

Final

**Record of Decision Amendment
for Soil and Dry Sediment
at the RVAAP-01 Ramsdell Quarry Landfill**

**Ravenna Army Ammunition Plant
Ravenna, Ohio**

May 24, 2013

**Contract No. GS-10F-0076J
Delivery Order No. W912QR-12-F-0020**

Prepared for:



**US Army Corps
of Engineers®**

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

Prepared by:

SAIC®

**SAIC Engineering of Ohio, Inc.
8866 Commons Boulevard
Twinsburg, Ohio 44087**

REPORT DOCUMENTATION PAGE

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13. SUPPLEMENTARY NOTES None.

14. ABSTRACT This Record of Decision Amendment presents the selected remedy for soil and dry sediment at RVAAP-01 Ramsdell Quarry Landfill. During implementation of the original Alternative 3 - Excavation and Off-site Disposal ~ Security Guard/Maintenance Worker Land Use, unforeseen conditions were encountered that impacted the Overall Protection of Human Health and the Environment, short-term effectiveness, implementability, and cost of the alternative. In accordance with USEPA guidance, the U.S. Army considered these conditions and declared a Fundamental Post-ROD Change was warranted. The U.S. Army, in consultation with the Ohio Environmental Protection Agency, presented a new recommended alternative to the public during a public meeting and public comment period. This Record of Decision summarizes comments received during the public meeting and public comment period and presents the selected remedy: Alternative 8 - Perimeter Fence ~ Security Guard/Maintenance Worker with Restricted Land Use.

15. SUBJECT TERMS cleanup goals, CERCLA, remedial action, asbestos-containing material, record of decision
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16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT U	18. NUMBER OF PAGES 54	19a. NAME OF RESPONSIBLE PERSON Thomas Chanda
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (Include area code) 502.315.6868

CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Science Applications International Corporation (SAIC) has completed the Record of Decision Amendment for Soil and Dry Sediment at 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 United States Army Corps of Engineers (USACE) policy.



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

5/20/2013

Date



Kevin Jago
Independent Technical Review Team Leader

5/20/2013

Date

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

Internal SAIC Independent Technical Review was conducted on the Preliminary Draft version of this document. Subsequent versions of this document (e.g., Draft and Final) incorporated changes based on the technical reviews of USACE, Ohio Army National Guard, Army National Guard Directorate, and Ohio Environmental Protection Agency. 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.



Lisa Jones-Bateman
Principal w/ A-E firm

5/20/2013

Date



John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

June 6, 2013

CERTIFIED MAIL 7010106000000898558

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
Building 1037
8451 State Route 5
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RE: APPROVAL OF THE "FINAL RECORD OF DECISION FOR SOIL AND DRY SEDIMENT AT THE RVAAP-01 RAMSDSELL QUARRY LANDFILL AT THE RAVENNA ARMY AMMUNITION PLANT, RAVENNA, OHIO," DATED MAY 20, 2013 (WORK ACTIVITY NO. 267-000859-163)

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR) has received and reviewed the document entitled, "*Final Record of Decision for Soil and Dry Sediment at the RVAAP-01 Ramsdell Quarry Landfill at the Ravenna Army Ammunition Plant, Ravenna, Ohio,*" dated May 20, 2013. This document, received by Ohio EPA's NEDO on May 28, 2013, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District, by SAIC Engineering of Ohio, Inc.

Ohio EPA has reviewed this documentation and has found no significant deficiencies. As a result, the "*Final Record of Decision for Soil and Dry Sediment at the RVAAP-01 Ramsdell Quarry Landfill*" has been approved. Please let know when the subsequent field activities will begin a least two weeks prior to commencement.

Scanned

By: *AMH*
Date: *06-10-2013*

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APPROVAL FOR THE FINAL RECORD OF DECISION FOR SOIL AND DRY SEDIMENT
RVAAP-01 RAMSDELL QUARRY LANDFILL
RAVENNA ARMY AMMUNITION PLANT, RAVENNA, OHIO
JUNE 6, 2013
PAGE 2

If you have any questions or concerns, please do not hesitate to contact Eileen Mohr at (330) 963-1221.

Sincerely,



Nancy Zikmanis
Environmental Supervisor
Division of Environmental Response and Revitalization

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Final

**Record of Decision Amendment
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Ravenna, Ohio**

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Prepared for:

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

Prepared by:

SAIC Engineering of Ohio, Inc.
8866 Commons Boulevard
Twinsburg, Ohio 44087

May 24, 2013

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

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ARNG = Army National Guard

BRACD = Base Realignment and Closure Division

OHARNG = Ohio Army National Guard

Ohio EPA = Ohio Environmental Protection Agency

REIMS = Ravenna Environmental Information Management System

SAIC = Science Applications International Corporation

USACE = United States Army Corps of Engineers

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ACRONYMS AND ABBREVIATIONS

ACM	Asbestos-containing Material
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirements
ARNG	Army National Guard
bgs	below ground surface
BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Act Information System
COC	Chemical of Concern
COPEC	Chemical of Potential Ecological Concern
CUG	Cleanup Goal
FS	Feasibility Study
ft	feet
ft ²	square feet
HHRA	Human Health Risk Assessment
HI	Hazard Index
ILCR	Incremental Lifetime Cancer Risk
ISM	Incremental Sampling Method
LUC	Land Use Control
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
mg/kg	Milligrams Per Kilogram
MMRP	Military Munitions Response Program
MRS	Munitions Response Site
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NESHAP	National Emission Standard for Hazardous Air Pollutant
OAC	Ohio Administrative Code
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
O&M	Operation and Maintenance
RAFLU	Reasonable and Anticipated Future Land Use
RI	Remedial Investigation
ROD	Record of Decision
RQL	Ramsdell Quarry Landfill
RVAAP	Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
yd ³	cubic yard

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PART I: INTRODUCTION AND STATEMENT OF PURPOSE

A. SITE NAME AND LOCATION

The area of concern (AOC) addressed in this Record of Decision (ROD) Amendment is the Ramsdell Quarry Landfill (RQL) within the Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio (Figure 1). This ROD Amendment addresses soil and dry sediment contaminants at RQL. RVAAP is located in east-central Portage County and southwestern Trumbull County, Ohio, approximately 3 miles east-northeast of the city of Ravenna and 1 mile northwest of the city of Newton Falls. RQL is located in the northeastern portion of the RVAAP and is identified in the Army Environmental Database for Restoration as RVAAP-01. The Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) Identifier for the RVAAP is OH5210020736.

B. IDENTIFICATION OF LEAD AND SUPPORT AGENCIES

The U.S. Army is the lead agency and the Ohio Environmental Protection Agency (Ohio EPA) is the support agency for selecting the 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). Remedial decisions must be in accordance with the requirements stated in the *Director's Final Findings and Orders*, dated June 10, 2004 (Ohio EPA 2004).

C. RECORD OF DECISION AND CIRCUMSTANCES FOR A ROD AMENDMENT

In March 2009, the U.S. Army published the *Record of Decision for Soil and Dry Sediment for the RVAAP-01 Ramsdell Quarry Landfill* (USACE 2009) (herein referred to as the Original ROD), documenting the selection of Alternative 3: Excavation and Off-site Disposal (Security Guard/Maintenance Worker Land Use) to remediate soil and dry sediment at the AOC. This alternative was presented to the public on April 10, 2007 and approved by the United States Army Corps of Engineers (USACE) on August 20, 2009 and Ohio EPA on October 13, 2009.

During implementation of Alternative 3 in July 2010, unanticipated site conditions were encountered. Large amounts of subsurface construction and miscellaneous debris (containing asbestos) were identified within the remedial action excavation footprint in the bottom of the former quarry. The U.S. Army and Ohio EPA identified this change in scope, performance, and cost of attaining remedy for soil and dry sediment as a Fundamental Post-ROD Change, using site-specific determination per the NCP Section 300.435(c)(2) and prescribed under the *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents* (USEPA 1999). Consequently, the U.S. Army, in consultation with Ohio EPA, used current site knowledge to re-evaluate remedial alternatives to address soil and dry sediment in the *Engineering Evaluation for Soil and Dry Sediment at RVAAP-01 Ramsdell Quarry Landfill* (USACE 2011) (herein referred to as the Engineering Evaluation), which is the basis for this ROD Amendment.

D. PUBLIC NOTIFICATION

Section 117 of CERCLA requires the lead agency to provide the public an opportunity to comment on proposals for the selection of remedial actions. Once a final decision is made, public notice of the decision must be provided, with an explanation of any “significant” differences from the proposed action and a response to each “significant” public comment on the proposed action.

In October 2012, the U.S. Army released the *Modified Proposed Plan for Soil and Dry Sediment at Ramsdell Quarry Landfill (RVAAP-01) at the Ravenna Army Ammunition Plant* (USACE 2012) (herein referred to as the Modified Proposed Plan) for public comment. A 31-day public comment period was held from October 8, 2012 to November 7, 2012 (extended from the originally proposed 30-day public comment period scheduled to end on November 6, 2012). The U.S. Army hosted a public meeting on October 18, 2012 to present the Modified Proposed Plan and take questions and comments from the public. The public meeting presented the recommended alternative for the AOC. Comments were received verbally during the public meeting and are summarized in Part VIII: Public Participation Compliance. No written comments were received during the 31-day public comment period.

E. ADMINISTRATIVE RECORD

The ROD Amendment will be made available to the public in the Administrative Record maintained at RVAAP and in the Information Repositories at Reed Memorial Library in Ravenna, Ohio and Newton Falls Public Library in Newton Falls, Ohio. The addresses and current hours of availability are presented below.

Administrative Record:

Ravenna Army Ammunition Plant

Building 1037

8451 State Route 5

Ravenna, Ohio 44266-9297

(330) 358-7311

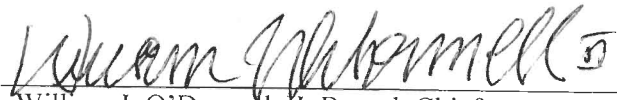
Fax: (330) 358-7314

(Note: Access to the RVAAP is controlled, but the file can be obtained or viewed with prior notice to RVAAP.)

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Reed Memorial Library 167 East Main Street Ravenna, Ohio 44266 (330) 296-2827 Hours of operation: 9 AM – 9 PM Monday – Thursday 9 AM – 6 PM Friday 9 AM – 5 PM Saturday 1 PM – 5 PM Sunday	Newton Falls Public Library 204 South Canal Street Newton Falls, Ohio 44444 (330) 872-1282 Hours of operation: 10 AM – 8 PM Monday – Thursday 9 AM – 5 PM Friday and Saturday Closed Sunday
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F. AUTHORIZING SIGNATURES AND SUPPORT AGENCY ACCEPTANCE OF REMEDY



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

18 Jun 13
Date



~~Scott J. Nally, Director~~ Cynthia A. Hafner, Chief DOR
Ohio Environmental Protection Agency

23 August 13
Date

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PART II: SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY

A. SITE HISTORY AND CONTAMINATION

RQL was identified as an AOC at RVAAP in the *Preliminary Assessment for the Characterization of Areas of Contamination* (USACE 1996). RQL, designated as RVAAP-01, is situated in the northeastern portion of the facility and is 14 acres in size (Figure 2 and Figure 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.

Quarrying activities were conducted at RQL until 1941. During that time, the quarry was excavated 30-40 feet (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, 18,000 500-lb incendiary or napalm bombs were burned, and liquid residues from annealing operations were disposed 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 was disposed 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 portions of the quarry.

B. REASONABLE ANTICIPATED FUTURE LAND USE

The U.S. Army intends to transfer accountability for the Ravenna facility to the Army National Guard (ARNG). The property will subsequently be licensed to the Ohio Army National Guard (OHARNG) for military use. The Reasonable and Anticipated Future Land Use (RAFLU) of RQL is Restricted Access, No Digging. Post-closure care of the RQL cap and monitoring must be continued in accordance with State of Ohio solid waste management regulations. Excavation into or disturbance of the landfill contents is prohibited without prior approval of Ohio EPA.

C. SELECTED REMEDY

The scope of the selected remedy for RQL was to address soil and dry sediment within the former quarry. Surface water, wet sediment, and groundwater will be addressed under future CERCLA decisions. The human health risk assessment (HHRA) conducted in the *Feasibility Study for Ramsdell Quarry Landfill* (USACE 2006) (herein referred to as the RQL FS) identified five chemicals of concern (COCs) [benz(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; dibenz(a,h)anthracene; and indeno(1,2,3-cd)pyrene] requiring remediation in surface soil [0-1 ft below ground surface (bgs)]. The removal of surface soil (0-1 ft bgs) with COCs above cleanup goals (CUGs) was to reduce soil concentrations to acceptable risk levels for the National Guard Security Guard/Maintenance Worker. The COCs and CUGs are presented in Table 1.

There were no ecological risks identified at RQL requiring remediation, and the fate and transport modeling indicated no contaminants were predicted to migrate beyond the AOC boundary at concentrations above risk-based concentrations or drinking water maximum contaminant levels. Consequently, only soil remediation for COCs identified in the HHRA was required for RQL.

Table 1. Chemicals of Concern and Cleanup Goals for a Security Guard/Maintenance Worker for Soil/Dry Sediment

Chemical of Concern	Cleanup 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

mg/kg = Milligrams Per Kilogram

In accordance with the conclusion of the HHRA, the RQL FS and Original ROD identified two areas (RQL-039M and RQL-040M) requiring removal (Figure 3), with an estimated disposal volume (ex situ) of 423 cubic yards (yd³). However, Alternative 3 also required sampling of the entire quarry bottom to re-assess Incremental Sampling Method (ISM) samples collected during the Phase I Remedial Investigation (RI) in November 2003. In May 2009 and January 2010, soil samples were collected from the bottom of the AOC, in accordance with the Original ROD. These sample results were presented to the U.S. Army and Ohio EPA in technical memorandums and identified seven ISM areas that exceeded CUGs presented in the Original ROD: RQL-039M, RQL-040M, RQL-041M, RQL-042M, RQL-043M, RQL-044M, and RQL-045M. These locations are presented in Figure 3.

To assist in volume estimations during implementation of the remedial actions, soil depth to bedrock was measured using a push probe at multiple, random locations. Soil depth at the quarry bottom varied from 0 ft (exposed bedrock) to greater than 2 ft. The average depth of soil overlying bedrock at the quarry bottom was 7 inches; this average depth was used to estimate soil removal quantities. Based on the May 2009 and January 2010 remedial design sampling and walkover survey, the area requiring soil removal increased from 282 square feet (ft²) (0.006 acres) to 49,300 ft² (1.13 acres), increasing the estimated volume for soil removal from 423 yd³ to 1,597 yd³.

PART III: BASIS FOR THE RECORD OF DECISION AMENDMENT

Implementation of soil removal per Alternative 3 in the Original ROD was initiated in July 2010. The excavation activities began with removing soil at the eastern edge of area RQL-043M (Figure 3). During soil removal activities, a large amount of construction and miscellaneous debris was encountered. Some of the debris (e.g., transite and roofing materials) was suspected to contain asbestos; therefore, the materials were sampled and analyzed for asbestos. Results revealed that transite and roofing materials within the excavation were to be handled and disposed as asbestos-containing material (ACM), as they contained greater than 1% asbestos.

As required by Ohio EPA, all soil containing friable ACM was to be handled and disposed as such. Approximately 1,100 tons of soil and construction debris (all considered friable ACM) were removed from RQL. Ohio EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) guidance was also considered, wherein if excavation has occurred that exposes ACM, it must be removed as encountered or addressed (regardless of whether it occurs outside of the areas requiring remediation to address COCs identified in the RQL ROD). The soil removal area was extended into areas not contaminated by the COCs to specifically remove ACM identified on the excavation sidewall. Removal of ACM was confirmed through visual inspection and soil sampling.

The discovery of ACM in RQL during the implementation of Alternative 3 invokes relevant and appropriate requirements stated in Ohio Administrative Code (OAC), Asbestos Emissions Control ~ OAC 3745-20 and Standard of Inactive Asbestos Waste Disposal Sites ~ OAC 3745-20-07. Those relevant and appropriate requirements are as follows:

1. Discharge no visible emissions to the outside air; or
2. Cover ACM with at least 6 inches of compacted non-ACM, and establish and maintain a cover of vegetation on the area adequate to prevent exposure to the ACM; or
3. Cover ACM with at least 2 ft compacted non-ACM and maintain the cover to prevent exposure to the ACM.

Through the coordinated efforts of the U.S. Army and Ohio EPA, soil removal per Alternative 3 was discontinued and an Engineering Evaluation (USACE 2011) was developed. The Engineering Evaluation re-evaluated the originally selected remedial alternative and additional alternatives to determine if the remedy for soil at RQL required a change, given the change of site conditions. Re-evaluation of remedial alternatives was performed as permitted by the *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents* (USEPA 1999), as the change in waste type encountered (asbestos-containing waste) was identified as a Fundamental Change by the U.S. Army and Ohio EPA. As defined in Section 7.2 of the guidance document, the change in conditions included an appreciable change in scope, performance, and cost. The discovery of ACM provides a basis for re-evaluation of alternatives with respect to potential applicable or relevant and appropriate requirements (ARARs). Additional alternatives evaluated in the Engineering Evaluation address the COCs in the RQL quarry bottom and the relevant and appropriate requirements invoked by the identification of ACM in the contaminated areas.

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PART IV: DESCRIPTION OF NEW ALTERNATIVES

Due to the Fundamental Change identified by the U.S. Army and Ohio EPA, Alternative 3 was no longer a viable option to address soil and dry sediment at RQL. The Engineering Evaluation evaluated new alternatives due to: (1) requirements to identify, excavate, and dispose ACM until ACM is not present on excavation floors and sidewalls from disturbed areas; (2) the unknown extent of ACM beyond the areas containing COCs; (3) the increased risk of exposure to ACM by workers involved with implementing Alternative 3; and (4) the potential increase in disturbance of sensitive environmental habitat (e.g., wetlands). The Engineering Evaluation presented four new remedial alternatives (Alternatives 5, 6, 7, and 8), evaluated these alternatives using NCP evaluation criteria, and provided a new recommended alternative for addressing soil and dry sediment at RQL.

A. ALTERNATIVE 5: EXCAVATION OF SOIL AND OFF-SITE DISPOSAL AS FRIABLE ACM – SECURITY GUARD/MAINTENANCE WORKER LAND USE

Alternative 5 consists of excavating soil with COCs exceeding CUGs for the Security Guard/Maintenance Worker in addition to other locations within RQL that contain ACM. The Engineering Evaluation estimated 2,150 tons of contaminated soil require excavation for off-site disposal, in addition to the 1,100 tons of soil and construction debris removed in July 2010 (USACE 2011). The remedy requires backfilling the excavated areas and adequate restoration of the excavated wetland area within the quarry bottom. Alternative 5 has an estimated excavation surface area of 49,800 ft², which is nearly five times the surface area excavated in 2010 (10,000 ft²). Therefore, additional inspections and monitoring would be required for restored wetland areas as part of operation and maintenance (O&M) cost to the U.S. Army.

Upon completion of this alternative, potential for exposure to contaminated soil and ACM for National Guard receptors will be reduced. Land use controls (LUCs) will be necessary, as planned excavation will not attain CUGs for Residential Land Use and will not excavate contaminated soil greater than 1 ft bgs, unless ACM is also encountered at that depth.

Alternative 5 requires coordination of excavation and LUC activities with Ohio EPA, OHARNG, and the U.S. Army. Coordinating with stakeholders during the implementation of the excavation will minimize health and safety risks to on-site personnel and potential disruptions of RVAAP/Camp Ravenna activities. The amount of time to complete this removal action is estimated to be 2 months. In addition, this alternative contains a 30-year O&M period to implement LUCs.

B. ALTERNATIVE 6: CAPPING – SECURITY GUARD/MAINTENANCE WORKER LAND USE

Alternative 6 consists of installing a 12-inch compacted cover (cap) of native fill and topsoil on the remaining areas within the AOC that exceed CUGs for the COCs, with the exception of the area on the existing sanitary landfill cap. An estimated 33,200 ft² requires capping. Capping will leave soil containing COCs and ACM in place. The purpose of this cap is to prevent exposure of the Security Guard/Maintenance Worker to COCs and to be in compliance with OAC 3745-20-07(A)(2) requirement to “cover the asbestos-containing waste material with at least six inches of compacted non-ACM.” After capping, a cover of vegetation will be established on the area to prevent exposure of the ACM, and adequate restoration of the wetland within the quarry bottom will be conducted.

Inspections and monitoring would be required for restored wetland areas as part of O&M cost to the U.S. Army.

Alternative 6 requires coordination of capping and LUC activities with Ohio EPA, OHARNG, and the U.S. Army. Once capping is complete, this alternative will mitigate risk by physically preventing exposure of National Guard receptors to contaminated soil and ACM. LUCs will be necessary to prevent digging and because the cap will not reduce exposure to meet residential CUGs. The amount of time to complete this removal action is estimated to be 2 months. In addition, this alternative contains a 30-year O&M period to implement LUCs.

C. ALTERNATIVE 7: QUARRY BOTTOM FENCE – SECURITY GUARD/MAINTENANCE WORKER WITH RESTRICTED LAND USE

Alternative 7 consists of installing a fence (e.g., chain link security fence or five-strand, high tensile wire fence) and signage around the quarry bottom (to restrict access to the AOC) and removing ACM at the ground surface within the quarry bottom. Fence specifications will be finalized in a Remedial Design addendum. Installation of security fencing and signage provides a physical control for the AOC. This physical control will be combined with administrative LUCs for access control into the quarry bottom and use restrictions to ensure there is no digging. These controls will eliminate or reduce receptor exposure to COCs and comply with requirements of OAC 3745-20-07(A)(1) by reducing the potential of discharging visible emissions to the outside air due to disturbance of the AOC. Signage notifying personnel of the presence of asbestos in the quarry bottom will be placed on the fence. This alternative potentially involves installation of fencing within wetland areas within the quarry bottom. If Alternative 7 disturbs wetland areas, additional wetland mitigation and monitoring beyond what is currently conducted are required as part of substantive requirements.

The physical and administrative controls under this alternative further restrict access to soil that exceeds CUGs at the AOC. Administrative LUCs include access and digging restrictions and personnel training or briefings on potential hazards and safety precautions (e.g., appropriate steps to avoid disturbing ACM) for authorized persons. All individuals unfamiliar with RQL will be properly briefed on the hazards/restrictions prior to entry into the AOC. RQL is managed as “restricted access” due to post-closure care and monitoring requirements for the closed, sanitary landfill until the year 2040. RQL is closed to all standard training and administrative activities, and installation of this fence will help enforce these restrictions. Surveying; sampling; and essential security, safety, periodic maintenance, natural resources management, and other directed activities may be conducted within the quarry bottom only after personnel have been properly briefed on potential hazards/sensitive areas. Appropriate personnel will be granted access to the AOC after being properly briefed on the hazards/restrictions. Once the fence is complete and LUCs are in place, this alternative will result in reduced potential for exposure to contaminated soil by National Guard receptors. This alternative will also protect the munitions response site (MRS) within the quarry bottom.

Installing a fence (with signage) around the area containing ACM is adequate protection for future land use of general foot traffic by U.S. Army and OHARNG personnel who have awareness that ACM was left in place. After fencing is installed, there is no additional requirement for ACM removal. However, as part of this remedy, a best management practice (BMP) to remove surficial ACM through non-intrusive/ no-digging methods will be implemented. The ACM will be removed by

a licensed asbestos professional using non-intrusive/no-digging methods (e.g., removal by hand) to minimize the potential for personnel exposure in the event the ACM is disturbed. Removed ACM will be containerized for transportation in accordance with OAC Standard for Asbestos Waste Handling and will be placed at a disposal facility licensed to receive ACM.

D. ALTERNATIVE 8: PERIMETER FENCE – SECURITY GUARD/MAINTENANCE WORKER WITH RESTRICTED LAND USE

Alternative 8 consists of installing a security fence and signage around the perimeter of RQL and removing ACM at the ground surface within the quarry bottom. The fence will be a combination of a chain-link security fence and five-strand, high tensile wire fence. Fence specifications will be finalized in a Remedial Design addendum. However, specifications used for the evaluation of this alternative included a 6 ft high chain-link security fence and 6 ft high gate with a 1⁵/₈-inch frame at the northern perimeter of RQL and a five-strand, high tensile wire fence at the eastern, southern, and western perimeters. Installation of this fence will encompass all areas contaminated with COCs and ACM. Signage notifying personnel of the presence of asbestos in the quarry bottom will be placed on the fence. The fence will also provide the U.S. Army and ARNG access control for, and protection of, the adjacent closed, sanitary landfill. After fencing is installed, there is no additional requirement for ACM removal, as access and land use restrictions at RQL will ensure no visible emissions will be released to the outside air, in accordance with OAC 3745-20-01. However, as part of this remedy, a BMP to remove ACM at the ground surface will be implemented. The ACM will be removed by a licensed asbestos professional, using non-intrusive/no-digging methods (e.g., removal by hand) to minimize the potential for personnel exposure in the event the ACM is disturbed. Removed ACM will be containerized for transportation in accordance with OAC Standard for Asbestos Waste Handling and will be placed at a disposal facility licensed to receive ACM.

Physical control provided by the fence will be combined with administrative LUCs. Administrative LUCs include access and digging restrictions and personnel training or briefings on potential hazards and safety precautions [e.g., appropriate steps to avoid exposure to, or disturbance of, soil and ACM] for authorized persons. RQL is managed as “restricted access” due to post-closure care and monitoring requirements for the closed, sanitary landfill until the year 2040. RQL is closed to all standard training activities, and installation of this fence will help enforce these restrictions. Surveying; sampling; and essential security, safety, periodic maintenance, natural resources management, and other directed activities may be conducted at RQL only after personnel have been properly briefed on potential hazards. A portion of RQL is also considered an MRS, designated RVAAP-0001-R-01. Investigation and decisions regarding the need for remediation of munitions and explosives of concern (MEC) and munitions debris (MD) will be conducted as part of the Military Munitions Response Program (MMRP). Individuals will be granted access to the AOC after being properly briefed on the hazards/restrictions. Once the fence is complete and LUCs are in place, this alternative will result in reduced potential for exposure to contaminated soil by National Guard receptors. This alternative will also protect the MRS and landfill cap on the closed, sanitary landfill within RQL.

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PART V: EVALUATION OF ALTERNATIVES

A. DESCRIPTION OF EVALUATION CRITERIA

The comparative analysis provides a means by which remedial alternatives are directly compared to one another with respect to common criteria. A comparative analysis was performed for Alternatives 5, 6, 7, and 8 with respect to the nine comparative analysis criteria, as outlined by CERCLA, summarized below. The comparative analysis summary is also presented Table 2. The originally selected alternative (Alternative 3: Excavation and Off-site Disposal ~ Security Guard/Maintenance Worker Land Use) was not included in this evaluation, as the discovery of ACM results in noncompliance with threshold criteria. Accordingly, Alternative 5 was developed as a compliant version of Alternative 3.

The nine criteria are categorized into three groups: threshold criteria, balancing criteria, and modifying criteria.

A.1 Threshold Criteria

Threshold criteria must be met for the alternative to be eligible for selection as a remedial option. The threshold criteria are listed and described below.

1. *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.
2. *Compliance with ARARs* considers how a remedy will meet all the ARARs of other federal and state environmental statutes and/or provide grounds for invoking a waiver.

A.2 Balancing Criteria

Balancing criteria are used to weigh major trade-offs among alternatives. The balancing criteria are listed and described below.

1. *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 CUGs have been met.
2. *Reduction of toxicity, mobility, or volume through treatment* considers the anticipated performance of the treatment technologies that may be employed in a remedy.
3. *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.
4. *Implementability* considers the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.
5. *Cost* considers capital costs and O&M costs associated with the implementation of the alternative.

A.3 Modifying Criteria

Modifying criteria includes state acceptance and community acceptance of a recommended alternative, as described below.

1. *State acceptance* indicates whether the state concurs with, opposes, or has no comment on the preferred alternative.
2. *Community acceptance* considers public input following a review of the public comments received on the Modified Proposed Plan.

B. COMPARATIVE ANALYSIS OF NEW ALTERNATIVES

The comparative analysis evaluates the relative performance of Alternatives 5, 6, 7, and 8 with respect to each of the nine criteria. Identifying the advantages and disadvantages of each alternative, with respect to each other, helps identify the relative strengths of the preferred alternative. These strengths, combined with risk management decisions made by the U.S. Army and Ohio EPA, as well as input from the community, will serve as the basis for selecting the remedy. The following sections present the comparative analysis.

B.1 Overall Protection of Human Health and the Environment

Alternatives 5, 6, 7, and 8 are protective for human health under the RAFLU (Restricted Access, No Digging) for RQL. Alternatives 5 and 6 remove or cap soil in the quarry to meet the Security Guard/Maintenance Worker CUGs. Removal or capping of the soil provides reasonable certainty that the total incremental lifetime cancer risk (ILCR) and total hazard index (HI) across all contaminants will be at or below thresholds of 1E-05 and 1.0, respectively, for the Security Guard/Maintenance Worker. Alternatives 7 and 8 prevent exposure by constructing a fence and emplacing administrative controls to control entry into those portions of the AOC having CERCLA COCs greater than CUGs. Alternative 8 provides the additional protectiveness of preventing access to the closed, sanitary landfill. Additional administrative controls will ensure individuals who enter the fenced area have been properly briefed on potential hazards at the AOC.

Remediation to address ecological risk is not warranted, based on AOC reconnaissance and low chemical of potential ecological concern (COPEC) concentrations. Remediation of soil and dry sediment to protect groundwater is also not warranted, based on contaminant fate and transport evaluation results. Under Alternative 5, additional wetland mitigation and monitoring beyond that currently conducted are required as part of substantive requirements. Under Alternative 6, challenges exist based on substantive requirements that will mandate wetland reconstruction and maintenance following placement of the proposed soil cap within the quarry bottom. There are implementation concerns that increasing the soil elevation by 1 ft will impact the wetland restoration, as the intermittent surface water may not remain in portions of the quarry bottom long enough to re-establish the isolated wetland (e.g., areas where periodic inundation is typically less than 1 ft in depth). Although note expected, if fence installation under Alternative 7 disturbs wetland areas, additional wetland mitigation and monitoring beyond that currently conducted are required as part of substantive requirements. Alternative 8 does not involve disturbance of wetland areas; therefore, wetland mitigation and monitoring are not required.

B.2 Compliance with Applicable or Relevant and Appropriate Requirements

Alternatives 5, 6, 7, and 8 comply with the identified ARARs for the AOC, including those incorporated from the RQL FS, Original ROD, and requirements of OAC 3745-20-07.

B.3 Long-Term Effectiveness and Permanence

Alternative 5 is rated high in terms of long-term effectiveness in preventing exposure to or spread of contamination due to the removal of COCs in soil to a Security Guard/Maintenance Worker land use scenario and implementation of administrative LUCs. Alternative 6 is rated medium due to the fact that COCs (although capped) are left in place at the AOC and only administrative controls will be put in place to ensure digging is not conducted at the AOC. Alternatives 7 and 8 are rated medium due to the permanence and effectiveness a fence will have at eliminating exposure to CERCLA COCs and co-located friable ACM. Although no contaminants will be removed from the AOC, physical and administrative controls will minimize or eliminate exposure to contaminants in soil and dry sediment within the quarry bottom.

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

The ability of Alternative 5 to reduce contaminant volume, toxicity, and mobility is rated medium. Alternative 5 does not reduce contaminant volume and toxicity of COCs or ACM. However, Alternative 5 reduces the mobility of the COCs and ACM by placing the contaminated soil in an engineered, lined, disposal cell at the landfill. The fate and transport modeling concluded COCs are not predicted to impact groundwater beneath the AOC, and they have never exceeded the laboratory detection limit during groundwater monitoring at the AOC. The ability of Alternatives 6, 7, and 8 to reduce contaminant volume, toxicity, and mobility is low since these alternatives do not involve treatment.

B.5 Short-Term Effectiveness

Short-term risks are associated with implementation of Alternatives 5 and 6 because these activities will be conducted in the presence of friable ACM and possible presence of munitions. Additionally, both alternatives will impact the wetland that currently exists in the quarry bottom during implementation activities. Alternative 5 is rated low because intrusive work will be performed and friable ACM will be handled and disposed. Additionally, Alternative 5 will require the transport of approximately 75 truckloads of soil/ACM over local roads to an off-site disposal facility. The disposal of an estimated 1,614 yd³ of soil/ACM in a landfill will also shorten the longevity of the off-site disposal facility. Alternative 6 is rated medium due to risks of encountering munitions while installing the cap on the surface soil in the quarry bottom; however, this alternative does not include potential impacts from excavation and transportation of contaminated soil and ACM.

Alternatives 7 and 8 include intrusive activities during fence installation. Entry to the quarry bottom will be limited during fence installation for either alternative; thus, potential for worker exposure and impacts to ecological habitat will be minimized. Alternative 7 requires fence installation at the slope of the sanitary landfill and presents the risk of encountering MEC and ACM. Alternative 8 is outside of the quarry bottom; therefore, the fence installation is not within the MRS, and ACM is not expected to be encountered. Consequently, Alternative 7 is rated medium for short-term effectiveness, and Alternative 8 is rated high for short-term effectiveness.

B.6 Implementability

All alternatives are considered implementable on a technical and availability-of-services basis. Alternative 5 is rated low since the extent of ACM is not defined, and a potential for encountering MEC exists. Alternative 6 is implementable through common construction practices (truck hauling, installation of native fill, and topsoil cap). However, there will be challenges associated with disturbing ACM in the capped area, encountering munitions, and meeting wetland restoration requirements after placing 1 ft of soil on the existing wetland. Alternative 6 is rated low for implementability. Alternatives 7 and 8 are implementable through common construction practices (vegetation clearing and fence installation). In a relative comparison, implementation of Alternative 7 will be more difficult than implementation of Alternative 8. Alternative 7 involves more vegetation clearing, whereas the installation of the five-strand wire fence on the east, south, and west sides of the RQL perimeter under Alternative 8 will occur in previously cleared and mowed areas and can be implemented relatively easily. Consequently, Alternative 7 is rated medium for implementability and Alternative 8 is rated high for implementability.

B.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 2011 dollars with a 4.125% discount factor) to complete each of the alternatives is as follows:

	<u>Capital Cost</u>	<u>O&M Cost</u>	<u>Total</u>
Alternative 5	\$644,309	\$112,849	\$757,155
Alternative 6	\$239,533	\$101,057	\$340,590
Alternative 7	\$157,217	\$91,936	\$249,153
Alternative 8	\$154,349	\$95,613	\$249,962

Table 2. Summary of Comparative Analysis of Remedial Alternatives

NCP Evaluation Criteria	Alternative 5: Excavation of Soil and Off-site Disposal as Friable ACM – Security Guard/Maintenance Worker		Alternative 6: Capping – Security Guard/Maintenance Worker		Alternative 7: Quarry Bottom Fence – Security Guard/Maintenance Worker with Restricted Land Use		Alternative 8: Perimeter Fence – Security Guard/Maintenance Worker with Restricted Land Use	
	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	
Threshold Criteria								
1. Overall Protectiveness of Human Health and the Environment	Protective	Protective	Protective	Protective	Protective	Protective	Protective	Protective
2. Compliance with ARARs	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Balancing Criteria	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score
3. Long-Term Effectiveness and Permanence	High	3	Medium	2	Medium	2	Medium	2
4. Reduction of Toxicity, Mobility, or Volume through Treatment	Medium	2	Low	1	Low	1	Low	1
5. Short-Term Effectiveness	Low	1	Medium	2	Medium	2	High	3
6. Implementability	Low	1	Low	1	Medium	2	High	3
7. Cost	Low	1	Medium	2	High	3	High	3
Balancing Criteria Score	8		8		10		12	

ACM = Asbestos-containing Material

ARAR = Applicable or Relevant and Appropriate Requirement

NCP = National Oil and Hazardous Substances Pollution Contingency Plan

“High” = highly favorable situation

“Medium” = moderately favorable situation

“Low” = situation that is not favorable

Scoring for the Balancing Criteria is as follows: High = 3, Medium = 2, Low = 1

B.8 State Acceptance

State acceptance was evaluated formally after the public comment period on the Modified Proposed Plan. Ohio EPA concurs that Alternatives 5 and 6 provide overall protectiveness and long-term effectiveness and permanence for a Security Guard/Maintenance Worker Land Use by removing or capping contaminated soil; however, there are significant short-term risks associated with implementing these alternatives in the presence of friable ACM. Alternatives 7 and 8 provide overall protectiveness and long-term effectiveness and permanence for the Security Guard/Maintenance Worker with Restricted Land Use. The capital costs for fence installation in Alternative 7 are less than in Alternative 8; however, there are greater risks in Alternative 7, as the fence will be installed near the ACM and within the MRS and portions of the sanitary landfill cover. Therefore, Ohio EPA has expressed its support for Alternative 8: Perimeter Fence – Security Guard/Maintenance Worker with Restricted Land Use.

B.9 Community Acceptance

Community acceptance was evaluated formally after the Modified Proposed Plan public comment period. During the public meeting, the community voiced few objections to Alternative 8: Perimeter Fence – Security Guard/Maintenance Worker with Restricted Land Use, as indicated in Part VIII: Public Participation Compliance) of this ROD Amendment.

C. THE SELECTED REMEDY

Alternative 8: Perimeter Fence – Security Guard/Maintenance Worker with Restricted Land Use is the selected remedy for soil and dry sediment at the AOC. This remedy includes 1) installation of a fence at the perimeter of RQL to encompass the closed landfill, quarry bottom, and wetlands; and 2) implementing a BMP to remove surficial ACM through non-intrusive/no-digging methods. Installation of the fence and signage provides a physical control for the AOC to minimize or eliminate potential exposure for receptors that are not granted access to RQL. Additionally, the fence will provide a deterrent and will help protect the landfill cap on the closed, sanitary landfill within RQL.

The cost for the remedy is estimated to be \$249,962. The U.S. Army and OHARNG will develop and implement LUCs to deter unauthorized access and to protect human receptors. Post-closure care and maintenance activities are already being conducted at the landfill portion of the AOC. Reinforcement of the existing landfill closure requirements will bolster the protectiveness of Alternative 8. Five-year reviews will be conducted in accordance with CERCLA 121(c) to ensure protectiveness of the remedy. The remedial action utilizes a 30-year O&M period to estimate costs, accounting for post-implementation activities, including LUCs. However, the O&M period may extend beyond 30 years if final remedy is not achieved.

The U.S. Army will also continue post-closure care, maintenance, and monitoring activities for the closed landfill, as required under Ohio solid waste management regulations. A portion of RQL is also considered an MRS, designated RVAAP-0001-R-01. Investigation and decisions regarding the need for remediation of MEC and MD will be conducted as part of the MMRP.

PART VI: SUPPORT AGENCY COMMENTS

Ohio EPA comments on this ROD Amendment are provided in the tabbed section at the end of this document.

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PART VII: STATUTORY DETERMINATIONS

Based on information currently available, the U.S. Army, as the lead agency, believes the selected remedy (Alternative 8) meets the threshold criteria and provides the best option among the other alternatives with respect to the balancing and modifying criteria. The U.S. Army expects the selected remedy (Alternative 8) to satisfy the following statutory requirements of CERCLA §121(b): (1) be protective of human health and the environment; (2) comply with ARARs (or justify a waiver); (3) be cost-effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) satisfy the preference for treatment as a principal element (or justify not meeting the preference).

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 the AOC. Multiple treatment technologies would have been required in succession to address the combination of COCs present in the majority of soil and dry sediment at the AOC; this would have been cost prohibitive.

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

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PART VIII: PUBLIC PARTICIPATION COMPLIANCE

A. OVERVIEW

In October 2012, the U.S. Army released the Modified Proposed Plan for public comment identifying Alternative 8: Perimeter Fence – Security Guard/Maintenance Worker with Restricted Land Use as the recommended alternative for soil and dry sediment at RQL. A 31-day public comment period was held from October 8, 2012 to November 7, 2012 (extended from the originally proposed 30-day public comment period scheduled to end on November 6, 2012).

The U.S. Army hosted a public meeting on October 18, 2012 to present the Modified Proposed Plan and take questions and comments from the public. The public meeting presented the recommended alternative for the AOC. During the public meeting, Ohio EPA concurred with the recommendation of this alternative.

One oral comment was received at the public meeting and is addressed under Section B. After the public comment period, no significant changes regarding the recommended alternative, as originally identified in the Modified Proposed Plan, were necessary or appropriate, and this alternative is selected as the final remedy for soil and dry sediment at the AOC in this ROD Amendment.

B. SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES

One comment was received verbally during the public meeting. No written comments were received during the public comment period.

B.1 Oral Comments from Public Meeting

The transcript from the meeting has been incorporated into the Administrative Record. The oral comment and response is paraphrased, as required for brevity and presentation in this section.

Comment: The commenter asked if the fence line in Alternative 8 goes into the RQL quarry bottom.

Response: The fence line in Alternative 8 does not enter the RQL quarry bottom. Rather, the fence line surrounds the quarry bottom, paralleling Ramsdell Road to the north, the wood line to the east and west, and railroad tracks to the south.

B.2 Written Comments

No written comments were received during the public comment period. Technical and Legal Issues

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

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REFERENCES

- Ohio EPA (Ohio Environmental Protection Agency) 2004. *Director's Final Findings and Orders for the Ravenna Army Ammunitions Plant*. June 2004.
- USACE (United States Army Corps of Engineers) 1996. *Preliminary Assessment for the Characterization of Areas of Contamination at the Ravenna Army Ammunition Plant, Ravenna, Ohio*. February 1996.
- USACE 2006. *Feasibility Study for Ramsdell Quarry Landfill (RVAAP-001), Ravenna Army Ammunition Plant, Ravenna, Ohio*. March 2006.
- USACE 2009. *Record of Decision for Soil and Dry Sediment for the RVAAP-01 Ramsdell Quarry Landfill, Ravenna Army Ammunition Plant, Ravenna, Ohio*. March 2009.
- USACE 2011. *Engineering Evaluation for Soil and Dry Sediment at RVAAP-01 Ramsdell Quarry Landfill, Ravenna Army Ammunition Plant, Ravenna, Ohio*. September 2011.
- USACE 2012. *Modified Proposed Plan for Soil and Dry Sediment at RVAAP-01 Ramsdell Quarry Landfill, Ravenna Army Ammunition Plant, Ravenna, Ohio*. October 2012.
- USEPA (United States Environmental Protection Agency) 1999. *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*. July 1999.

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FIGURES

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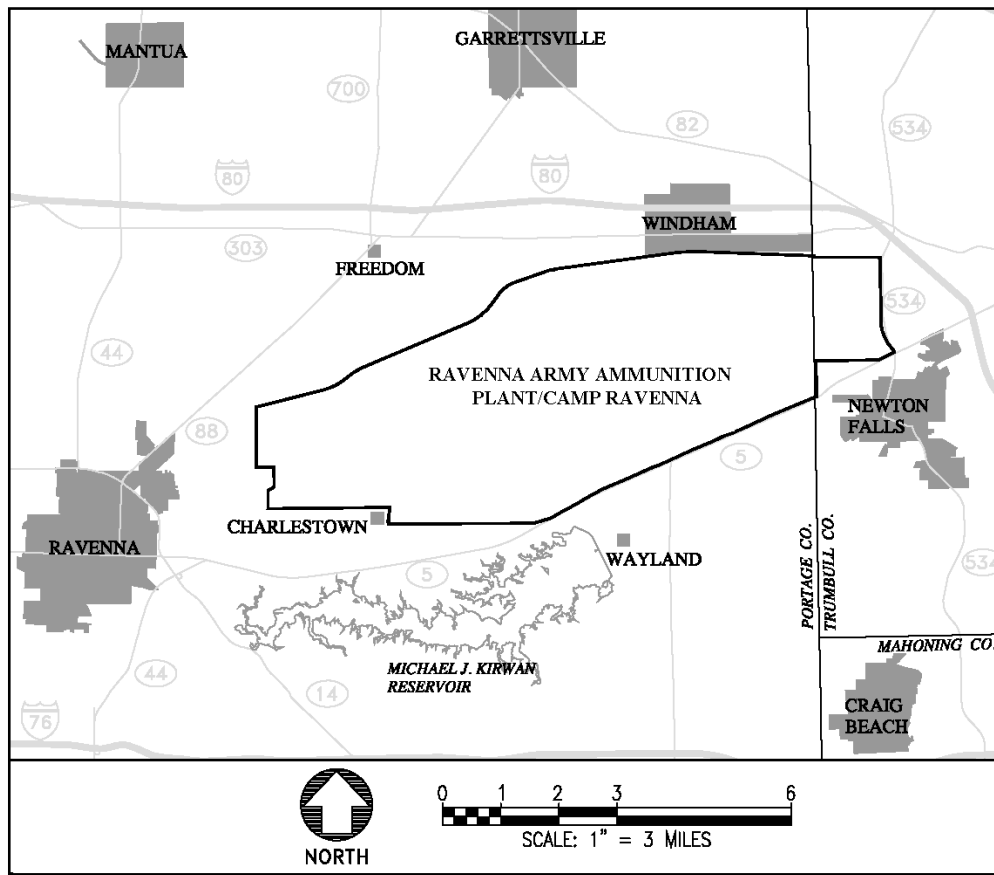


Figure 1. General Location and Orientation of the RVAAP/Camp Ravenna

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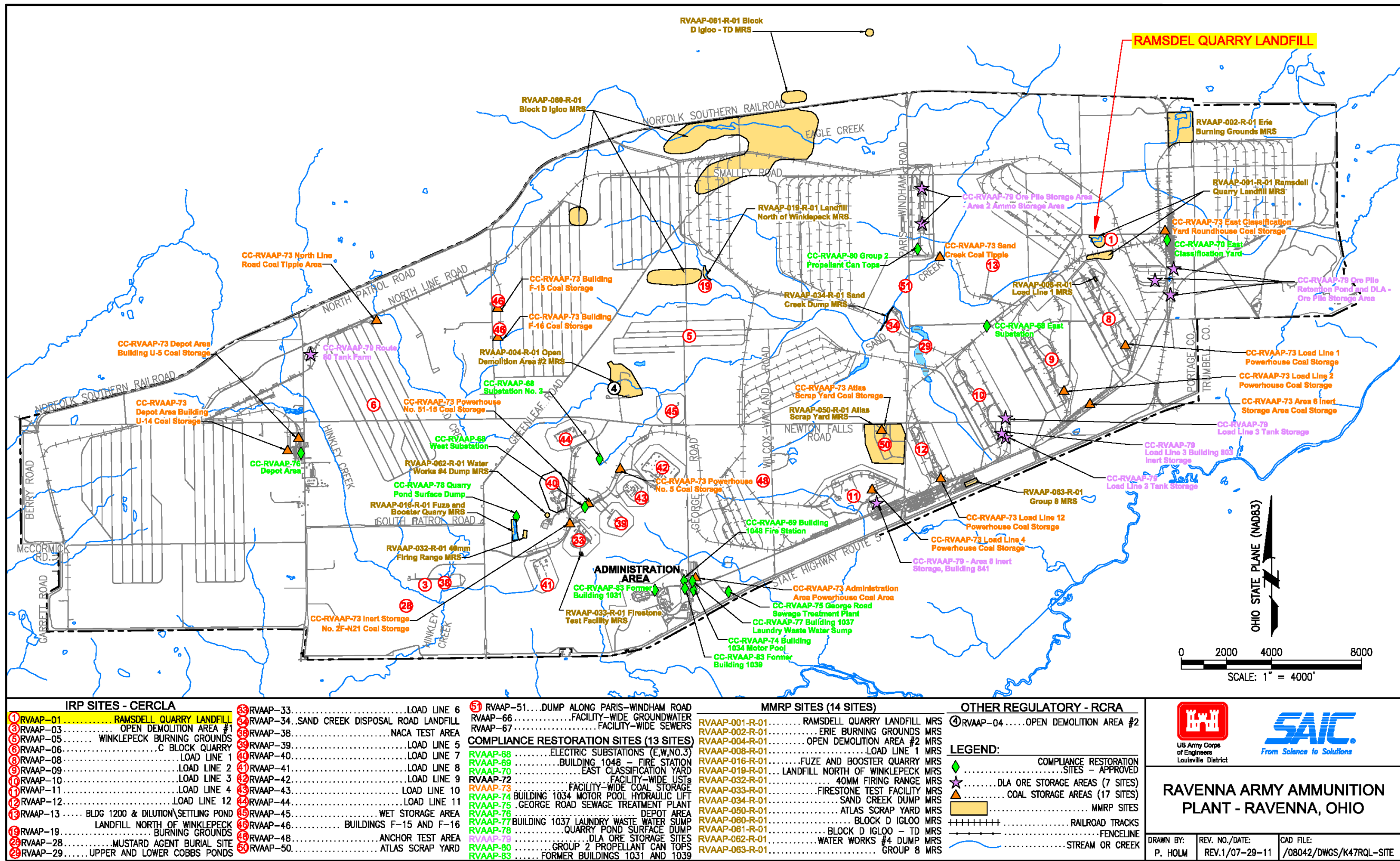


Figure 2. RVAAP/Camp Ravenna Installation Map

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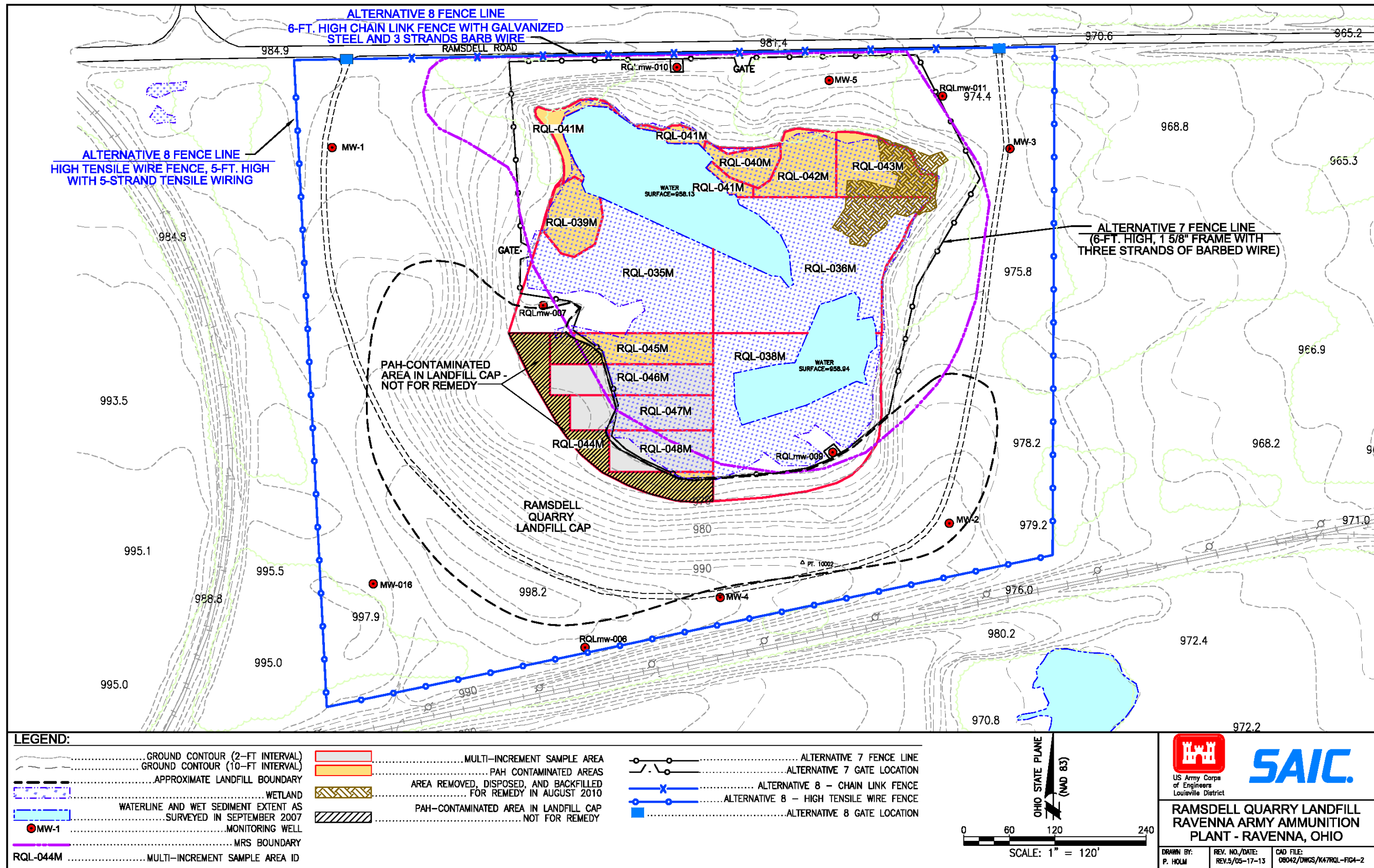


Figure 3. RQL Site Features and Fencing Extent Under Alternative 8

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COMMENT RESPONSE

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Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, Ohio 44266

May 8, 2013

Ohio Environmental Protection Agency
Attn: Ms. Eileen Mohr
Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

Subject: Read-Ahead for Requested Clarification Meeting Regarding Ohio EPA Notice of Deficiency – Comments for the Draft Record of Decision (ROD) Amendment for Soil and Dry Sediment at the RVAAP-01 Ramsdell Quarry Landfill at the Ravenna Army Ammunition Plant, Ravenna, Ohio, Dated March 13, 2013(Work Activity No. 267-000859-163)

Dear Ms. Mohr,

Pursuant to Army correspondence, dated May 2, 2013, referencing the subject Ohio EPA Notice of Deficiency letter dated April 29, 2013 (Certified Mail 7012 1010 0000 9467 6332), and requesting a clarification meeting, the following provides the Army response comments as the points of discussion for the requested meeting:

Ohio EPA Comment 1: Page 11, Line 11 and Figure 3 – The text states that the gate will be 6 feet high, but it does not state the height of the fence. Please include the height of the fence in the text and on Figure 3.

Army Response: Agree. The text on Page 11, Line 11 has been revised as presented below. In addition, Figure 3 has been revised to indicate the chain link fence will be 6-feet high (as italicized).

“However, specifications used for the evaluation of this alternative included a *6-ft high* chain-link security fence and 6-ft high gate with a 1½-inch frame at the northern perimeter of RQL and a five-strand, high tensile wire fence at the eastern, southern, and western perimeters.”

Ohio EPA Comment 2: Page 11, Lines 5 through 36 – The text does not mention how the USACE will deal with Munitions of Environmental Concern (MEC) or Munitions Debris (MD). Please include some text describing how the Army will investigate and deal with MEC and MD.

Army Response: Agree. The following text has been revised to read beginning (italicized) in Line 32 on Page 11.

“...have been properly briefed on potential hazards. *A portion of RQL is also considered a Munitions Response Site (MRS), designated RVAAP-0001-R-01. Investigation and decisions regarding the need for remediation of munitions and explosives of concern (MEC) and munitions debris (MD) will be conducted as part of the Military Munitions Response Program (MMRP). Individuals will be granted access...*”

Ohio EPA Comment 3: Page 16, Below Line 18 – The text indicates the cost for Alternatives 5 through 8, but does not show a breakdown of remedial cost and operation and maintenance (O&M) cost. Please show a breakdown to show these costs.

Army Response: Agree. The following summary of alternative costs has been inserted in place of the presentation of alternative costs below Line 18.

	<u>Capital Cost</u>	<u>O&M Cost</u>	<u>Total</u>
Alternative 5	\$644,309	\$112,849	\$757,155
Alternative 6	\$239,533	\$101,057	\$340,590
Alternative 7	\$157,217	\$91,936	\$249,153
Alternative 8	\$154,349	\$95,613	\$249,962

Ohio EPA Comment 4: Page 18, Lines 31 through 32 – The text states that the remedial action includes a 30-year O&M period to account for post-implementation activities. Please revise the text to state that the 30-year period is for calculating cost and that O&M can extend beyond the 30 years, if no final cleanup has been completed.

Army Response: Agree. The referenced text has been revised to read (added text italicized) as follows:

“The remedial action *utilizes* a 30-year O&M period to *estimate costs, accounting* for the post-implementation activities, including LUCs. *However, the O&M period may extend beyond 30 years if final remedy is not achieved.*”

Ohio EPA Comment 5: Page 18, Lines 34 through 36 – Similar to comment # 2, please explain how the Army will investigate and remediate the MEC and MD.

Army Response: Agree. For clarity, the last sentence on page 18 has been replaced with the following:

“A portion of RQL is also considered a Munitions Response Site (MRS), designated RVAAP-0001-R-01. Investigation and decisions regarding the need for remediation of munitions and explosives of concern (MEC) and munitions debris (MD) will be conducted as part of the Military Munitions Response Program (MMRP).”

In the event the Ohio EPA does not concur with the response to comments provided, the Army and its contractor are available during the following dates and times below for additional clarification discussion. It is noted that the dates and times listed below have been updated from the original meeting request letter in order to comply with the need to submit meeting discussion items a minimum of seven (7) days in advance of the meeting. Please advise whether Ohio EPA desires an additional clarification meeting to specifically address the response to comments on one of the proposed dates and times.

- Tuesday, May 14, 2013: 9:30-11:30am
- Wednesday, May 15, 2013: 9:30-11:30am
- Wednesday, Ma16, 2013: 1:00-3:00pm

Please contact the undersigned at (330) 358-7312 or mark.c.patterson@us.army.mil, if there are issues or concerns associated with this submission. I look forward to your response.

Sincerely,



Mark C. Patterson
RVAAP Facility Manager
Base Realignment and Closure Division

Cc: Glen Beckham – USACE
Kevin Jago – SAIC
Nat Peters – USACE
Tara O’Leary – USACE
Katie Tait – OHARNG
Jed Thomas – SAIC
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Nancy Zikmanis – Ohio EPA, DERR