Draft

Proposed Plan
for Soil, Sediment, and Surface Water
at RVAAP-43 Load Line 10

Former Ravenna Army Ammunition Plant
Portage and Trumbull Counties, Ohio

Contract No. W912QR-15-C-0046

Prepared for:

United States Army Corps of Engineers
Louisville District

Prepared by:

Leidos
8866 Commons Boulevard, Suite 201
Twinsburg, Ohio 44087

May 6, 2016

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None.

14. ABSTRACT

This Proposed Plan for Load Line 10 presents to the public the physical characteristics, geology, and hydrogeology of Load Line 10. This plan summarizes nature and extent of contamination in soil, sediment, and surface water; contaminant fate and transport; and human health and ecological risk assessments. These evaluations indicate there are no chemicals of concern (COCs) that pose unacceptable risk. Therefore, this plan presents a recommendation of No Further Action (NFA) with respect to soil, sediment, and surface water to attain Unrestricted (Residential) Land Use to the public.

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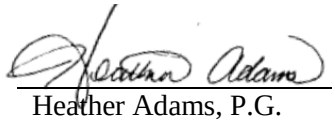
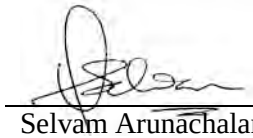
CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Leidos has completed the Draft Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-43 Load Line 10 at the Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, 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.



Heather Adams, P.G.
Study/Design Team Leader

05/06/2016
Date

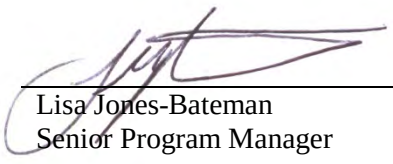


Selvam Arunachalam, PE
Independent Technical Review Team Leader

05/06/2016
Date

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

Internal Leidos Independent Technical Review comments are recorded on a Document Review Record per Leidos standard operating procedure ESE A3.1 Document Review. 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
Senior Program Manager

05/06/2016
Date

PLACEHOLDER FOR:

Documentation of Ohio EPA Concurrence of Final Document

(Documentation to be provided once concurrence is issued.)

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ARNG = Army National Guard.
CO = Central Office.
DERR = Division of Environmental Response and Revitalization.
ILE = Installation, Logistics, and Environment.
OHARNG = Ohio Army National Guard.
Ohio EPA = Ohio Environmental Protection Agency.
NEDO = Northeast Ohio District Office.
REIMS = Ravenna Environmental Information Management System.
USACE = United States Army Corps of Engineers.

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LIST OF ACRONYMS

amsl	Above Mean Sea Level
AOC	Area of Concern
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMCOC	Contaminant Migration Chemical of Concern
CMCOPC	Contaminant Migration Chemical of Potential Concern
COC	Chemical of Concern
COPC	Chemical of Potential Concern
COPEC	Chemical of Potential Ecological Concern
ERA	Ecological Risk Assessment
FPA	Former Production Area
FS	Feasibility Study
FWCUG	Facility-wide Cleanup Goal
HHRA	Human Health Risk Assessment
MCL	Maximum Contaminant Level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
PAH	Polycyclic Aromatic Hydrocarbon
PBA08	Performance-based Acquisition 08
PETN	Pentaerythritol Tetranitrate
PP	Proposed Plan
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
RSL	Regional Screening Level
RVAAP	Ravenna Army Ammunition Plant
SARA	Superfund Amendments and Reauthorization Act
SRC	Site-related Contaminant
SVOC	Semi-volatile Organic Compound
TNT	2,4,6-Trinitrotoluene
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
USEPA	United States Environmental Protection Agency
USP&FO	U.S. Property and Fiscal Officer

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1.0 INTRODUCTION

This Proposed Plan (PP) presents the conclusions and recommendations for soil, sediment, and surface water within the Load Line 10 area of concern (AOC) at the former Ravenna Army Ammunition Plant (RVAAP). The former RVAAP is now known as Camp Ravenna Joint Military Training Center (Camp Ravenna) and is located in Portage and Trumbull counties, Ohio (Figure 1). Load Line 10 is designated as RVAAP-43. The U.S. Department of the Army (U.S. Army), in coordination with the Ohio Environmental Protection Agency (Ohio EPA), issues this PP to provide the public with information to comment upon the selection of an appropriate response action. The remedy will be selected for Load Line 10 after all comments submitted during the 30-day public comment period are considered. Therefore, the public is encouraged to review and comment on all alternatives presented in this PP.

The U.S. Army is issuing this PP as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 and Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 *Code of Federal Regulations* 300). Selection and implementation of a remedy will also be consistent with the requirements of the Ohio EPA *Director's Final Findings and Orders*, dated June 10, 2004.

This PP summarizes information that can be found in greater detail in the *Remedial Investigation Report for Soil, Sediment, and Surface Water at RVAAP-43 Load Line 10* (USACE 2015) and other documents contained in the Administrative Record file for Load Line 10.

The U.S. Army's preferred alternative at Load Line 10 is no further action for soil, sediment, and surface water. The U.S. Army encourages the public to review these documents to gain a more comprehensive understanding of the AOC, activities that have been conducted to date, and the rationale for this preferred alternative.

Public Comment Period:
Month DD, YYYY to Month DD, YYYY

Public Meeting:
The U.S. Army will hold an open house and public meeting to present the conclusions and additional details presented in the *Remedial Investigation Report for Soil, Sediment, and Surface Water at RVAAP-43 Load Line 10* (USACE 2015). Oral and written comments will also be accepted at the meeting. The open house and public meeting are scheduled for ____PM, Month DD, YYYY, at the Shearer Community Center, 9355 Newton Falls Road, Ravenna, Ohio 44266.

Information Repositories:
Information used in selecting the remedy is available for public review at the following locations:

Reed Memorial Library
167 East Main Street
Ravenna, Ohio 44266
(330) 296-2827
Hours of operation:
9AM-9PM Monday-Thursday
9AM-6PM Friday
9AM-5PM Saturday
1PM-5PM Sunday

Newton Falls Public Library
204 South Canal Street
Newton Falls, Ohio 44444
(330) 872-1282
Hours of operation:
10AM-8PM Monday-Thursday
9AM-5PM Friday and Saturday

Online
http://www.rvaap.org/

The **Administrative Record File**, containing information used in selecting the remedy, is available for public review at the following location:

Camp Ravenna Joint Military Training Center (former Ravenna Army Ammunition Plant)
Environmental Office
1438 State Route 534 SW
Newton Falls, Ohio 44444
(330) 872-8003
Note: Access is restricted to Camp Ravenna, but the file can be obtained or viewed with prior notice to Camp Ravenna.

2.0 RVAAP DESCRIPTION AND BACKGROUND

The facility, consisting of 21,683 acres, is federally owned and is located in northeastern Ohio within Portage and Trumbull counties, approximately 4.8 kilometers (3 miles) east/northeast of the City of Ravenna and approximately 1.6 kilometers (1 mile) northwest of the City of Newton Falls (Figure 1). The facility, previously known as RVAAP, was formerly used as a load, assemble, and pack facility for munitions production. As of September 2013, administrative accountability for the entire acreage of the facility has been transferred to the U.S. Property and Fiscal Officer (USP&FO) for Ohio and subsequently licensed to the Ohio Army National Guard (OHARNG) for use as a military training site (Camp Ravenna). References in this document to RVAAP relate to previous activities at the facility as related to former munitions production activities or to activities being conducted under the restoration/cleanup program.

3.0 LOAD LINE 10 DESCRIPTION AND BACKGROUND

Load Line 10, formerly known as the Percussion Element Manufacturing Line, is a 36-acre, fenced AOC located south of Fuze and Booster Road, southwest of Load Line 9, and northeast of Load Line 5 in the south-central portion of Camp Ravenna (Figure 2). Load Line 10 was operational from 1941-1945, 1951-1957, and 1969-1971 to manufacture percussion elements and primers. From 1941-1945, Load Line 10 produced 226,387,306 M36 percussion elements (USATHAMA 1978). During 1951-1957, Load Line 10 produced 49,286,628 percussion elements and 165,262,465 primers. Unknown quantities of primers were produced from 1969-1971. In 1971, Load Line 10 was deactivated permanently, and the production equipment was removed.

No historical data or information exists to indicate Load Line 10 was used for any process other than percussion element/primer manufacturing (MKM 2007). No fuel storage tanks were present at the AOC during operations. Additionally, no fuel materials were used operationally at Load Line 10, and no burning was conducted.

All buildings, including slabs and foundations, were removed in 2007. Remaining features at Load Line 10 include a one-lane asphalt perimeter road that enters the AOC from the west and encircles the former production area (FPA) and access roads within the AOC. The FPA consists of approximately 12 acres, is located within the asphalt perimeter road in the central portion of the AOC, and was historically used to manufacture percussion elements and primers and contained the former production and storage buildings and multiple access roads.

The Load Line 10 perimeter fence is still in place, although it is not currently maintained. Small construction drainage ditches border the access road and are also located within the FPA.

In 1978, the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) conducted an Installation Assessment of RVAAP to review potential for contaminant release at multiple former operations areas, as documented in *Installation Assessment of Ravenna Army Ammunition Plant* (USATHAMA 1978). The installation assessment indicated historical operations may have utilized lead azide or lead styphnate, which are primary explosives. The *Relative Risk Site Evaluation (RRSE) for Newly Added Sites* (USACHPPM 1998) indicated lead thiocyanate was used in production operations at this AOC. The two primer mixes that were utilized were FA 70 and FA 90A. Each mixture contained the primary chemicals potassium chlorate, antimony sulfide, and lead thiocyanate in similar quantities. The secondary explosives used within the primers were 2,4,6-trinitrotoluene (TNT) in FA 70 and pentaerythritol tetranitrate (PETN) in FA 90A (USACHPPM 1998). Load Line 10 was the only AOC to use lead thiocyanate in primer production, as lead azide and lead styphnate were not used at the AOC.

The following environmental investigations have been completed for Load Line 10:

- Installation Assessment of Ravenna Army Ammunition Plant (USATHAMA 1978);
- Resource Conservation and Recovery Act (RCRA) Facility Assessment (Jacobs 1989);
- Preliminary Assessment for the Characterization of Areas of Contamination (USACE 1996);
- Relative Risk Site Evaluation for Newly Added Sites (USACHPPM 1998);
- Lead Azide Screening (MKM 2007);
- Characterization of 14 AOCs (MKM 2007);
- Investigation of the Under Slab Surface Soils (USACE 2009); and
- 2008 Performance-based Acquisition (PBA08) RI, as summarized in the *Remedial Investigation (RI) for Soil, Sediment, and Surface Water at the RVAAP 43 Load Line 10* (USACE 2015).

4.0 AREA OF CONCERN CHARACTERISTICS

The AOC characteristics, nature and extent of contamination, and conceptual site model are based on the various investigations conducted from 1978 through 2010.

Ground elevations across Load Line 10 range from approximately 1,114 ft above mean sea level (amsl) to 1,133 ft amsl. The central portion of Load Line 10 is a topographic high (or divide) with gentle slopes to the northwest and southeast outside of the FPA (Figure 3).

No permanent surface water features are present at the AOC. Surface water intermittently occurs as overland storm water runoff associated with heavy rainfall events and generally drains into small ditches bordering roads and within the FPA. Surface water drainage from the southern two-thirds of Load Line 10 exits to the south through a drainage channel that flows south-southeast. The channel drains to an unnamed stream, which enters the west branch of the Mahoning River. In the northern portion of Load Line 10, several small drainage ditches direct surface runoff to the northwest, ultimately into larger drainage ditches that border Fuze and Booster Road.

Sandy silt glacial soil overlies sandstone bedrock at Load Line 10, except where disturbed by RVAAP activities. Bedrock was encountered at 7 to 23 ft below ground surface (bgs). Groundwater depth ranged from 6.8 to 18.9 ft bgs.

There is a groundwater flow divide through the central portion of the AOC, and groundwater flows to the north-northwest and to the south.

In surface soil (0-1 ft bgs) and subsurface soil (> 1 ft bgs) at Load Line 10, the prevalent site-related contaminants (SRCs) and chemicals of potential concern (COPCs) detected were inorganic chemicals and semi-volatile organic compounds (SVOCs). No conclusive spatial trend is evident for the inorganic chemicals. The majority of SVOCs were polycyclic aromatic hydrocarbons (PAHs).

No historical data or information exists to indicate Load Line 10 was used for any process other than percussion element/primer manufacturing (MKM 2007). No fuel storage tanks were present at the AOC during operations. Additionally, no fuel materials were used operationally at Load Line 10, and no burning was conducted.

Lead is a chemical associated with previous use of the site. Only 1 (L10ss-003M at 430 mg/kg) of 93 soil samples exceeded lead's risk-based screening level of 400 mg/kg. The RI did not indicate records or field evidence of PAH-contaminated waste disposal at Load Line 10 from operational activities. Rather, evaluation of PAH concentrations associated with common anthropogenic sources (such as vehicle exhaust, particles from asphalt pavement) using available data from RVAAP background soil samples and other environmental studies of environmental concentrations of PAHs indicate the concentrations reported at Load Line 10 are at

or near those concentrations. For example, regarding benzo(a)pyrene in surface soil, the maximum detected concentration during the RI was 3.3 mg/kg, and the maximum detected concentration during the facility-wide background study was 3.7 mg/kg.

One sediment sample was collected at the main drainage ditch that exits to the southwest of Load Line 10 (Figure 3). No sediment COPCs were identified at this location. A second sediment sample was collected downstream from Load Line 10 to assess off-AOC conditions. The results indicate that chemicals have not migrated downstream from the AOC.

One surface water sample was collected at the main drainage ditch that exits to the southwest of Load Line 10 (Figure 3). A second surface water sample was collected off of the AOC and downstream from Load Line 10 to assess downstream conditions. No surface water COPCs were identified for Load Line 10.

The potential for soil and sediment contaminants to impact groundwater was evaluated in a fate and transport evaluation presented in the RI Report (USACE 2015). The fate and transport evaluation included modeling and comparing the model results to current groundwater monitoring data. Modeling evaluated the potential for contaminants to leach from soil and sediment and impact groundwater beneath the AOC. Modeling also evaluated if contaminants could potentially migrate from Load Line 10 to the closest surface water feature (e.g., the tributary to Sand Creek north of the AOC for soil and the small, un-named stream south of the AOC for sediment). Modeling results indicated 11 soil and 4 sediment contaminant migration chemicals of potential concern (CMCOPCs) could potentially leach from soil and mix with groundwater beneath Load Line 10 at concentrations above maximum contaminant levels (MCLs), United States Environmental Protection Agency (USEPA) regional screening levels (RSLs), and RVAAP groundwater facility-wide cleanup goals (FWCUGs).

Evaluation of modeling results with respect to current AOC groundwater data and model limitations indicate identified soil SRCs are not currently impacting groundwater beneath the source areas and that predicted future impacts would be mitigated by factors such as chemical and biological degradation and lateral dispersivity. Based on the fate and transport evaluation, no contaminant migration chemicals of concern (CMCOCs) for soil or sediment were identified as impacting groundwater.

5.0 SCOPE AND ROLE OF RESPONSE ACTION

An evaluation using Resident Receptor (Adult and Child) FWCUGs was used to provide an Unrestricted (Residential) Land Use evaluation. Unrestricted (Residential) Land Use is considered protective for all categories of Land Use at Camp Ravenna, such as Military Training and Commercial/Industrial Land Use. Additional human health receptors associated with Camp Ravenna are the National Guard Trainee and Industrial Receptor. The response action evaluated alternatives to attain Unrestricted (Residential) Land Use for soil, sediment, and surface water.

Groundwater will be addressed under the RVAAP Facility-wide Groundwater AOC (RVAAP-66) as a separate decision. However, the selected remedy for soil at Load Line 10 must also be protective of groundwater.

6.0 SUMMARY OF HUMAN AND ECOLOGICAL RISKS

6.1 Human Health Risk Assessment

A human health risk assessment (HHRA) was performed to identify chemicals of concern (COCs) and provide a risk management evaluation to determine if remediation is required under CERLCA based on potential risks to human receptors.

The exposure depths evaluated in the HHRA for the Resident (Adult and Child) were

surface soil (0-1 ft bgs), subsurface soil (1-13 ft bgs), sediment, and surface water.

No sediment or surface water COPCs were identified for Load Line 10 and, therefore, no COCs were identified for sediment or surface water.

The only soil (surface and subsurface) COCs identified were four PAHs [benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene], as concentrations of these chemicals in soil either exceeded FWCUGs or contributed to a sum-of-ratios greater than one. Evaluation of PAH concentrations associated with common anthropogenic sources indicate the concentrations at Load Line 10 are at or near those concentrations. The distribution of PAHs across Load Line 10 suggests that the PAH contamination is from common anthropogenic sources. The HHRA did not identify COCs requiring remediation under CERCLA to be protective of the Resident Receptor.

6.2 Ecological Risk Assessment

The ecological habitat in Load Line 10 is approximately 36 acres and consists of grasses, forest, and shrubs. The vegetation provides a habitat for birds, mammals, insects, and other organisms. Although there are no streams, ponds, or wetlands on the AOC, small drainage ditches exist bordering the roads and within the FPA. During most of the year, there is no water in the drainage ditches; in turn, no signs of an aquatic habitat have been observed.

Ecological resources at Load Line 10 were compared to the list of important ecological places and resources. Based on the 39 criteria defining important places as identified by the U.S. Army and Ohio EPA, no important/significant ecological resources were identified at the AOC. The vegetation types present at Load Line 10 are also found elsewhere near the AOC, at Camp Ravenna, and in the ecoregion.

The northern long-eared bat (*Myotis septentrionalis*; federally threatened) exists at Camp Ravenna. There are no other federally listed species or critical habitats on Camp Ravenna. Load Line 10 has not been previously surveyed for federal or state-listed species; however, there have been no documented sightings of state-listed, federally listed, threatened, or endangered species at the AOC (OHARNG 2014).

The ecological risk assessment (ERA) for Load Line 10 (USACE 2015) evaluated chemical contamination to determine if it posed a risk to the environment. The ERA incorporated available data to identify integrated chemicals of potential ecological concern (COPECs). A total of 23 integrated soil COPECs were identified in the Level I ERA. In addition, three integrated sediment COPECs and one integrated surface water COPEC were identified in the Level I ERA.

However, Load Line 10 does not have any important and significant ecological resources such as wetlands, terrestrial areas used for breeding by large or dense populations of animals, habitats used by threatened and endangered species, state land designated for wildlife or game management, or locally important ecological places. Consequently, the ERA for Load Line 10 concludes with a Level I Scoping Level Risk Assessment, with a recommendation of no further action from the ecological risk perspective.

7.0 CONCLUSIONS

The HHRA determined that no remediation is required to be protective for the Resident Receptor. The ERA concluded there are no significant ecological resources. The fate and transport assessment determined chemicals in soil and sediment are not impacting groundwater. Accordingly, the U.S. Army, in coordination with Ohio EPA, is recommending no further action to attain Unrestricted (Residential) Land Use for soil, sediment, and surface water at Load Line 10.

This recommendation is not a final decision. The U.S. Army, in coordination with Ohio EPA, will select the remedy for Load Line 10

after reviewing and considering all comments submitted during the 30-day public comment period.

8.0 COMMUNITY PARTICIPATION

8.1 Community Participation

Public participation is an important component of the remedy selection. The U.S. Army, in coordination with Ohio EPA, is soliciting input from the community on the preferred alternative.

The comment period extends from Month DD, YYYY to Month DD, YYYY. This period includes a public meeting at which the U.S. Army will present this PP. The U.S. Army will accept oral and written comments at this meeting.

8.2 Public Comment Period

The 30-day comment period is from Month DD, YYYY to Month DD, YYYY, and provides an opportunity for public involvement in the decision-making process for the proposed action. The public is encouraged to review and comment on this PP.

All public comments will be considered by the U.S. Army and Ohio EPA before selecting a remedy. During the comment period, the public is encouraged to review documents pertinent to Load Line 10.

This information is available at the Information Repository and online at www.rvaap.org. To obtain further information, contact Kathryn Tait of the Camp Ravenna Environmental Office at kathryn.s.tait.nfg@mail.mil.

8.3 Written Comments

If the public would like to comment in writing on this PP or other relevant issues, please deliver comments to the U.S. Army at the public meeting or mail written comments (postmarked no later than Month DD, YYYY).

POINT OF CONTACT FOR WRITTEN COMMENTS

Mailing Address:
Camp Ravenna Joint Military Training Center
Environmental Office
Attn: Kathryn Tait
1438 State Route 534 SW
Newton Falls, Ohio 44444

E-mail Address:
kathryn.s.tait.nfg@mail.mil

8.4 Public Meeting

The U.S. Army will hold an open house and public meeting on this PP on Month DD, YYYY, at ___PM, in the Shearer Community Center, 9355 Newton Falls Road Ravenna, Ohio 44266 to accept comments.

This meeting will provide an opportunity for the public to comment on the proposed action. Comments made at the meeting will be transcribed.

8.5 U.S. Army Review of Public Comments

The U.S. Army will review the public's comments as part of the process in reaching a final decision for the most appropriate action to be taken.

The Responsiveness Summary, a document that summarizes the U.S. Army's responses to comments received during the public comment period, will be included in the Record of Decision (ROD). The U.S. Army's final choice of action will be documented in the ROD.

The ROD will be added to the RVAAP Restoration Program Administrative Record and Information Repositories.

INFORMATION REPOSITORIES

Reed Memorial Library
167 East Main Street
Ravenna, Ohio 44266
(330) 296-2827
Hours of operation:
9AM-9PM Monday-Thursday
9AM-6PM Friday
9AM-5PM Saturday
1PM-5PM Sunday

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Online
http://www.rvaap.org/

ADMINISTRATIVE RECORD FILE

Camp Ravenna Joint Military Training Center (former Ravenna Army Ammunition Plant)
Environmental Office
1438 State Route 534 SW
Newton Falls, Ohio 44444
(330) 872-8003
Note: Access is restricted to Camp Ravenna, but the file can be obtained or viewed with prior notice to Camp Ravenna.

GLOSSARY OF TERMS

Administrative Record: a collection of documents, typically reports and correspondence, generated during site investigation and remedial activities. Information in the Administrative Record represents the information used to select the preferred alternative.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): a federal law passed in 1980, commonly referred to as the Superfund Program. It provides liability, compensation, cleanup, and emergency response in connection with the cleanup of inactive hazardous substance release sites that endanger public health or the environment.

Contaminant Migration Chemical of Concern (CMCOC): a chemical substance specific to an area of concern that potentially poses significant potential to leach to groundwater at a concentration above human health risks goals. CMCOCs are typically further evaluated for remedial action.

Chemical of Concern (COC): a chemical substance specific to an area of concern that potentially poses significant human health or ecological risks. COCs are typically further evaluated for remedial action.

Chemical of Potential Concern (COPC): a chemical substance specific to an area of concern that potentially poses human health risks and requires further evaluation in the RI. COPCs are typically not evaluated for remedial action.

Chemical of Potential Ecological Concern (COPEC): a chemical substance specific to an area of concern that potentially poses ecological risks and requires further evaluation in the RI. COPECs are typically not evaluated for remedial action.

Ecological Receptor: a plant, animal, or habitat exposed to an adverse condition.

Feasibility Study (FS): a CERCLA document that reviews and evaluates multiple remedial technologies under consideration at a site. It also identifies the preferred remedial action alternative.

Human Receptor: a hypothetical person, based on current or potential future land use, who may be exposed to an adverse condition. For example, the National Guard Trainee is considered the hypothetical person when evaluating Military Training Land Use at the former RVAAP.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): the set of regulations that implement CERCLA and address responses to hazardous substances and pollutants or contaminants.

Record of Decision (ROD): a legal record signed that describes the cleanup action or remedy selected for a site, the basis for selecting that remedy, public comments, and responses to comments.

Remedial Investigation (RI): CERCLA investigation that involves sampling environmental media, such as air, soil, and water, to determine the nature and extent of contamination and to calculate human health and environmental risks that result from the contamination.

Responsiveness Summary: a section of the ROD that documents and responds to written and oral comments received from the public about the PP.

Risk Assessment: an evaluation that determines potential harmful effects, or lack thereof, posed to human health and the environment due to exposure to chemicals found at a CERCLA site.

Sum-of-Ratio (SOR): to adjust for multiple chemicals, divide the standard for each COC by the number of COCs. The adjusted value can then be compared to the single chemical value, and each ratio summed. If the summed ratios are less than 1, the applicable standards are met. If summed ratios exceed 1, the applicable standards are not met.

Target Risk: the Ohio Environmental Protection Agency (2009) identifies 1E-05 as a target for cancer risk for carcinogens and an acceptable target hazard index of 1 for non-carcinogens.

Unrestricted (Residential) Land Use: A land use defined for the former RVAAP restoration that is considered protective for all three Land Uses at Camp Ravenna Joint Military Training Center (Camp Ravenna). If an AOC meets the requirements for Unrestricted (Residential) Land Use, then the AOC can also be used for Military Training and Commercial/Industrial purposes.

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FIGURES

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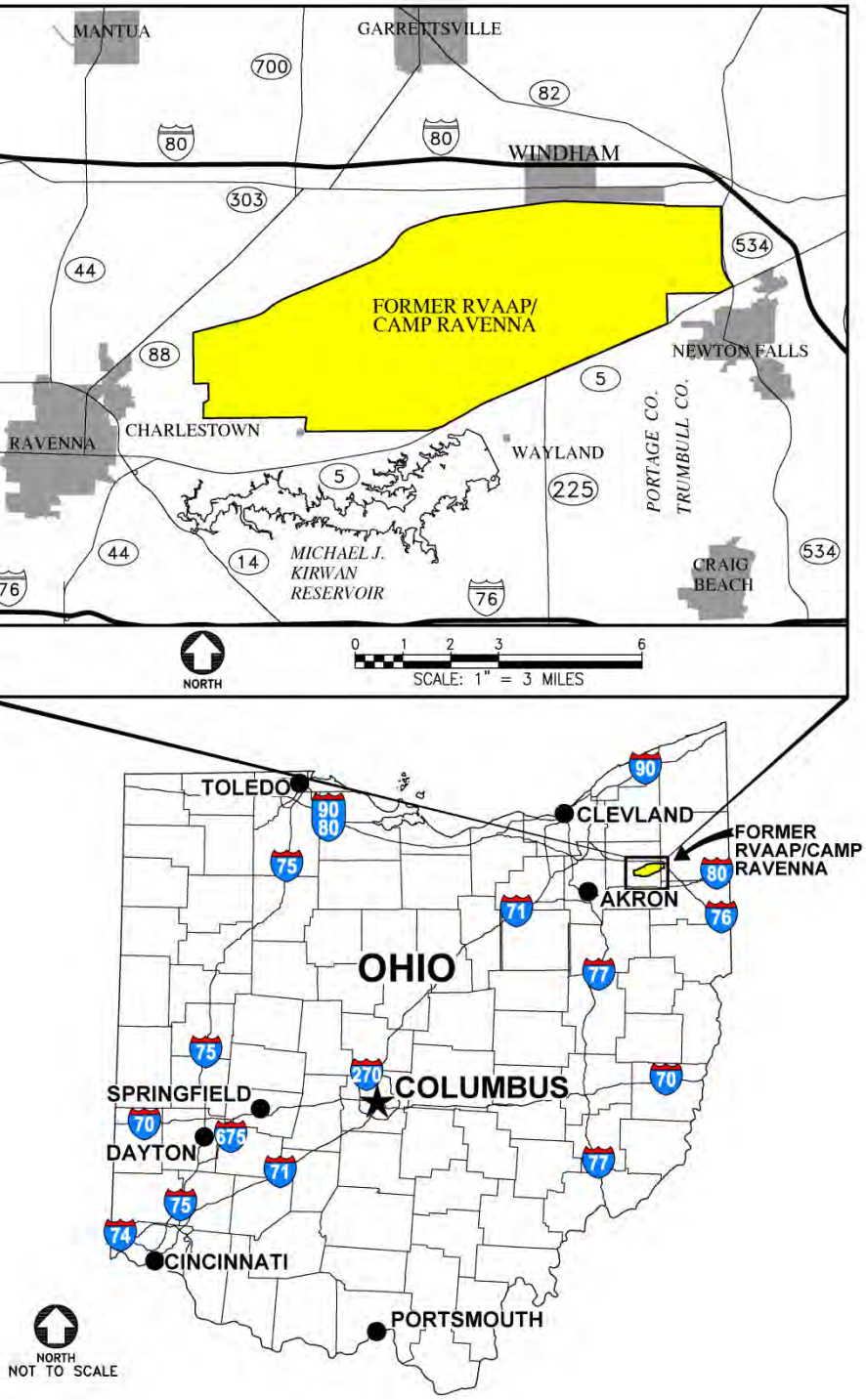

Figure 1. General Location and Orientation of Camp Ravenna

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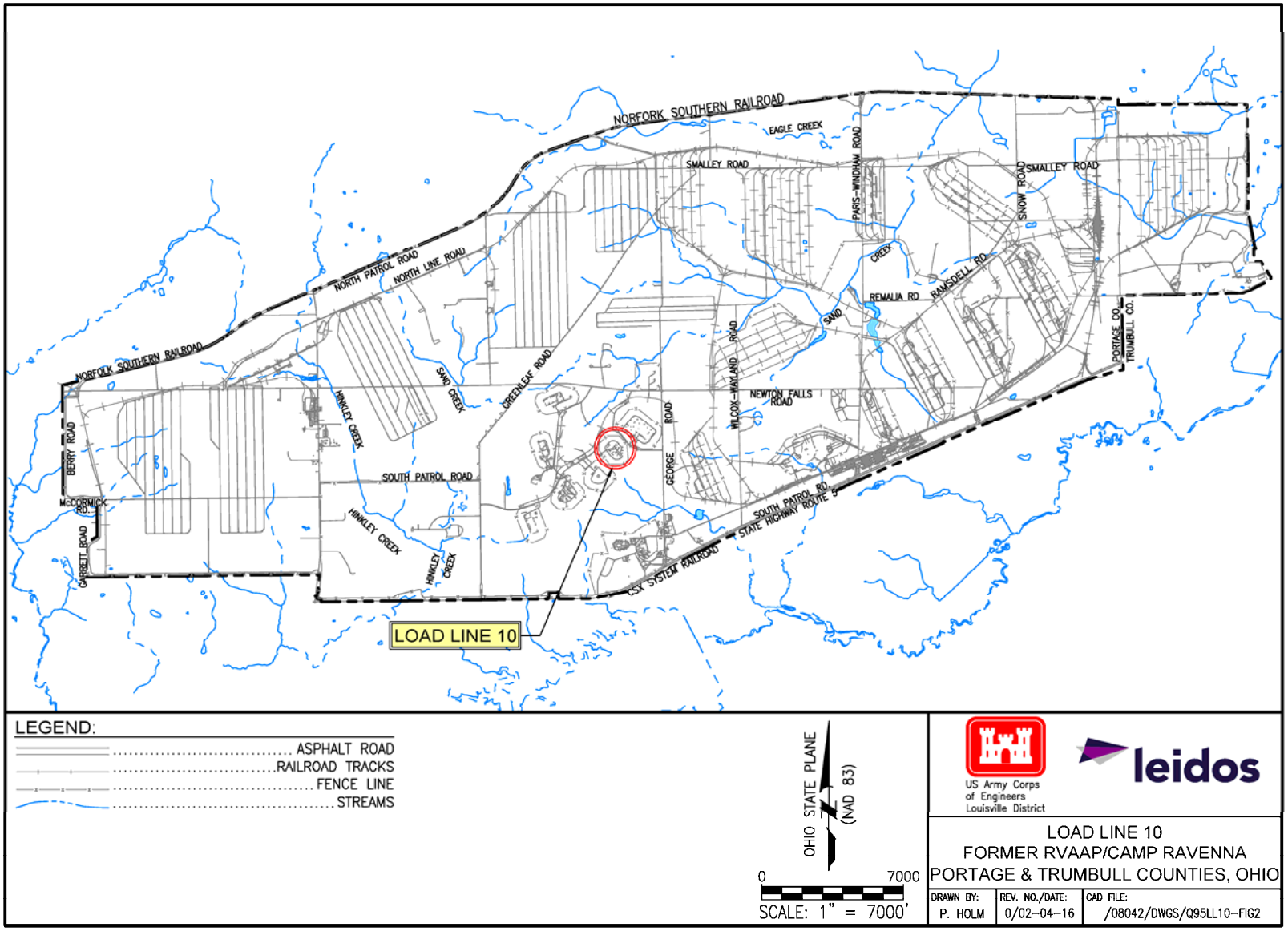

Figure 2. Location of Load Line 10 at Camp Ravenna

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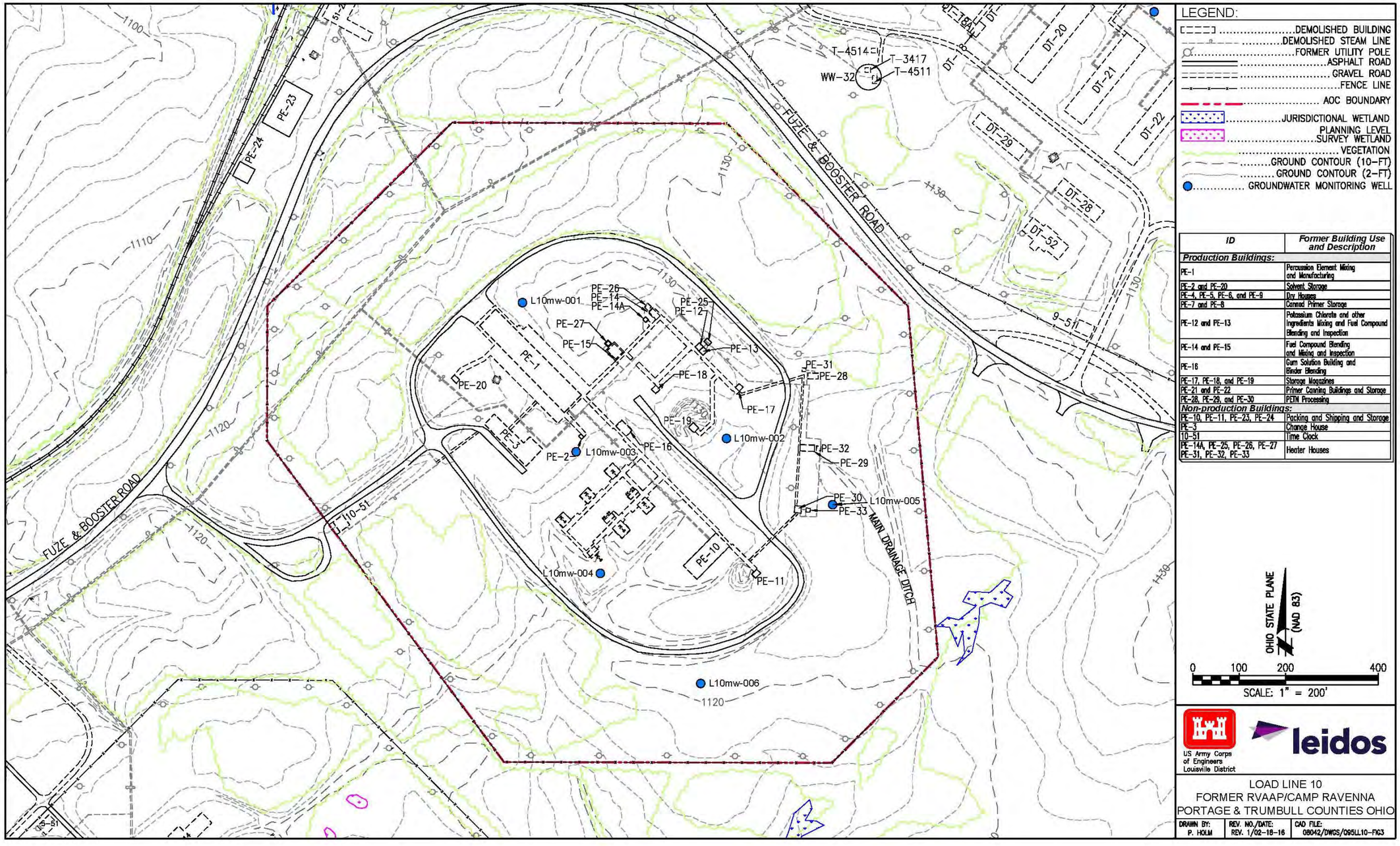

ID	Former Building Use and Description
Production Buildings:	
PE-1	Percussion Element Mixing and Manufacturing
PE-2 and PE-20	Solvent Storage
PE-4, PE-5, PE-6, and PE-9	Dry Houses
PE-7 and PE-8	Conical Primer Storage
PE-12 and PE-13	Potassium Chlorate and other Ingredients Mixing and Fuel Compound Blending and Inspection
PE-14 and PE-15	Fuel Compound Blending and Mixing and Inspection
PE-16	Gum Solution Building and Binder Blending
PE-17, PE-18, and PE-19	Storage Magazines
PE-21 and PE-22	Primer Canning Buildings and Storage
PE-28, PE-29, and PE-30	PETN Processing
Non-production Buildings:	
PE-10, PE-11, PE-23, PE-24	Packing and Shipping and Storage
PE-3	Change House
10-51	Time Clock
PE-14A, PE-25, PE-26, PE-27 PE-31, PE-32, PE-33	Heater Houses

Figure 3. Load Line 10 Site Features

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