and 3.1.2 have been removed. Lines 20-22 have been moved to the text included in new Section 3.1.

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R-17.	Pg 3-1, Lines 26-27	p. 3-1	<p>“Land Use shall be limited to use of LL12 as permitted for National Guard mounted training operations as directed in Section 16 of the Adjutant General of Ohio Pamphlet (Pam) 210-1.” The Pam document referenced here was just a draft version that was an RTLS in-house document only. It was never officially approved and is always subject to change due to the fact that Army requirements for mounted training change. It should not be specifically referenced because if Army doctrines change and subsequent versions detailing mounted training come out, then our training activities will be limited to the old doctrine specifications.</p>	<p>Change to “Land use shall be limited to use of LL12 for National Guard mounted training operations.”</p>	<p>Agree. Text revised as recommended.</p>

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R-18.	p. 3-1	p. 3-1	<p>“Activities on LL12 shall be limited to the following: tracked and wheeled vehicle operations as specified in Section 16...” The training operations will also involve development and maintenance of the area and in order to maintain LUCs and the training site. Therefore, these activities should also be incorporated into the text.</p>	<p>Change to “Activities at LL12 shall be limited to the following: tracked and wheeled vehicle operations and associated training activities along with training area development and maintenance...”</p>	<p>Agree. Lines 27 to 35 on Page 3-1 revised as follows: “Activities at LL12 shall be limited to the following: tracked and wheeled vehicle operations and associated training activities along with training area development and maintenance, maintaining the integrity of monitoring wells, road and culvert repair, routine ditch maintenance, vegetation management [mowing, brush and weed cutting, controlled burning, and herbicide application]); and compatible natural resources management activities (including but not limited to such activities as flora and fauna surveys, timber management to include timber stand improvement and forest products harvesting, soil stabilization and erosion control, invasive/non-native species control, nuisance wildlife control, drainage maintenance, wetland delineations, grassland management, and scientific research).”</p>
R-19.	Pg 3-1, Line 37	p. 3-1	<p>“Duration of exposure shall be based upon the established National Guard Trainee exposure scenario cited at 39 days per year at 24 hours per day for a maximum of 25 years (USACE 2005).” It needs to be clear here that this exposure scenario is on a per person basis.</p>	<p>Change to “Duration of exposure shall be based upon the established National Guard Trainee exposure scenario cited per person at 39 days per year at 24 hours per day for a maximum of 25 years (USACE 2005).”</p>	<p>Agree. Text revised as recommended.</p>

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R-20.	Pg 3-2, Line 5	p. 3-2	“Ground surface repairs as required from maneuvering damage.” The correct term is maneuver damage.	Change to “Ground surface repairs, as required, resulting from maneuver damage.”	Agree. Text revised as recommended.
R-21.	Pg 4-1, Line 5	p. 4-1	“Prepare geographic information system (GIS) data and a map indicating the location and dimensions of the AOC and the known extent of soil contamination with LUC location. Signage and/or fence will be placed in locations to identify the areas of known soil contamination.” Won’t the known areas of contamination above the National Guard cleanup goals be removed? I think instead of marking the known contaminated soil areas, we need to mark where the LUCs and AOC boundary are located.	Change to: “Prepare geographic information system (GIS) data and a map indicating the location and dimensions of the AOC with the LUC location. Signage/markers will be placed in locations to identify the areas where the LUC applies.”	Agree. Text revised as recommended.
R-22.	Pg 4-1, Line 9	N/A	“Incorporate environmental overlay and appropriate notice procedures into the Property Management Plan (PMP).” What does appropriate notice procedures mean? Does this mean appropriate notice to the Ohio EPA or to the training site staff? Please clarify.	Clarification needed	Clarification. As agreed during the 2/13/09 comment resolution meeting, the PMP will specify the notification requirements. These requirements may not be specific to Ohio EPA or the Army. It is the preference of the stakeholders to have the text remain as currently presented. No text change required.

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R-23.	Pg 4-1, Line 14	p. 4-1	“Through the PMP, maintain the RTLS perimeter fence and restrict land use of LL12 to mounted training.” Again, other management activities will be conducted at LL12 and should be incorporated into the text.	Change to “Through the PMP, maintain the RTLS perimeter fence and limit activities at LL12 to tracked and wheeled operations that are consistent with the National Guard mounted training scenario and other essential security, safety, and natural resource management activities.”	Agree. Text revised as follows: “Through the PMP, maintain the Camp Ravenna perimeter fence and limit activities at LL12 to tracked and wheeled operations that are consistent with the National Guard mounted training scenario and other essential security, safety, and natural resource management activities. ”
R-24.	Pg 6-1, Line 4	p. 6-1	“Site inspections will be conducted as necessary but not less than once per quarter.” The quarterly requirement for inspections was a specific requirement for Winklepeck because it is a more complicated site. The quarterly monitoring requirement is not a mandate for all AOCs. The frequency is to be determined and needs to be discussed with all stakeholders.	Discussion needed as to the frequency of inspections for LL12.	Agree. As agreed to during the 2/13/09 comment resolution meeting, text revised as follows: “Site inspections will be conducted as necessary, but not less than once per year.”

Additional changes to Draft ROD:

Cover page title will be changed to Final Record of Decision **for Soil and Dry Sediment** for the RVAAP-12 Load Line 12.

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The following ARARs will be added to the ROD, as also requested for the LL12 ROD:

Media and Citation	Description of Requirement	Potential ARAR Status	Standard
Clean Water Act 33 USC § 1344 Sections 401, 404	Section 404 of the Clean Water Act of 1977 governs the discharge of dredged and fill material into waters of the U.S., including adjacent wetlands.	Potentially applicable if the main ditch at Load Line 12 is categorized as a jurisdictional wetland by the USACE Pittsburgh District. Section 401 water quality certification would apply regardless of jurisdictional status under Section 404. Ohio EPA addresses Section 401 certification through their Wetland Antidegradation Policy (See below).	The wetland in question is currently considered jurisdictional. However, USACE would have to make a jurisdictional determination regarding the wetland's status under Section 404 of the CWA. Both EPA and USACE have jurisdiction over wetlands. EPA's Section 404 guidelines are promulgated in 40 CFR § 230; USACE guidelines are promulgated in 33 CFR § 320.
Executive Order 11990 Protection of Wetlands	EO 11990 requires that federal agencies minimize the destruction, loss, or degradation of wetlands; preserve and enhance the natural and beneficial value of wetlands; and avoid support of new construction in wetlands if a practicable alternative exists.	Potentially applicable. Requires federal agencies to consider all alternatives to avoid or minimize activities with adverse impacts to wetlands.	EO 11990 requirements were addressed through the CERCLA evaluation of alternative actions for remediation.
Wetland Antidegradation OAC Section 3745-1-54	These rules prescribe the steps to categorize the existing wetland and outline the procedures for the antidegradation of wetlands.	Potentially applicable unless the main ditch is categorized as a jurisdictional wetland by the USACE Pittsburgh district. In which case the wetland would fall under requirement in the Clean Water Act for CERCLA wetlands.	The impact as a result of excavation in the main ditch would not result in significant degradation to the aquatic ecosystem - as determined consistent with 40 CFR part 230.10(2). The results of the action would result in better water quality. Ohio EPA could require mitigation for loss of wetland habitat.