**Final**

# Record of Decision
# for Soil and Dry Sediment
# for the RVAAP-01 Ramsdell Quarry Landfill

**Ravenna Army Ammunition Plant**
**Ravenna, Ohio**

**March 24, 2009**

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

**Prepared for:**


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

**Prepared by:**


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This Record of Decision discusses exposure, future land use, and necessary remedial actions for soil and dry sediment at RVAAP-01 Ramsdell Quarry Landfill. 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 soil from the quarry bottom to meet soil and dry sediment exposure requirements for Security Guard/Maintenance Work land use at Ramsdell Quarry Landfill.

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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-01 Ramsdell Quarry Landfill 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

3/24/09
Date

W. Kevin Jago
Independent Technical Review Team Leader

03-23-2009
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 24, 2009
Date

# Final

# Record of Decision
# for Soil and Dry Sediment
# for the RVAAP-01 Ramsdell Quarry Landfill

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 24, 2009

**DOCUMENT DISTRIBUTION**
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**Final Record of Decision for Soil and Dry Sediment**
**for the RVAAP-01 Ramsdell Quarry Landfill**
**Ravenna Army Ammunition Plant**
**Ravenna, Ohio**

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Ohio EPA-NEDO = Ohio Environmental Protection Agency-Northeast District Office
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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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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| 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 |
| MI | Multi-increment |
| 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 |
| PCB | Polychlorinated Biphenyl |
| 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 |

# ACRONYMS AND ABBREVIATIONS (CONTINUED)

| | |
|---|---|
| RVAAP | Ravenna Army Ammunition Plant |
| SAIC | Science Applications International Corporation |
| SVOC | Semivolatile Organic Compound |
| 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 |
| VOC | Volatile Organic Compound |

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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 Ramsdell Quarry Landfill (RQL), Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio (Figure 1). RQL is identified in the U.S. Department of Army (U.S. Army) Environmental Database for Restoration as RVAAP-01. 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 RQL Area of Concern (AOC) is located in the central part of the RVAAP. The U.S. Environmental Protection Agency (USEPA) 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. Army is the lead agency and has chosen the selected remedy for RQL 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 RQL.

The Ohio Environmental Protection Agency (Ohio EPA), the lead regulatory agency, approved the *Final Feasibility Study for Ramsdell Quarry Landfill* (USACE 2006). This Feasibility Study (FS) evaluated contaminated soil and dry sediment remedies at RQL and recommended Excavation of Soil and Dry Sediment with Offsite Disposal – Security Guard/Maintenance Worker Land Use. Ohio EPA concurs with the above recommendation. Excavation and offsite disposal of contaminated soil and dry sediment at RQL 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 RQL that exceed the clean-up goals for the reasonably anticipated future land use (Security Guard/Maintenance Worker). 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. Other land uses were evaluated; however the selected remedy addresses risks to the Security Guard/Maintenance Worker.

Soil and dry sediment will be disposed at an offsite facility licensed and permitted to accept these wastes. An estimated 282 $yd^3$ (in-situ) of contaminated soil and dry sediment will require excavation. Confirmation sampling will be conducted to determine if clean-up goals have been attained or if further removal is required.

The cost for the alternative is estimated to be $301,978. 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. Post-closure care and maintenance requirements will continue as required under Ohio solid waste regulations for the closed solid waste landfill at RQL. Access restrictions have been implemented at RQL due to these requirements. Reinforcement of existing controls will bolster the protectiveness of Alternative 3. Five-year reviews will be conducted in accordance with CERCLA 121(c) to ensure protectiveness of the remedy. The remedial action includes a 30-year operation and maintenance (O&M) period to account for the post-implementation activities, including land use controls. The U.S. Army will also continue land use controls and monitoring currently needed for maintenance of the closed landfill, as required under Ohio solid waste management regulations. 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).

## 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 and dry sediment were not found to be feasible for implementation at RQL. Multiple treatment technologies would have been required in succession to address the combinations of chemicals of concern (COCs) present in the majority of soil and dry sediment at RQL; this would have been cost prohibitive. Some treatment technologies were considered ineffective with the anticipated future land use.

Because this remedy will result in 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). These reviews will ensure that the remedy remains protective of human health and the environment consistent with the land use.

## F. RECORD OF DECISION DATA CERTIFICATION CHECKLIST

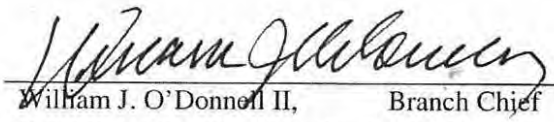
Table 1 provides the location of key remedy selection information contained in Part II, Decision Summary. Additional information can be found in the Administrative Record file for RQL.

**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 | 17, 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 | 22, 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<br>II.L.3 | 16, 17<br>22 |
| Key factor(s) that led to selecting the remedy | II.L.1 | 18, 19 |

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

## G. AUTHORIZING SIGNATURES AND SUPPORT AGENCY ACCEPTANCE OF REMEDY



20 Aug 09

William J. O'Donnell II, Branch Chief — Date
Operational Army and Medical Branch
Department of the Army
Assistant Chief of Staff for Installation Management
Base Realignment and Closure Division (DAIM-ODB)

10/13/09

Chris Korleski — Date
Director
Ohio Environmental Protection Agency

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# PART II: DECISION SUMMARY

## A. SITE NAME, LOCATION, AND DESCRIPTION

RQL 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 the 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. The RVAAP and Camp Ravenna 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 Installation Restoration program (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 performed 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.

RQL, designated as RVAAP-01, is situated in the northeastern portion of the facility and is 14 acres in size (Figures 2 and 3). The quarry at RQL occupies approximately 10 acres of the AOC. A seasonally flooded wetland exists in the bottom of the quarry that is sometimes dry for extended periods.

The U.S. Army is the lead agency for any remediation, decisions, and any applicable clean-up at RQL. 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.

Quarrying activities were conducted at RQL until 1941. During that time, it was excavated to 9 to 12 m (30 to 40 ft) below existing grade. The excavated sandstone and quartzite pebble conglomerate was used for road and construction ballast. From 1946 to the 1950s, the bottom of the quarry was used to burn waste explosives from Load Line 1. Reportedly, 18,000 225-kg (500-lb) incendiary or napalm bombs were burned and liquid residues from annealing operations were disposed of in the quarry.

Between 1941 and 1989 the western and southern sections of the abandoned quarry were used for landfill operations. No information is available regarding landfill disposal activities from 1941 to 1976, and no information is available on other activities at the quarry from the 1950s to 1976. Solid waste materials were disposed of in RQL from 1976 until it was closed in 1989. In 1978, a portion of the abandoned quarry was permitted as a sanitary landfill by the state of Ohio. The sanitary landfill was closed in 1990 under state of Ohio solid waste regulations and capped with a clay cover. The cap on the former permitted landfill covers approximately 4 acres along the western and southern portion of the quarry. Five monitoring wells (MW-1 through MW-5) were initially installed for post-closure monitoring of the landfill. These wells were replaced in 1998 and plugged and abandoned in 2006. Semiannual monitoring of groundwater and landfill cap inspections and maintenance are ongoing.

Three investigations have been conducted at RQL:

- *Initial Phase Report, Groundwater Investigation, Ramsdell Quarry Landfill, Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 1999);
- *Final Report on the Groundwater Investigation of the Ramsdell Quarry Landfill, Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2000); and
- *Phase I Remedial Investigation Report for Ramsdell Quarry Landfill (RVAAP-01), Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2005a).

## 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 (RAB)*: The U.S. Army established a 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 Ramsdell Quarry Landfill* (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 RQL. 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 RQL.

## D. SCOPE AND ROLE OF RESPONSE ACTIONS WITHIN AOC STRATEGY

The overall program goal of the IRP at the RVAAP is to clean up previously-contaminated lands to reduce contamination to concentrations that are not anticipated to cause risks, with primary emphasis on those areas that may impact human health and the environment. RQL is one of 51 AOCs at the RVAAP. This ROD addresses soil and dry sediment and does not address other potentially

contaminated media in RQL. Post-closure care and maintenance will continue as required under Ohio solid waste regulations for the closed solid waste landfill. The selected remedy described in the ROD is consistent with the stated future action(s) to be performed at RVAAP. Other media at RQL, 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 RQL. The contamination present at RQL poses a potential human health risk greater than 1E-03 for a National Guard Security Guard/Maintenance Worker. Implementation of the remedy described in this ROD will reduce this risk to acceptable levels through removal and offsite disposal of contaminated soil and dry sediment.

## E. SUMMARY OF SITE CHARACTERISTICS

Characteristics, nature and extent of contamination, and the conceptual site model of RQL are based on groundwater investigations and the Remedial Investigations (RIs) conducted from 1998 through 2005 (USACE 1999, USACE 2000, and USACE 2005a).

### E.1 Topography/Physiography

Ground surface elevations across RQL range from approximately 955 to 990 ft above mean sea level. Prominent features include the former quarry, the landfill, several drainage ditches, access roads, and a former rail line. The land surface in a large portion of the AOC slopes into the former quarry, which occupies most of RQL. The quarry bottom is approximately 40 ft below the surrounding area. No surface water outlet exists from the quarry allowing runoff to accumulate in a seasonally flooded wetland at the quarry bottom. No surface streams are present within RQL.

### E.2 Geology

The regional geology at the RVAAP consists of horizontal to gently dipping bedrock strata of Mississippian and Pennsylvanian age overlain by varying thicknesses of unconsolidated glacial deposits. RQL is underlain by weathered, fractured, fine- to medium-grained orthoquartzite sandstone of the Sharon Conglomerate unit of the Sharon Member (Pottsville Formation). Open, re-cemented, and highly weathered fractures are prevalent. Many fractures exhibit iron staining and iron oxy-hydroxide coatings (e.g., limonite) indicative of groundwater movement. Overburden is thin or absent across much of RQL, particularly within the quarry bottom.

### E.3 Hydrogeology

The water table at RQL is typically less than 25 ft below the surface. Groundwater flow is generally from southwest to northeast across RQL. Results of slug tests performed during the RI phase reveal moderately high hydraulic conductivities in the weather and fractured sandstone units underlying RQL. The wells at RQL generally show conductivities in the sandstone ranging from $10^{-2}$ to $10^{-4}$

cm/sec. Fracturing in the sandstone units undoubtedly contributes to the high observed conductivities in the monitoring wells at RQL.

Surface water runoff collects in a wetland area in the bottom of the quarry. The extent of the wetland varies widely depending on the season and rainfall and it is sometimes dry for extended periods. When water is present in the wetland, the depth is usually less than 4 ft. During periods of wetland inundation, a high degree of interaction exists between groundwater and surface water. The drainage ways and ditch lines, located along access roads and the rail line, only contain water during rain events. There is no surface water drainage from the quarry pond.

## E.4 Ecology

The 14 acres of habitat at RQL include old-field communities with patches of forests and grasslands. The small aquatic habitat in the bottom of the quarry consists of an intermittent wetland. The wetland was assessed with the Ohio Rapid Assessment Method (Ohio EPA 2001) and determined to be of low quality (USACE 2005b). These habitats support a variety of wildlife, including small mammals, birds, and insects. 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. RQL has not been previously surveyed for State-listed species.

## E.5 Nature and Extent of Contamination

Nature and extent of contamination of surface soil [0 to 1 ft below ground surface (BGS)] and groundwater were determined in the Phase I/II RI at RQL (USACE 2005a). No subsurface soil (> 1 ft BGS) is present within the quarry.

Contaminants identified in surface soil include metals, explosive compounds, and semivolatile organic compounds (SVOCs). The highest concentrations of metals and SVOCs occur in the northwest portion of the former quarry bottom. The distribution of explosive compounds was sporadic and limited to four discrete surface soil samples. No volatile organic compounds (VOCs), pesticides, or polychlorinated biphenyls (PCBs) were detected.

## E.6 Contaminant Fate and Transport

Groundwater contaminant migration was modeled as part of the FS. The modeling included an evaluation of potential leaching of contaminants from soil to groundwater. Also, the potential for contaminants to migrate from sources to the RQL boundary was evaluated. Modeling results indicate that some metals, explosives, and one SVOC may leach from soil to groundwater. None of these contaminants were predicted by the modeling results to migrate beyond the RQL boundary at concentrations above risk-based concentrations or drinking water maximum contaminant levels. Therefore, soil remediation for protection of groundwater is not required at RQL.

## F. CURRENT AND POTENTIAL FUTURE LAND USES

RQL is currently managed as "Restricted Access" due to the closed landfill. Potential MEC has been observed along the eastern quarry wall slope. The landfill is currently under post-closure long-term monitoring and does not require remedial action. RQL is closed to all normal training and administrative activities. Surveying, sampling, and other essential security, safety, natural resources management, and other directed activities may be conducted at RQL only after personnel have been properly briefed on potential hazards/sensitive areas. All individuals unfamiliar with RQL are properly briefed on the hazards/restrictions prior to entry into the AOC (USACE 2005b).

## G. SUMMARY OF SITE RISKS

The baseline risk assessment (BRA) estimated risks that RQL 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 RQL, specifically for soil and dry sediment, as presented in detail in the following documents located in the Administrative Record and Information Repositories:

- *Phase I Remedial Investigation Report for Ramsdell Quarry Landfill (RVAAP-01), Ravenna Army Ammunition Plant, Ravenna, Ohio*. (USACE 2005a); and
- *Feasibility Study for Ramsdell Quarry Landfill (RVAAP-001), 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 RQL (USACE 2005a). RQL is currently restricted access. Grounds-keeping activities include periodic mowing/maintenance of the landfill cap. Maintenance workers visit infrequently. OHARNG plans to continue restricted access land use at RQL. Although they are not reasonably anticipated future land uses by OHARNG due to physical constraints (e.g., wetlands, the landfill, and MEC issues), the HHRA evaluated a Security Guard/Maintenance Worker, National Guard Dust/Fire Control Worker, National Guard Trainee, Hunter/Trapper, Juvenile and Adult Trespasser, and Resident Subsistence Farmer (adult and child) to address a range of possible 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. Therefore, the focus of the HHRA was to assess risks to the Security Guard/Maintenance Worker receptor that would be present given the reasonably anticipated future land use for RQL. The Resident Subsistence Farmer (adult and child) scenario provided a full comparative range of risks for development and analysis of remedial alternatives. Risk information for other human receptors is included in the HHRA (USACE 2005a) and FS (USACE 2006).

Two metals (arsenic and lead) and eight SVOCs [benz(*a*)anthracene; benzo(*a*)pyrene; benzo(*b*)fluoranthene; benzo(*k*)fluoranthene; carbazole; chrysene; dibenz(*a,h*)anthracene; and indeno(*1,2,3-cd*)pyrene] were identified as COCs in shallow surface soil (0 to 1 ft BGS) for the Security Guard/Maintenance Worker at RQL. The highest concentrations for all eight SVOCs were detected at soil sampling station RQL-026 (Figure 3).

Total carcinogenic risk to a National Guard Security Guard/Maintenance Worker was calculated as 2.1E-03, which exceeds Ohio EPA target risk levels of 1E-05 (USACE 2004). Exposure point concentrations (EPCs) for five COCs did not exceed their respective clean-up goals [arsenic, lead, benzo(*k*)fluoranthene, carbazole, and chrysene] and they were not considered further for evaluation of remedial alternatives. The EPCs for the remaining five COCs [benz(*a*)anthracene; benzo(*a*)pyrene; benzo(*b*)fluoranthene; dibenz(*a,h*)anthracene; and indeno(1,2,3-*cd*)pyrene] did exceed clean-up goals and were considered for remediation. Concentrations of benzo(*a*)pyrene at two sample points (RQL-025 and RQL-026, Figure 3) result in carcinogenic risk above Ohio EPA target risk level and the federal CERCLA risk range. The highest concentrations of COCs are at sampling station RQL-026, while concentrations at other sampling points are as much as two orders of magnitude lower. The chemical hazard index was 0.23, indicating no unacceptable hazard.

### G.2 Ecological Risk Assessment Summary

The ecological risk assessment for RQL evaluated risk to ecological receptors from contaminants in soil, surface water, and wet sediment. Chemicals of potential ecological concern identified for these media include metals, explosives, one pesticide chemical, SVOCs, and one VOC. The FS (USACE 2006) presented a weight-of-evidence evaluation that no quantitative ecological clean-up goals were required at RQL. 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 temporarily at the small soil removal areas at RQL.

### G.3 Basis for Action Statement

Results of the risk assessment for RQL indicate that exposure to surface soil and dry sediment (0 to 1 ft BGS) 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, welfare, and 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 Security Guard/Maintenance Worker exposure to contaminants in soil and dry sediment that exceed clean-up goals to a depth of 1 ft BGS.

Soil and dry sediment to be remediated under this ROD extend to a maximum depth of 1 ft BGS because future land use will not require disturbance of soil below that depth. Additionally, bedrock is very near to the ground surface in much of the quarry bottom. Table 2 presents the clean-up goals.

**Table 2. COCs and Clean-Up Goals for a Security Guard/Maintenance Worker for Soil and Dry Sediment at RQL**

| COC | Clean-Up Goal (mg/kg) |
|---|---|
| Benz(*a*)anthracene | 13 |
| Benzo(*a*)pyrene | 1.3 |
| Benzo(*b*)fluoranthene | 13 |
| Dibenz(*a*,*h*)anthracene | 1.3 |
| Indeno(1,2,3-*cd*)pyrene | 13 |

COC = Chemical of concern.
RQL = Ramsdell Quarry Landfill.

## I. DESCRIPTION OF ALTERNATIVES

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

- No action;
- Limited Action;
- Excavation and Offsite Disposal (Security Guard/Maintenance Worker Land Use); and
- Excavation and Offsite Disposal (Resident Subsistence Farmer Land Use).

This section includes a description of the various components of the four remedial alternatives identified in the FS, including land use controls and monitoring, removal, 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. RQL would have no legal, physical, or administrative land use controls. 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 the 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 soil and dry sediment contamination. Five-year reviews would be conducted in accordance with CERCLA 121(c). The remedial action includes an O&M period for the post-implementation activities, including monitoring and land use controls. The U.S. Army would also continue land use controls and monitoring currently needed for maintenance of the closed landfill, as required under Ohio solid waste management regulations.

## I.3 Feasibility Study Alternative 3 – Excavation of Soil/Dry Sediment with Offsite Disposal - Security Guard/Maintenance Worker Land Use

This remedial alternative involves the removal of contaminated soil and dry sediment to meet clean-up goals for the Security Guard/Maintenance Worker with offsite disposal at a facility licensed and permitted to accept these wastes. An estimated 423 yd3 (ex situ) (282 yd3 in situ in addition to soil swell and constructability) of contaminated soil and dry sediment would be excavated and transported to the offsite disposal facility. Confirmation sampling would be conducted to ensure 1) the Security Guard/Maintenance Worker clean-up goals have been achieved and 2) the remaining contaminants in soil and dry sediment in other areas of the bottom of the quarry do not exceed clean-up goals. Areas successfully remediated would be backfilled with clean soil and re-vegetated.

The U.S. Army and OHARNG would develop and implement land use controls to deter unauthorized access and to protect human receptors. Five-year reviews would be conducted in accordance with CERCLA 121(c) to ensure protectiveness of the remedy. The remedial action includes a 30-year O&M period to account for the post-implementation activities, including land use controls. However, land use controls to address any issues with respect to MEC may also be required and will be implemented by the U.S. Army and OHARNG under the MMRP. The U.S. Army would also continue land use controls and monitoring currently needed for maintenance of the closed landfill, as required under Ohio solid waste management regulations.

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

This remedial alternative involves the removal of contaminated soil and dry sediment to meet clean-up goals for the Resident Subsistence Farmer with offsite disposal at a facility licensed and permitted to accept these wastes. An estimated 815 $yd^3$ (ex-situ) of contaminated soil and dry sediment would be excavated and transported to the offsite disposal facility. Confirmation sampling would be conducted to ensure 1) Resident Subsistence Farmer land use clean-up goals have been achieved and 2) the remaining contaminants in soil and dry sediment in other areas of the bottom of the quarry do not exceed clean-up goals. Areas successfully remediated would be backfilled with clean soil and re-vegetated. Alternative 4 does not include additional land use controls or CERCLA five-year reviews because residential land use clean-up goals are attained under this alternative. However, land use controls

to address any issues with respect to MEC may be required and will be implemented by the U.S. Army and OHARNG under the MMRP. The U.S. Army would also continue land use controls and monitoring currently needed for maintenance of the closed landfill, as required under Ohio solid waste management regulations.

## 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 – Consideration to the extent that information is available during development of the FS. Evaluated fully after public comment 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. |

**Table 3. CERCLA Evaluation Criteria (continued)**

| |
|---|
| **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. |

## 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 (3 and 4) 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 dry sediment with concentrations of COCs exceeding clean-up goals will protect Security Guard/Maintenance Worker receptors in the long term. Alternative 4 provides additional protection and allows future residential land use, but is much more difficult and expensive to implement. Remediation to achieve residential clean-up goals is not warranted at this time because the reasonably anticipated future land use will be restricted to Security Guard/Maintenance Worker activities only due to the presence of MEC and the landfill.

## 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 four Alternatives. Action-specific ARARs were identified for Alternatives 3 and 4.

## 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 dry sediment. Alternatives 3 and 4 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

None of the four alternatives include treatment as a principal element, and; therefore, offer no reduction in toxicity, mobility, or volume through treatment.

### 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 because no remedial actions would be implemented.

The short-term effectiveness of Alternatives 3 and 4 includes the potential for worker exposure during the excavation process, as well as the exposure to the community during transportation of contaminated materials. Workers would follow a health and safety plan and wear appropriate personal protective equipment 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 soil, 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. 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 RQL. Post-action land use controls can easily be implemented.

### J.7 Cost

Costs were estimated for comparison purposes only and are believed accurate within a range of -30% to +50%. The estimated present value cost (in base year 2005 dollars with a 3.1% discount factor) to complete each of the alternatives is shown in Table 4. In comparison of Alternatives 3 and 4, Alternative 3 has a lower soil removal cost and includes an O&M period. The O&M for Alternative 3

is currently addressed for ongoing post-closure care and maintenance of the closed landfill under the Ohio solid waste regulations. Therefore, with regards to cost, Alternative 3 would be a more viable and realistic option.

**Table 4. Estimated Cost of Alternatives**

| Alternative | Capital Cost | CERCLA O&M Cost | CERCLA O&M Period | Total Present Worth Cost |
|---|---|---|---|---|
| 1 | $0 | $0 | NA | $0 |
| 2 | $19,527 | $164,419 | 30 years | $183,946 |
| 3 | $137,559 | $164,419 | 30 years | $301,978 |
| 4 | $215,465 | $0 | NA | $215,465 |

### 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. Access to the AOC will remain restricted regardless if soil and dry sediment cleanup goals are achieved, as a sanitary landfill exists on the AOC. Additionally, the capital costs for soil removal in Alternative 3 is less than Alternative 4, and the O&M costs for Alternative 3 is currently addressed for ongoing post-closure care and maintenance of the closed landfill under the Ohio solid waste regulations. For these reasons, and the fact that Alternative 4 is not consistent with the planned future land use, Ohio EPA has expressed its support for Alternative 3 (Excavation and Offsite Disposal, Security Guard/Maintenance Worker 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, Security Guard/Maintenance Worker Land Use) as indicated in Part III of this ROD, the Responsiveness Summary.

## K. PRINCIPAL THREAT WASTES

Principal threat wastes, as defined by 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 future land use for RQL (restricted access for the Security Guard/Maintenance Worker), principal threat wastes at RQL would be those media posing a potential risk of $10^{-3}$ or greater. This risk level is determined as several orders of magnitude greater than the acceptable risk level for the planned future land use considered to develop clean-up goals. Principal threat wastes are present in soil and dry sediment that are currently exposed at RQL as the total carcinogenic risk to a National Guard Security

Guard/Maintenance Worker was calculated as 2.1E-03. Removal of COCs exceeding the clean-up goals under the selected remedy will address principal threat wastes at RQL.

## L. THE SELECTED REMEDY

Alternative 3 (Excavation and Offsite Disposal, Security Guard/Maintenance Worker Land Use) is selected for remediation of soil and dry sediment at RQL. This alternative involves the removal of soil and dry sediment at RQL with concentrations of COCs that exceed clean-up goals for the Security Guard/Maintenance Worker. This remedial action will reduce the risk level to below the acceptable risk level for the Security Guard/Maintenance Worker. Confirmation sampling will be conducted to ensure clean-up goals have been attained and if additional land use controls may be required.

The cost for the alternative is estimated to be $301,978. The U.S. Army and OHARNG will develop and implement land use controls to deter unauthorized access and to protect human receptors. Access restrictions are already being implemented at RQL due to post-closure care and maintenance requirements for the closed landfill. Reinforcement of existing controls will bolster the protectiveness of Alternative 3. Five-year reviews will be conducted in accordance with CERCLA 121(c) to ensure protectiveness of the remedy. The remedial action includes a 30-year O&M period to account for the post-implementation activities, including land use controls. This remedy is consistent with the planned future land use for RQL, which will be restricted due to the presence of MEC and the landfill.

The U.S. Army will also continue land use controls and monitoring currently needed for maintenance of the closed landfill, as required under Ohio solid waste management regulations. The U.S. Army plans to investigate MEC and complete any necessary response actions, inclusive of any additional land use controls, under the MMRP.

### 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 Security Guard/Maintenance Worker exposure to contaminants in soil and dry sediment with concentrations of COCs that exceed clean-up goals to a depth of 1 ft BGS. In addition, low risks to ecological receptors will be further reduced.

Engineering controls, personal protective equipment, erosion and sediment controls, proper waste handling practices, and monitoring will be used to 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 RQL. 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 RQL.

## L.2 Description of the Selected Remedy

Alternative 3 consists of excavating contaminated soil and dry sediment to meet the clean-up goals for the anticipated future land use (Security Guard/Maintenance Worker). Excavated soil and dry sediment would be disposed offsite at a licensed disposal facility. 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 of 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. Engineering and administrative controls (e.g., erosion controls, health and safety controls) will be developed during the active construction period to ensure remedial workers and the environment are protected.

Excavation. Soil and dry sediment with contaminants above the Security Guard/Maintenance Worker 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 RQL is depicted in Figure 3. This extent assumes confirmatory sampling will not result in further soil and dry sediment removal. Total disposal volume (i.e., ex situ) is estimated to be 423 $yd^3$. Contaminated soil and dry sediment removal would be accomplished using standard construction equipment such as small excavators and possibly hand tools. Excavation would be guided using a limited quantity of analytical samples. Movement of

contaminated soil and dry sediment would be performed using small haul trucks and conventional construction equipment. Erosion control materials such as silt fences and straw bales would be installed to minimize erosion. Additionally, sandbagging and other precautions may be used to prevent quarry water from contacting exposed soil in the excavation. 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 RQL 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 RQL. 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.

Transportation activities would be performed in accordance with a Transportation and Emergency Response Plan (TERP) developed in the RD 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. Confirmatory sampling will be conducted after excavation. This sampling would confirm the Security Guard/Maintenance Worker land use clean-up goals have been achieved. Additionally, confirmation sampling will be conducted for soil and dry sediment in the entire RQL quarry bottom. These additional confirmation samples will be collected to re-assess the multi-increment (MI) sampling performed during the 2003 Phase I RI field investigation. The samples collected during the 2003 Phase I RI were intended to evaluate the feasibility of sampling method instead of quantitative evaluation of contaminant nature and extent. Results from four of the 2003 MI samples indicated benzo(a)pyrene above the clean-up goal of 1.3 mg/kg. The SVOC laboratory reporting limits for the 2003 MI samples were set about 4 mg/kg because of the intended use of the data at the time, which is substantially higher than the clean-up goals for these chemicals. All of the 2003 results greater than clean-up goals were estimated values less than the reporting limit. Laboratory analyses for the planned confirmation samples will have lower reporting limits more

suitable for comparison to the clean-up goals. The areas in which confirmation samples are collected will be surveyed with a portable Global Position System to define areas considered dry or underwater. If confirmation sampling shows concentrations that exceed clean-up goals, additional soil and dry sediment removal will be required to successfully remediate the site to meet the Security Guard/Maintenance Worker scenario.

Restoration. Excavated areas that have attained the clean-up goals will be restored in accordance with requirements established respective to disturbing the wetland at RQL. The restoration may include backfilling with clean soil and re-vegetated with a specified seed mixture. Soil will be tested prior to placement to ensure compliance with acceptance criteria established in the remedial design 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. Additionally, post-closure care and maintenance requirements under Ohio solid waste regulations are being implemented. If the RQL AOC is subsequently remediated to unrestricted use, this ROD will be changed to remove the LUCs as part of the remedy. However, post-closure care and maintenance requirements for the closed landfill may still apply and would be separately implemented. If the Army proposes to modify the LUCs for RQL, the Army shall submit a modified Land Use Control Remedial Design (LUCRD) to Ohio EPA for review and approval. CERCLA 121(c) 5-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 RQL AOC or any portion thereof.

If the Army transfers ownership of the RQL 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 RQL 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. Five-year reviews would be conducted to evaluate future conditions at RQL. Pursuant to CERCLA, a review would be conducted every five years since COCs would remain onsite above unrestricted (i.e., residential) land use clean-up goals.

### L.3 Summary of the Estimated Remedy Costs

The estimated cost for the alternative is $301,978. Following the removal, land use controls and five-year reviews will be necessary. Access restrictions are already being implemented at RQL and reinforcement of these controls will bolster the protectiveness of Alternative 3.

These estimates assume that RQL is remediated to the clean-up goals established for land use for Security Guard/Maintenance Worker.

### 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 RQL 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 will reduce the likelihood of contaminant migration to other environmental media, such as surface water or groundwater. Removal of soil to attain human-health clean-up goals will (1) alter a small area of habitat of less than 0.25 acre (near a small and seasonally-flooded wetland and within the 14 acre AOC) and (2) will only require a one-to-three year recovery period to return present habitat to the same or similar species composition of vegetation.

No negative socioeconomic and community revitalization impacts are expected from this remedial action.

## 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 RQL. The remedial action also protects environmental receptors from potential exposure to COC-contaminated media. 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 that are currently exposed at RQL. 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 RQL.

### 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 RQL.

### 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 RQL.

## N. DOCUMENTATION OF NO SIGNIFICANT CHANGE

The *Proposed Plan for Soil and Dry Sediment at Ramsdell Quarry Landfill* (USACE 2007) was released for public comment in April 2007. The Proposed Plan identified Alternative 3, Excavation and Offsite Disposal, Security Guard/Maintenance Worker land use, for soil and dry sediment at RQL 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 RQL AT RAVENNA ARMY AMMUNITION PLANT, RAVENNA, OH

## A. OVERVIEW

On April 4, 2007, the U.S. Army released the *Proposed Plan for Soil and Dry Sediment at Ramsdell Quarry Landfill (RVAAP-01) at the Ravenna Army Ammunition Plant* (USACE 2007) for public comment. A 30-day public comment period was held between April 4, 2007 and 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 RQL, as well as Load Line 12 (LL12) and the Fuze and Booster Quarry Landfill/Ponds (FBQ).

For soil and dry sediment at RQL, the U.S. Army recommended Excavation and Offsite Disposal, Security Guard/Maintenance Worker 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, Security Guard/Maintenance Worker land use, and this alternative is selected as the final remedy for soil and dry sediment at RQL in this ROD.

## B. 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.

### B.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, landfill cap monitoring requirements, geophysical investigations, and monitoring. General comments from the public regarding all three AOCs are presented first then followed by RQL-specific comments. 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 is as follows.

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 RQL. The investigations at RQL showed contamination in the soil column, which is very thin at RQL; in many places less than 3 feet. 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: The surface drainage at much of RQL is into the bottom of the quarry where it basically ponds up. There is no outlet from Ramsdell Quarry through which surface water flows.

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. The commenter also asked if it was instead planned or selected for another contractor to come in.

Response: The RQL Proposed Plan addresses soil and dry sediment. Surface water and groundwater will be evaluated at 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 include 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 that 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 RVAAP, contracting is handled by the Tank Automotive Command based out of Rock Island Arsenal, Illinois. In the case of environmental requirements, such as RQL, 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 on 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 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 investigations at RQL did not employ statistical grid sampling. Samples included discrete hand auger boring samples 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. Landfill Cap Monitoring Requirements

Comment: One commenter asked for clarification of monitoring requirements for a landfill cap—whether it was thirty years as under Resource Conservation and Recovery Act (RCRA).

Response: RQL was closed under the 1990 solid waste regulations. For solid waste management units a 30-year post-closure period applies for maintenance of the cap. The landfill at RQL is a 2-foot clay cap. The Army monitors the landfill in accordance with the 1990 Ohio solid waste regulations.

Post-closure maintenance of the landfill cap and monitoring of the landfill under the solid waste regulations is a separate activity from the RQL Proposed Plan. However, land use controls, cap maintenance, and monitoring activities will be integrated during development of land use controls associated with soil and dry sediment remedy for RQL.

11. Geophysical Investigations

Comment: One commenter asked if there were geophysical studies done, prior to excavation and backfill of the contaminated soil that would indicate if there were fractures or similar structures that might allow contaminants to enter the groundwater.

Response: No geophysical studies were performed at RQL during the RI phases of work. Investigations at RQL involving the groundwater system included core drilling and collection of core samples from the bedrock. The water table at Ramsdell occurs within the bedrock interval and not in the soil column. The soil actions that are proposed for RQL are not expected to have a

specific impact on the groundwater conditions. However, removal of contaminant mass, does remove a possible leaching source to groundwater.

12. Geophysical Investigations

    Comment: The commenter asked for further clarification as to whether the lack of geophysical studies done prior to soil removal would impede the subsequent groundwater investigation.

    Response: The soil action would not affect any future geophysical studies that may be necessary. Geophysical studies can be done through a soil cover and can be performed after the remediation for soils.

13. Monitoring

    Comment: One commenter asked if the Ohio EPA requires more frequent monitoring of RQL than the five-year reviews under security guard/maintenance worker land use.

    Response: RQL was closed under the 1990 solid waste regulations. RQL is currently inspected by the Portage County authorities (typical quarterly inspection schedule). The inspections address integrity of the cap, including maintenance and mowing.

**NOTE:** Several questions were raised regarding groundwater, monitoring wells, and permeability. These topics are not included in the scope of this public meeting and will be addressed under future groundwater actions.

### B.2 Written Comments

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

## C. TECHNICAL AND LEGAL ISSUES

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

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USACE 2005b. *Facility-wide Biological and Water Quality Study 2003, Ravenna Army Ammunition Plant. Part 1 - Streams and Part 2 -- Ponds.* USACE, Louisville District, with the Ohio Environmental Protection Agency, Division of Surface Water. November 2005.

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USACE 2007. *Proposed Plan for Soil and Dry Sediment at Ramsdell Quarry Landfill (RVAAP-01) at the Ravenna Army Ammunition Plant.* March 2007.

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# FIGURES

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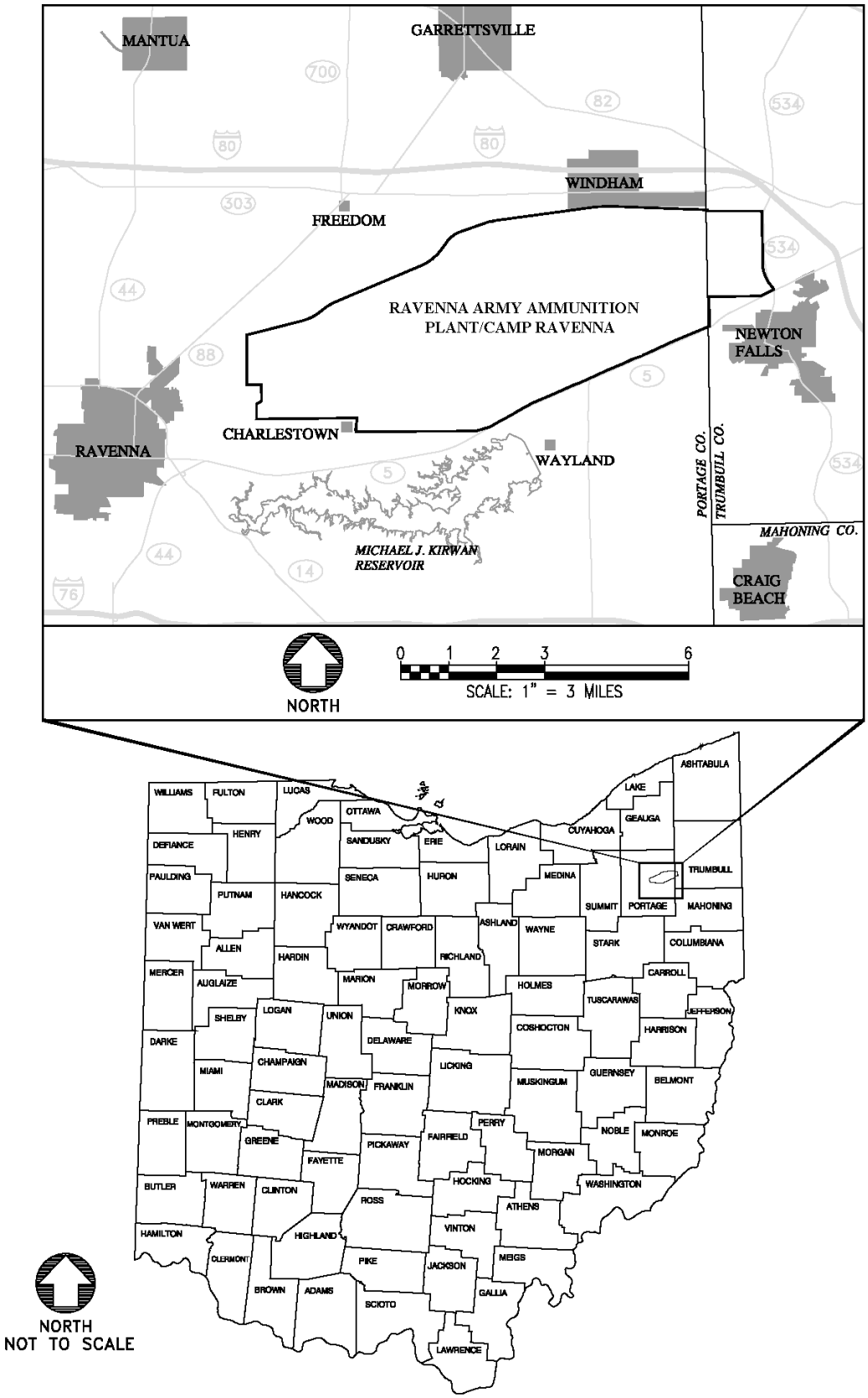


**Figure 1. General Location and Orientation of RVAAP/Camp Ravenna**

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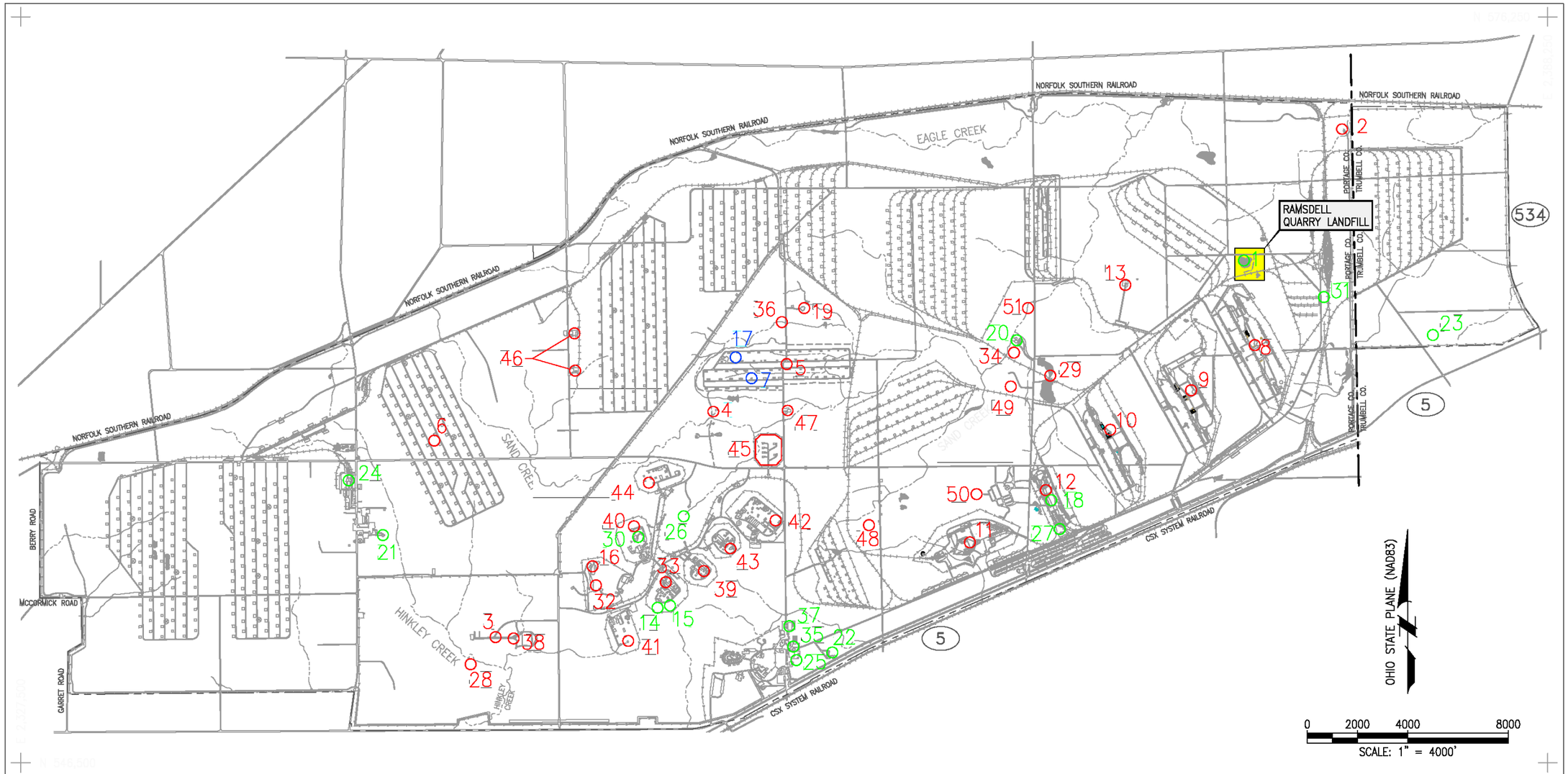


LEGEND:

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

US Army Corps of Engineers Louisville District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY

RAVENNA ARMY AMMUNITION PLANT/CAMP RAVENNA

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**Figure 2. RVAAP/Camp Ravenna Installation Map**

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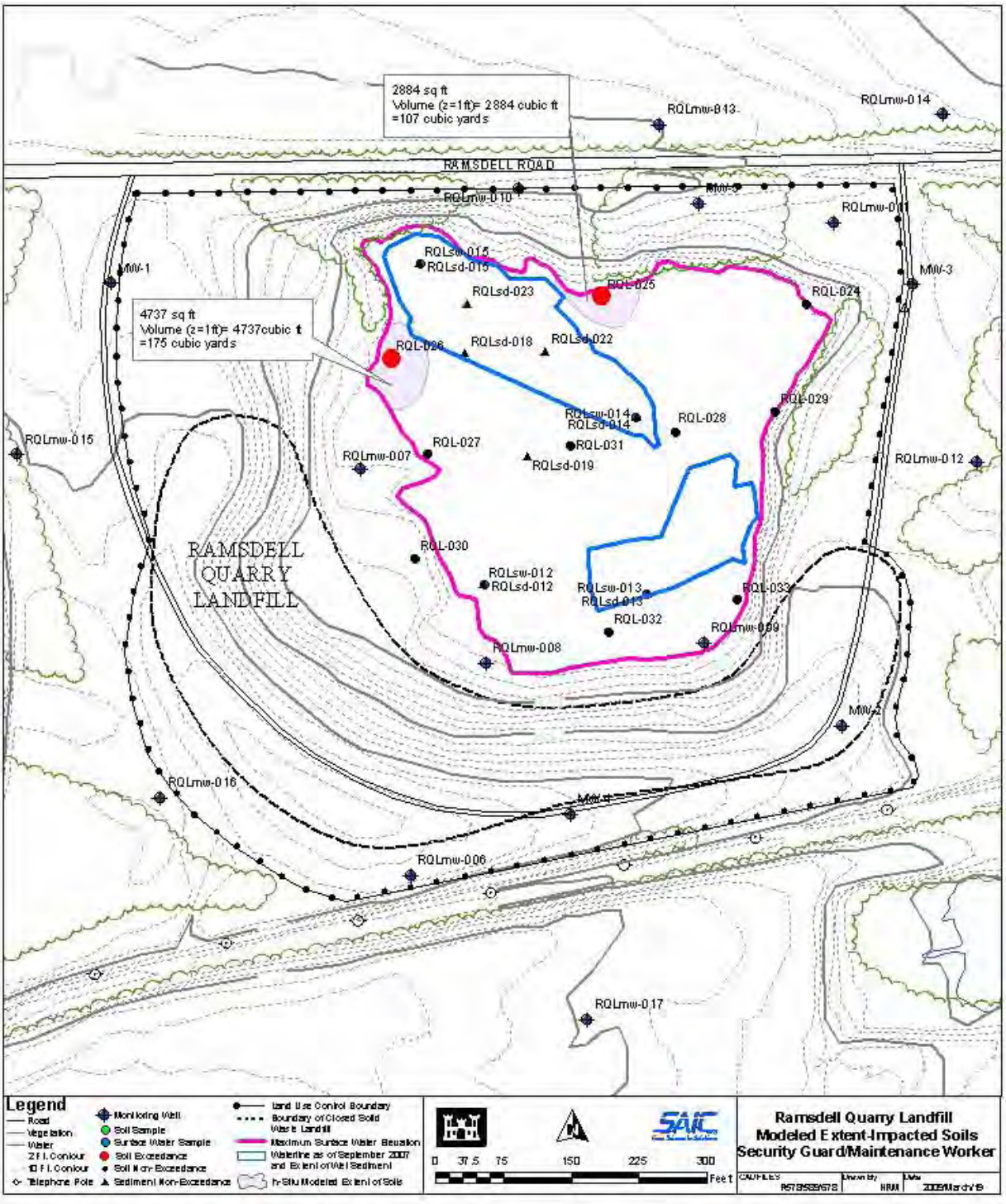


**Figure 3. Ramsdell Quarry Landfill Area of Concern Map**

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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 |
|---|---|---|---|
| Soil Contaminated with RCRA Hazardous Waste<br><br>OAC Section 3745-400-49<br>OAC Section 3745-400-48<br>UTS | 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. | 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. | All soils subject to treatment must be treated as follows:<br>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;<br>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;<br>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." |
| Debris Contaminated with RCRA Hazardous Waste<br><br>OAC Section 3745-400-49<br>OAC Section 3745-400-47 | 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. | If RCRA hazardous debris is disposed of onsite, then these rules are potentially applicable to disposal of the debris. | Standards are extraction or destruction methods prescribed in OAC Section 3745-400-47.<br><br>Treatment residues continue to be subject to RCRA hazardous waste requirements. |

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

| Media and Citation | Description of Requirement | Potential ARAR Status | Standard |
|---|---|---|---|
| Soils/Debris Contaminated with RCRA Hazardous Waste – Variance<br><br>OAC Section 3745-400-44 | The Director will recognize a variance approved by the USEPA from the alternative treatment standards for hazardous contaminated soil or for hazardous debris. | 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. | 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. |
| Soils Disposed of in a CAMU<br><br>OAC Section 3745-57-53 | 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. | Potentially applicable to RCRA hazardous waste that is disposed of in a CAMU. | Design standards include a composite liner and a leachate collection system that is designed and constructed to maintain less than a thirty centimeter 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.<br><br>Treatment standards are de facto clean-up standards for wastes disposed of in a CAMU. |

| | | | |
|---|---|---|---|
| Clean Water Act<br>33 USC § 1344<br>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 Ramsdell Quarry wetland 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 hydrologically isolated and incidentally created. It has no direct surface water connections to any waters of the U. S. The USACE would have to make a jurisdictional determination regarding the wetland's status under Section 404 of the CWA.<br><br>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<br>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<br><br>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 other wise 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 wetland in question was rated as a Category 1 through the ORAM as prescribed by Ohio EPA. A category 1 wetland generally supports minimal wildlife habitat, hydrologic, and recreational functions. The impact as a result of excavation 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-01 RAMSDELL QUARRY LANDFILL**
**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. | NA | NA | 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<br>p.22 | p.11<br>p.22 | 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. | | Agree. Text in Section G.2, Ecological Risk Assessment Summary, Page 11, lines 25-29 will be revised as follows:<br><br>"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 temporarily at the small soil removal areas at RQL."<br><br>Text will be revised in Section L.4, Expected Outcomes of the Selected Remedy, Page 22, lines 33-34 as follows:<br><br>"Removal of soil to attain human-health clean-up goals will (1) alter a small area of habitat of less than 0.25 acre (near a small and seasonally-flooded wetland and within the 14 |

| Comment Number | Page or Sheet | New Page or Sheet | Comment | Recommendation | Response |
|---|---|---|---|---|---|
| | | | | | acre AOC) and (2) will only require a one-to-three year recovery period to return present habitat to the same or similar species composition of vegetation."<br><br>For clarification on how the remedy affects the existing ecosystem, Section G.2 of the ROD states "…additional removal of soil and dry sediment to further reduce any adverse ecological effects would destroy habitat without substantial benefit to the ecological resources at RQL." No additional text changes are proposed.<br><br>With respect to future monitoring, Section L.2 specifies that pursuant to CERCLA, 5-year reviews will be conducted to assess remedy performance at Ramsdell Quarry Landfill. No additional text changes are proposed. |
| A-3. | NA | NA | 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 | NA | Before the Winklepeck ROD was approved, Ohio EPA reviewed and approved the design language for the land use control (LUC). The RQL ROD contains the same ROD language as WBG, but Ohio EPA has not received the | | Agree. Land Use Control language for the Ramsdell Quarry Remedial Design for Soil and Dry Sediment is attached to this comment response table. |

| Comment Number | Page or Sheet | New Page or Sheet | Comment | Recommendation | Response |
|---|---|---|---|---|---|
| | | | design language for the LUCS to review. Ohio EPA does not anticipate either RQL or LL-12 would be as complicated as WBG, however, Ohio EPA would like to review the language and make sure everyone (including OHARNG) is in agreement with what activities are restricted for 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. 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. | | |
| O-2. | Section J.8 Page 17 | p.17 | 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. Ohio EPA agreed to the cleanup based on the proposed reuse because it was not practical for LL-12 and RQL to be remediated to levels that would allow for 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 Guard Trainee scenario). For RQL, with bothe the sanitary landfill and MEC issues at the | | Agree. Section J.8 revised as follows:<br><br>"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. Access to the AOC will remain restricted regardless if soil and dry sediment cleanup goals are achieved, as a sanitary landfill exists on the AOC. Additionally, the capital costs for soil removal in Alternative 3 is less than Alternative 4 and the O&M costs for Alternative 3 is currently addressed for |

| Comment Number | Page or Sheet | New Page or Sheet | Comment | Recommendation | Response |
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| | | | site, cleanup up the soil to unrestricted would not be possible, since the site would still 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). 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 most appropriate. | | ongoing post-closure care and maintenance of the closed landfill under the Ohio solid waste regulations. For these reasons, and the fact that Alternative 4 is not consistent with the planned future land use, Ohio EPA has expressed its support for Alternative 3 (Excavation and Offsite Disposal, Security Guard/Maintenance Worker Land Use). Ohio EPA does not support Alternative 4 because it is not consistent with the planned future 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 Army Environmental Center as an organization for distribution. | Please change "Army Environmental Center" to "Army Environmental Command" | Agree. Text was revised to reflect recommendation. |
| O-5. | 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-6. | Part II, page 5, line 33 | p.5 | Sentence is missing punctuation. | Please add a period to end of the sentence. | Agree. Text was revised to reflect recommendation. |
| O-7. | Part II, page 17, lines 13 and 14 | p.17 | The text states that "the Ohio EPA does not support Alternative 4 because it is not consistent with the planned future use." This statement suggests that this is the only criteria Ohio EPA will use for State Acceptance. | Please see General Comment #2 above. | Agree. Please reference text revisions in response to comment O-2. |

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| O-8. | Part II, page 24, line 6 | p.24 | The text states that "after the public comment period, no significant changes regarding the recommended alternate, as originally identified in the Proposed Plan, were necessary or appropriate." | Please change "alternate" to "alternative." | Agree. Text was revised to reflect recommendation. |
| O-9. | Figure 3, Ramsdell Quarry Landfill Area of Concern Map | Fig. 3 | In the legend (and on the map itself), a dashed line represents "Approximate RCRA Permitted and Closed Landfill Boundary". | Please change text to read "Approximate Boundary of Permitted and Closed Sanitary Landfill." | Agree. Text was revised to reflect recommendation. |
| O-10. | Figure 3, Ramsdell Quarry Landfill Area of Concern Map | Fig. 3 | In the legend (and on the map itself), a red line represents "drainage divide." This line does not represent a drainage divide. | Please place drainage divide in correct location on map, or change legend to read "extent of pond level (maximum)" or something like "maximum surface water level elevation." | Agree. Text on map was revised to reflect recommendation "Maximum Surface Water Level Elevation". |
| O-11. | Attachment A, Description of ARARs | Attachment A | Recently, a meeting among Ohio EPA, SAIC, RVAAP, and the OHARNG was conducted at RQL to discuss potential permitting issues regarding wetlands and remedial actions occurring at the base of the quarry within the RQL AOC. | Based on discussions with Ohio EPA Surface Water division, please include additional ARARs dealing with wetlands at the AOC. | Agree. Attachment A will be revised to include wetlands ARARs. The insertion to Attachment 1 is presented at the end of this comment response table. |
| Ohio EPA (B. Buthker and T. Fisher) comments received pertaining to RQL Land Use Control Language issued on 11/20/08. | | | | | |
| O-12. | General | NA | 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. A global changes will take place as outlined in Comment R-11. |

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| O-13. | General | NA | A portion of Ramsdell Quarry Landfill AOC is considered a MRS under MMRP due to the presence of MEC. During the last IAP meeting held in February 2008, it was discussed that final LUCs for RQL would be developed and funded under the MMRP program. The LUCs developed for this RD may or may not be consistent /relevant with LUCs developed under the MMRP. | RVAAP team discussion regarding how to integrate LUCs under this RD and future MMRP LUCs is requested. | Clarification. As agreed to during the 2/13/09 comment resolution meeting, SAIC will develop land use controls for the IRP portion of the RQL area of concern. When the MMRP develops the LUCRD language with respect to munitions at RQL, the LUCs for both MMRP and IRP will be consolidated into one LUCRD document. No text changes required to the IRP LUCRD document for RQL. |
| O-14. | General | NA | Some of OHARNG's comments on the LUCs language, specifically comments #3, #5, #9, and #15, will require further clarification and discussion. | The Ohio EPA would like to further discuss some of the OHARNG's comments with the RVAAP team. | Agree. A stakeholders comment resolution meeting was held on 2/13/09 to resolve the stated comments. |
| RTLS-Environmental (K. Elgin) | | | | | |
| R-1. | Pg 2, Line 13 | NA | "Environmental monitoring will be conducted to evaluate future conditions at RQL." What is meant here by 'environmental monitoring'? You already mention that 5 year reviews and monitoring of the landfill will be conducted. It sounds like this is in addition to those requirements. Therefore, I recommend deleting this line. (This statement also appears in several other places throughout the document. Please delete as well.) | Delete "Environmental monitoring will be conducted to evaluate future conditions at RQL." | Agree. Text deleted as recommended. |
| R-2. | Pg 5, Line 37 | p.5 | "An intermittent wetland area exists at the bottom of the quarry that is sometimes dry | Suggested rephrase: "A wetland exists at the bottom of the quarry that is | Agree: The text was revised throughout the document to refer to the wetland area as: "A |

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| | | | for extended periods."<br><br>To my knowledge, there is no such thing as an intermittent wetland. Wetlands are only required to be wet a certain portion of the time. Therefore, they are inherently intermittent. Suggested rephrase: "A wetland exists at the bottom of the quarry that is sometimes dry for extended periods." Please change this throughout the document. | sometimes dry for extended periods." Please change this throughout the document. | seasonally flooded wetland exists at the bottom of the quarry that is sometimes dry for extended periods". |
| R-3. | Pg 6, Line 12 | p.6 | "RQL was in operation until 1941." It sounds like no other operations were conducted at RQL after 1941 (which is incorrect). Change to "Quarrying activities were conducted at RQL until 1941." | Change to "Quarrying activities were conducted at RQL until 1941." | Agree. Text was revised to reflect recommendation. |
| R-4. | Pg 10, Line 3 | p.10 | "RQL is currently managed as Restricted Access due to environmental sensitive areas (i.e., wetlands) and maintenance requirements for the closed landfill." Access to RQL is not restricted due to the wetland area. It is only restricted due to the closed landfill. Change to "RQL is currently managed as Restricted Access due to the closed landfill." | Change to "RQL is currently managed as Restricted Access due to the closed landfill." | Agree. Text will be revised to reflect recommendation. |
| R-5. | Pg 10, Line 9 | p.10 | "Authorized personnel must escort individuals that are unfamiliar with the hazards/restrictions at all times while in the restricted area." This statement is not entirely true as unfamiliar individuals are not always escorted. Change to "All | Change to "All individuals unfamiliar with RQL are properly briefed on the hazards/restrictions prior to entry into the AOC." | Agree. Text was revised to reflect recommendation. |

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| | | | individuals unfamiliar with RQL are properly briefed on the hazards/restrictions prior to entry into the AOC." | | |
| R-6. | Pg 21, Line 1-3 | p.21 | "If confirmation sampling shows concentrations that exceed clean-up goals, either additional land use controls will be implemented or further soil and dry sediment removal will be required. Areas successfully remediated would be available for appropriate restricted land use only." Why are we mentioning additional LUCs here? Change to "If confirmation sampling shows concentrations that exceed clean-up goals, additional soil and dry sediment removal will be required to successfully remediate the site to meet the Security Guard/Maintenance Worker scenario." | Change to "If confirmation sampling shows concentrations that exceed clean-up goals, additional soil and dry sediment removal will be required to successfully remediate the site to meet the Security Guard/Maintenance Worker scenario." | Agree. Text was revised to reflect recommendation. |
| R-7. | Pg 21, Line 5 | p.21 | "Excavated areas that have attained the clean-up goals will be backfilled with clean soil and re-vegetated." Keep in mind here that this may change as our meeting with the Ohio EPA DSW concluded that we may not backfill the wetland area. | | Agree. Text revised as follows:<br><br>Restoration. Excavated areas that have attained the clean-up goals will be restored in accordance with requirements established respective to disturbing the wetland at RQL. The restoration may include backfilling with clean soil and re-vegetation with a specified seed mixture. Soil will be tested prior to placement to ensure compliance with acceptance criteria established in the remedial design plan. |
| R-8. | Pg 22, Line | p.22 | "Positive socioeconomic impacts are | | Agree. The sentence on lines 37 to 39 on Page |

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| | 37 | | expected from the excavation and removal of soil and dry sediment exceeding the clean-up goals because additional resources will be available for use by the OHARNG training mission." How can this be stated when this area will not be used for training? | | 22 is deleted from the text. |
| R-9. | Pg 24. Line 6 | p.24 | "After the public comment period, no significant changes regarding the recommended alternate as originally identified in the Proposed Plan…" Should "alternate" be changed to "alternative"? | Should "alternate" be changed to "alternative"? | Agree. See response to comment O-8. |
| R-10. | Pg 39, Figure 3 | Fig. 3 | Drainage Divide: The definition of a drainage divide is the boundary line, along a topographic ridge or along a subsurface formation, separating two adjacent drainage basins.<br><br>I don't think this term fits our situation at RQL as all drainage seems to flow towards the quarry area. Therefore, maybe another term such as water line or water mark should be used. | | Agree. See response to comment number O-10. |
| RTLS-Environmental (K. Elgin and T. Morgan) comments received pertaining to RQL Land Use Control Language issued on 11/20/08. | | | | | |
| R-11. | General | NA | The RTLS is now 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 the facility name, Camp Ravenna Joint Military Training Center (Camp Ravenna). Then reference the site as Camp Ravenna throughout the document. | Agree. A global search of the ROD and LUCRD has been performed. Changes have been made as recommended. |

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| R-12. | Pg 1-3, Line 20 | p.1-3 | "Implementation of LUCs (e.g., security procedures, fencing, warning signs, and restricted access) at RQL; and." We need to be more site specific. | Change to: "Implementation of LUCs (e.g., security procedures, installation perimeter fencing, markers, and restricted access) at RQL; and;" | Agree. Text revised as recommended. |
| R-13. | Pg 1-3, Line 22 | p.1-3 | "Conducting 5 year reviews and environmental monitoring of the performance of the selected remedy as described in the RQL 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. | 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 RQL Record of Decision (ROD) (USACE 2008)." | Agree. Text revised as recommended. |
| R-14. | Pg 1-4, Line 6 | p.1-4 | "RQL is closed to all normal training and administrative activities. Surveying, sampling, and other essential security, safety…" The first sentence indicates that RQL is closed to all normal administrative activities. Then it indicates that surveying, sampling and security activities are conducted there. Aren't those normal administrative activities? Change to "RQL is currently closed to all military training activities." | Change to "RQL is currently closed to all military training activities." | Agree. Text revised as recommended. |
| R-15. | General | Fig. 3<br>ROD p.2<br>ROD p.8<br>ROD p.21 | We need to be real careful throughout this document when referencing the landfill. While I do agree that the landfill has influenced the future use of the site (restricted access), I am wondering if it is part of the AOC as it is managed under a separate program. Is it or isn't part of the AOC? Please clarify. Requires discussion | Discussion required. | Clarification. Figure 1-3 of the Record of Decision will be updated to include the Land Use Control boundary of RQL. This LUC boundary will encompass the landfill. Additionally, Figure 1-3 will show the waterline in the quarry bottom, as surveyed in September 2007. This waterline will specify that it is also the extent of wet sediment at |

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| | | | | | RQL.<br><br>To clarify that the landfill's post-closure care and maintenance requirements will continue to be implemented, the following text revisions will be made:<br><br>Draft ROD page 2, Line 11:<br>"…protect human receptors. Post-closure care and maintenance requirements will continue as required under Ohio solid waste regulations for the closed solid waste landfill at RQL. Access restrictions have been implemented at RQL due to these ~~post-closure care and maintenance~~ requirements ~~for the closed solid waste landfill~~. Reinforcement of existing controls will bolster the protectiveness of Alternative 3.<br><br>Draft ROD page 7, line 40:<br>"This ROD addresses soil and dry sediment and does not address other potentially contaminated media in RQL. Post-closure care and maintenance will continue as required under Ohio solid waste regulations for the closed solid waste landfill. The selected remedy described in the ROD…"<br><br>Draft ROD page 21, lines 9-12:<br>"Land use controls (LUCs) shall be maintained until the concentrations of hazardous |

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| | | | | | substances in the soil and groundwater are reduced to levels that allow for unrestricted use. Additionally, post-closure care and maintenance requirements under Ohio solid waste regulations are being implemented. If the RQL AOC is subsequently remediated to unrestricted use, this ROD will be changed to remove the LUCs as part of the remedy. However, post closure care and maintenance requirements for the closed landfill may still apply and would be separately implemented.<br><br>Clarification. Sections 1.4, 3.1.2, and 5.0 of the RQL LUCRD references the requirements of post-closure care and maintenance of the closed solid waste landfill at RQL. No text change is proposed to the LUCRD to bolster this discussion. |
| R-16. | Pg 1-4, Line 13 | p. 1-4 | "It is not anticipated future land uses by OHARNG will change due to landfill land use constraints." This statement is awkward. What is a landfill land use constraint? Change to "It is not anticipated that future land uses by the OHARNG at this AOC will change due to the constraint of a closed landfill." | Change to "It is not anticipated that future land uses by the OHARNG at this AOC will change due to the constraint of a closed landfill." | Agree. Text revised as recommended. |
| R-17. | Pg 1-9, Figure 1-3 RQL Area of Concern Map | Fig. 3 | We need to identify the AOC boundary on this map. Will the boundary of the AOC incorporate the landfill? The boundary must be discussed with all stakeholders. Also, I thought the term 'Drainage Divide' was changed in the ROD | Need to discuss the location of the AOC boundary. Also, please change drainage divide to an appropriate term as used in the RQL ROD. | Agree. Figures 3 of the ROD and 1-3 of the RD LUC will show the LUC boundary for the AOC. The landfill post-closure care and maintenance footprint will be highlighted separately to distinguish it within the IRP LUC boundary. |

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| | | | document. It should also be changed here as well. | | Agree. Figure 1-3 legend will revise the "Drainage Divide" to "Maximum Surface Water Level Elevation". |
| R-18. | Pg 2-1, Line 6 | p. 2-1 | "Maintain AOC hazards communication (HAZCOM) training program and escort unfamiliar individuals." HAZCOM is a broad training term. Need to be more specific. Also, the escorting of unfamiliar individuals to this site should not be a formal requirement. Individuals that need access to this site will be briefed prior to entry. We will not be able to escort every individual that accesses this site. Please delete this requirement in the text. | Change to: "Maintain Land Use Control training program." Delete "and escort unfamiliar individuals." | Agree. Line 6 on page 2-1 revised as follows:<br>3. Maintain LUC training program. |
| R-19. | Pg 2-1, Line 11 | p.2-1 | "Prohibit digging or excavation at RQL." Again, we need to be more specific as to where the AOC boundary will be and where digging will be prohibited. We concur that digging should be prohibited in the quarry bottom (area to be designated at the high water mark of the quarry). However, digging or excavation may be needed to maintain the landfill cap (if the landfill is part of the AOC). This will require some discussion. | Discussion Required | Agree. The LUC boundary will be presented in Figure 3 of the ROD and Figure 1-3 of the RD LUC. Page 2-1 of the RQL LUCRD is revised as follows:<br>"Prohibit digging or excavation at RQL within the AOC boundary with the exception of the sanitary landfill. Activities (such as digging or excavation) performed within the post-closure care and maintenance boundary of the sanitary landfill will be governed by Ohio solid waste regulations." |
| R-20. | Pg 2-1, Line 13 | p.2-1 | "Figures 1-2 and 1-3 depict the LUC boundaries for RQL." Figure 1-2 does not depict the LUC boundary. Figure 1-2 is a general location map. The LUC boundary will be depicted on Figure 1-3. | Change to "Figure 1-3 depicts the RQL AOC boundary." | Agree. Text revised as recommended. |

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| R-21. | Section 3.1.1 | p.3-1 | "Land Restrictions at RVAAP/RTLS: Land use of RQL shall be limited by the maintenance of the existing RTLS perimeter fence…" The section header is related to the facility and the text is related to RQL. Since this requirement is specific to RQL and AOC management, I recommend that it be moved to Section 3.1.2 which identifies the Land Restrictions at RQL. | "Land use of RQL 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 Ramsdell Quarry Landfill". 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. |
| R-22. | Pg 3-1, Line 30 | NA | "…natural resource 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…" The timber management activities mentioned in this section will not be needed if the AOC boundary does not include the forested area to the southeast of the quarry. It depends on the location of the AOC boundary. Discussion required. | Discussion required. | Clarification. The LUC boundary that will be included in Figure 3 of the ROD and Figure 1-3 of the RD LUC has forested areas to the west and south of the quarry.<br>No text change required. |
| R-23. | Pg 3-1, Line 37 | p.3-1 | "Duration of exposure shall be based upon the established Security Guard/Maintenance Worker exposure scenario cited at 250 days per year at 1 hour per day for a maximum of 25 years (USACE 2005b)." It needs to be clear here that this exposure scenario is on a per person basis. | Change to "Duration of exposure shall be based upon the established Security Guard/Maintenance Worker exposure scenario cited per person at 250 days per year at 1 hour per day for a maximum of 25 years (USACE 2005b)." | Agree. Text revised as recommended. |
| R-24. | Pg 3-1, Line 39 | p.3-1 | "All other uses of RQL are prohibited and the area will be marked with signage, | Change 'warn' to 'notify'. | Agree. Text revised as recommended. |

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| | | | facing outward, to warn personnel." Change 'warn' to 'notify'. | | |
| R-25. | Pg 3-2, Line 3-4 | p.3-2 | "All digging or excavation on the RQL AOC is prohibited with the exception of any ground surface repairs required to maintain the landfill cap." Why is digging or excavation over the entire AOC prohibited? Again, I think this will depend on where the AOC boundary will be located and if it includes areas between the quarry area and the landfill.. Again, does the AOC boundary include the landfill? This needs discussed. | Discussion required. | Agree. The RQL LUC boundary will be presented in Figure 3 of the ROD and Figure 1-3 of the RD LUC. The LUC boundary will encompass the landfill.<br>Section 3.2 is revised as follows:<br>"All digging or excavation deeper that 1 ft BGS on the RQL AOC is prohibited with the exception of the solid waste landfill cap. Digging and excavation on the landfill cap will be regulated by the post-closure care plan and the Ohio Solid Waste Regulations." |
| R-26. | 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." We need to mark where the LUCs will apply. Also will the signage be placed around the known areas of contamination or mark where the LUCs will apply or both? We do not want double signage. Additionally, we do not want an interior fence around the AOC. That is the purpose of the perimeter fence. | Change to: "Prepare geographic information system (GIS) data and a map identifying the AOC boundary and the LUC location. Signage/markers will be placed in locations to identify the areas where the LUC applies." | Agree. Text revised as recommended. |
| R-27. | 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 | Discussion needed as to the frequency of inspections for RQL. | Agree. As agreed to during the 2/13/09 comment resolution meeting, the site |

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| | | | 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. | | inspections will be conducted on a yearly basis, at minimum and will be conducted along with the landfill inspections required under the post-closure plan. Text revised as follows:<br><br>"Site inspections will be conducted as necessary but, not less than once per year. Site inspections will be performed, when feasible, in conjunction with landfill cap inspections required under the post-closure plan." |

Response to Comment O-11 Attachment 1 Insertion:

| **Media and Citation** | **Description of Requirement** | **Potential ARAR Status** | **Standard** |
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| Clean Water Act<br>33 USC § 1344<br>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 Ramsdell Quarry wetland 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 hydrologically isolated and incidentally created. It has no direct surface water connections to any waters of the U. S. The USACE would have to make a jurisdictional determination regarding the wetland's status under Section 404 of the CWA.<br><br>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<br><br>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 other wise 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 wetland in question was rated as a Category 1 through the ORAM as prescribed by Ohio EPA. A category 1 wetland generally supports minimal wildlife habitat, hydrologic, and recreational functions. The impact as a result of excavation 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. |

Additional changes to Draft ROD:
Cover page title will be changed to Final Record of Decision for Soil and Dry Sediment for the RVAAP-01 Ramsdell Quarry Landfill.