Draft

Record of Decision for Soil, Sediment, and Surface Water at RVAAP-40 Load Line 7

Former Ravenna Army Ammunition Plant Portage and Trumbull Counties, Ohio

Contract No. W912QR-15-C-0046

Prepared for:



US Army Corps of Engineers $_{\odot}$

U.S. Army Corps of Engineers Louisville District

Prepared by:



Leidos 8866 Commons Boulevard, Suite 201 Twinsburg, Ohio 44087

November 29, 2018

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CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Leidos has completed the Record of Decision for Soil, Sediment, and Surface Water at RVAAP-40 Load Line 7 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 U.S. Army Corps of Engineers policy.

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

Heather Adams, P.G. Independent Technical Review Team Leader

11/29/2018 Date

11/29/2018 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

11/29/2018

Date

PLACEHOLDER FOR:

Documentation of Ohio EPA Concurrence of Final Document

(Documentation to be provided once concurrence is issued.)

Draft

Record of Decision for Soil, Sediment, and Surface Water at RVAAP-40 Load Line 7

Former Ravenna Army Ammunition Plant Portage and Trumbull Counties, Ohio

Contract No. W912QR-15-C-0046

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

Prepared by: Leidos 8866 Commons Boulevard, Suite 201 Twinsburg, Ohio 44087

November 29, 2018

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ARNG = Army National Guard.

IED = Installation and Environment Division.

OHARNG = Ohio Army National Guard.

Ohio EPA = Ohio Environmental Protection Agency.

NEDO = Northeast District Office.

REIMS = Ravenna Environmental Information Management System.

SWDO = Southwest District Office.

USACE = U.S. Army Corps of Engineers.

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ACRONYMS AND ABBREVIATIONS

amsl	above mean sea level
AOC	Area of Concern
Army	U.S. Department of the Army
ARNG	Army National Guard
AT123D	Analytical Transient 1-, 2-, and 3-Dimensional Model
bgs	below ground surface
Camp Ravenna	Camp Ravenna Joint Military Training Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
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
FWGWMP	Facility-wide Groundwater Monitoring Program
HHRA	Human Health Risk Assessment
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPA	Non-production Area
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
РАН	Polycyclic Aromatic Hydrocarbon
PBA08 RI	2008 Performance-based Acquisition Remedial Investigation
PCB	Polychlorinated Biphenyl
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RI	Remedial Investigation
ROD	Record of Decision
RSL	Regional Screening Level
RVAAP	Ravenna Army Ammunition Plant
SEMS	Superfund Environmental Management System
SRC	Site-related Contaminant
USEPA	U.S. Environmental Protection Agency
USP&FO	U.S. Property and Fiscal Officer
VOC	Volatile Organic Compound

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1 PART I: THE DECLARATION

2 3

4

A SITE NAME AND LOCATION

5 This Record of Decision (ROD) addresses soil, sediment, and surface water contaminants at Load 6 Line 7. Load Line 7 is designated as area of concern (AOC) RVAAP-40 within the former Ravenna 7 Army Ammunition Plant (RVAAP), Ravenna, Ohio (Figures 1 and 2).

8

9 The former RVAAP is now known as Camp Ravenna Joint Military Training Center (Camp 10 Ravenna). Camp Ravenna, consisting of 21,683 acres, is federally owned and is located in 11 northeastern Ohio within Portage and Trumbull counties, approximately 4.8 kilometers (3 miles) 12 east/northeast of the city of Ravenna and approximately 1.6 kilometers (1 mile) northwest of the city 13 of Newton Falls. As of September 2013, administrative accountability for the entire acreage of the 14 facility has been transferred to the U.S. Property and Fiscal Officer (USP&FO) for Ohio and 15 subsequently licensed to the Ohio Army National Guard (OHARNG) for use as a military training site 16 (Camp Ravenna).

17

Load Line 7 is located in the south-central portion of Camp Ravenna. The Superfund Environmental
Management System (SEMS) Identifier for RVAAP is OH5210020736.

20 21

22

B STATEMENT OF BASIS AND PURPOSE

The Army National Guard (ARNG) is the lead agency and has chosen the selected remedy for Load Line 7 in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information contained in the Administrative Record file for the AOC.

28

29 The Ohio Environmental Protection Agency (Ohio EPA), the supporting state regulatory agency,

concurred with the *Remedial Investigation/Feasibility Study Report for Soil, Sediment, and Surface* Water at RVAAP-40 Load Line 7 (USACE 2016; herein referred to as the Load Line 7 RI/FS Report)

and Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-40 Load Line 7 (USACE 2018;

33 herein referred to as the Load Line 7 Proposed Plan).

34

35 The Director's Final Findings and Orders (DFFO) was issued to the U.S. Department of the Army 36 (Army) on June 10, 2004. The objective of the DFFO was for the Army and Ohio EPA to "contribute 37 to the protection of public health, safety, and welfare and the environment from the disposal, 38 discharge, or release of contaminants at or from the site, through implementation of a CERCLA-39 based environmental remediation program. This program will include the development by respondent 40 of an remedial investigation (RI)/feasibility study (FS) for each AOC or appropriate group of AOCs 41 at the site, and upon completion and publication of a Proposed Plan and ROD or other appropriate 42 document for each AOC or appropriate group of AOCs, the design, construction, operation, and 43 maintenance of the selected remedy as set forth in the ROD or other appropriate document for each 44 AOC or appropriate group of AOCs."

- 1 The Load Line 7 RI/FS Report evaluated contaminated soil, sediment, and surface water at Load Line
- 2 7 and identified benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene
- 3 as surface soil chemicals of concern (COCs) to be carried forward for potential remediation at sample
- 4 locations LL7ss-097M and LL7ss-098M for Unrestricted (Residential) Land Use. The Load Line 7
- 5 RI/FS Report recommended Alternative 4: Ex-situ Thermal Treatment-Attain Unrestricted
- 6 (Residential) Land Use to address contamination at the AOC.
- 7

8 The Load Line 7 RI/FS Report was issued in July 2016 and approved by Ohio EPA in August 2016. 9 Since that time, the U.S. Environmental Protection Agency (USEPA) updated the cancer slope factors 10 for carcinogenic polycyclic aromatic hydrocarbons (PAHs) using more recent toxicity studies. These 11 updated factors, which resulted in higher regional screening levels (RSLs) for previously identified 12 PAH COCs, are utilized in the June 2017 USEPA RSLs. Based on the updated risk management 13 analysis presented in the Load Line 7 Proposed Plan (USACE 2018), including revised screening 14 against the 2017 USEPA Resident Soil RSLs, no COCs were identified as requiring remediation 15 under CERCLA to be protective of the Resident Receptor (Adult and Child).

16

17 The Load Line 7 Proposed Plan provided rationale that no further action is required for soil, sediment, 18 and surface water at Load Line 7. This was considered a significant change in accordance with the 19 Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection 20 Decision Documents (USEPA 1999), as it impacts the scope, performance, and cost from what was 21 recommended in the Load Line 7 RI/FS Report. Accordingly, the Army documented the significant 22 change in the Proposed Plan to ensure the state regulatory agency (Ohio EPA) and the public were 23 afforded the opportunity to review and comment on the no further action preferred remedy prior to 24 selection of the remedy in this ROD.

25

The decision that no further action is required for soil, sediment, and surface water satisfies the requirements of the DFFO, as the Army and Ohio EPA completed the CERCLA RI/FS phase of investigation at Load Line 7. ARNG is publishing this ROD to select no further action for this site. Part II, Section G explains how the human health and ecological risks were assessed and how this no further action conclusion was made.

31

C DESCRIPTION OF THE SELECTED REMEDY

32 33

No further action is necessary for soil, sediment, and surface water at Load Line 7 for Unrestricted (Residential) Land Use. Consequently, no further action is necessary for the future use of the site (military training). Groundwater at Load Line 7 will be addressed under future CERCLA decisions. Land use controls will not be implemented as part of this decision, as no CERCLA-related COCs were identified in soil, sediment, or surface water for the Resident Receptor.

39 40

D STATUTORY DETERMINATIONS

41

42 The recommendation of no further action for soil, sediment, and surface water is protective of human 43 health and the environment and meets the statutory requirements for cleanup standards established in 44 Section 121 of CERCLA. Because the CERCLA-related contamination present in soil, sediment, and

1	surface water at Load Line 7 does not pose a potential risk to human health or the environment, five-					
2	year reviews will not be required. No other remedial action is necessary to ensure protection of					
3	human health and the environment for these media.					
4						
5	E AUTHORIZING SIGNATURE AND APPROVAL					
6						
7						
8						
9						
	William M. Myer	Date				
	COL, GS					
	I&E, Army National Guard					
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1 PART II: DECISION SUMMARY

2 3 4

A SITE NAME, LOCATION, AND DESCRIPTION

5 When the RVAAP Installation Restoration Program (IRP) began in 1989, RVAAP (SEMS 6 Identification Number OH5210020736) was identified as a 21,419-acre installation. In 2002 and 7 2003, OHARNG surveyed the property and the total acreage of the property was found to be 8 21,683 acres. The RVAAP IRP encompasses investigation and cleanup of past activities over the 9 entire 21,683-acre former RVAAP.

10

As of September 2013, administrative accountability for the entire acreage of the facility has been transferred to the USP&FO for Ohio and subsequently licensed to OHARNG for use as a military training site (Camp Ravenna). ARNG is the lead agency for any remediation, decisions, and applicable cleanup at Load Line 7. These activities are being funded and conducted under the IRP. Ohio EPA is the supporting state regulatory agency.

16

17 Camp Ravenna is located in northeastern Ohio within Portage and Trumbull counties, approximately 18 4.8 km (3 miles) east-northeast of the city of Ravenna and approximately 1.6 km (1 mile) northwest 19 of the city of Newton Falls. References in this document to RVAAP relate to previous activities at the 20 facility as related to former munitions production activities or to activities being conducted under the 21 restoration/cleanup program.

22

Camp Ravenna is a parcel of property approximately 17.7 km (11 miles) long and 5.6 km (3.5 miles) wide, bounded by State Route 5 and the CSX System Railroad on the south; Garrett, McCormick, and Berry roads on the west; the Norfolk Southern Railroad on the north; and State Route 534 on the east (see Figures 1 and 2). Camp Ravenna is surrounded by several communities: Windham 11.2 km (7 miles) to the north, Garrettsville 9.6 km (6 miles) to the north, Newton Falls 1.6 km (1 mile) to the southeast, Charlestown 3.6 km (6 miles) to the southwest, and Wayland 4.8 km (3 miles) to the south.

- The distinct surface features of Load Line 7 are shown on Figure 3. All buildings, including slabs and foundations, were removed in 2006. Remaining features at Load Line 7 include a one-lane asphalt access road that enters the AOC from the south and runs along the east and north sides of the locations of the former production buildings. The Load Line 7 AOC fence is still in place, but it is not currently maintained. Small constructed drainage ditches border the access road. The AOC is currently overgrown with grass, trees, and scrub vegetation.
- 36

37 The AOC boundary encompasses the former production area (FPA) and non-production area (NPA) 38 soil exposure units. The FPA consists of approximately 12.3 acres and is located west of the eastern 39 asphalt access road in the central portion of the AOC. The FPA encompasses the locations of the 40 former production and storage buildings. The NPA is 24.4 acres and includes the areas between the 41 eastern access road and perimeter fence and the western production buildings and perimeter fence. 42 The NPA also contains the location of former Vacuum Pump House (1B-4-VP-1), two associated 43 collectors (LL7-VC-1 and LL7-VC-2), and the former Building 1B-22, which was used for solvent 44 storage. These exposure units are presented on Figure 4.

1 2

B SITE HISTORY AND ENFORCEMENT ACTIVITIES

RVAAP was constructed in 1940 and 1941 for depot storage and ammunition assembly/loading and
placed on standby status in 1950. The primary purpose of the former RVAAP was to load medium
and major caliber artillery ammunition (i.e., bombs, mines, fuze and boosters, primers, and percussion
elements) and store finished components. Load Lines 5 through 11 produced fuzes, boosters, primers,
detonators, and percussion elements.

8

9 In June 2004, the DFFO was issued to the Army. The objective of the DFFO was for the Army and Ohio EPA to "contribute to the protection of public health, safety, and welfare and the environment 10 11 from the disposal, discharge, or release of contaminants at or from the site, through implementation of 12 a CERCLA-based environmental remediation program. This program will include the development 13 by respondent of an RI/FS for each AOC or appropriate group of AOCs at the site, and upon 14 completion and publication of a Proposed Plan and ROD or other appropriate document for each 15 AOC or appropriate group of AOCs, the design, construction, operation and maintenance of the 16 selected remedy as set forth in the ROD or other appropriate document for each AOC or appropriate 17 group of AOCs."

18

Load Line 7, formerly known as Booster Line #1, is a 37-acre, fenced AOC located on the west side of Fuze and Booster Spur Road, south of Load Line 11 and northeast of Water Works #4 in the southcentral portion of Camp Ravenna (Figure 2). Below is a summary of historical operations at Load Line 7:

23

1941–1945 – Load Line 7 operated at full capacity to produce booster charges for artillery projectiles. Booster charges are explosive devices designed to receive the relatively weak detonating wave from a fuze and to amplify that wave so it will have sufficient strength to ensure the high explosive completely functions in the shell body. The explosive in the booster is usually tetryl. No bulk handling of explosives occurred at Load Line 7, as all primary explosive products were delivered to Load Line 7 as sealed, finished sub-assemblies. At the end of World War II, Load Line 7 was deactivated, and the process equipment was removed.

- 1968 The site was modified to produce M-406 High Explosive and M-407A1 practice
 40mm projectiles.
- 1969–1970 The site was reactivated to produce and assemble 16,000,000 40mm projectiles.
 No bulk handling of the primary explosives associated with the 40mm production occurred, as the products were received as finished sub-assemblies.
 - 1970 The site was deactivated, and process equipment was removed.
- 1989–1993 The Load Line 7 Treatment Plant (designated as AOC RVAAP-30) was
 operable. This pink water treatment plant discharged under a National Pollutant Discharge
 Elimination System permit to the George Road Sewage Treatment Plant (RVAAP-22).
- 40

36

No historical information exists to indicate Load Line 7 was used for any other processes other than
what is presented above. No fuel storage tanks were present at the AOC during operations.
Additionally, no fuel materials were used operationally at Load Line 7, and no burning was
conducted.

1 2	There have been no CERCLA enforcement actions related to Load Line 7.					
3	C COMMUNITY PARTICIPATION					
4						
5	Using the RVAAP community relations program, the Army and Ohio EPA have interacted with the					
6	public through public notices, public meetings, reading materials, direct mailings, an internet website,					
7	and receiving and responding to public comments.					
8						
9	Specific items in the community relations program include the following:					
10						
11	• Restoration Advisory Board – The Army established a Restoration Advisory Board in 1996					
12	to promote community involvement in U.S. Department of Defense environmental cleanup					
13	activities and allow the public to review and discuss the progress with decision makers. Board					
14	meetings are generally held two to three times per year and are open to the public.					
15	• Community Relations Plan – The Community Relations Plan (Vista 2017) is maintained to					
16	establish processes to keep the public informed of activities at RVAAP. The plan is available					
17	in the Administrative Record at Camp Ravenna.					
18	• Internet Website – The Army established an internet website in 2004 for RVAAP. It is					
19	accessible to the public at www.rvaap.org.					
20	In accordance with CEDCLA Section 117(a) and NCD Section 200 (20(f)(2)) the Army released the					
$\frac{21}{22}$	Load Line 7 Proposed Plan (USACE 2018) to the public on June 6, 2018. The Proposed Plan and					
22	other project-related documents were made available to the public in the Administrative Record					
23	maintained at Camp Ravenna and in the Information Repositories at Reed Memorial Library in					
25	Ravenna Ohio and Newton Falls Public Library in Newton Falls Ohio A notice of availability for					
26	the Load Line 7 Proposed Plan was sent to radio stations, television stations, and newspapers (e.g.,					
27	Warren Tribune-Chronicle and Ravenna Record Courier), as specified in the Community Relations					
28	Plan. The notice of availability initiated the 30-day public comment period beginning June 6, 2018,					
29	and ending July 6, 2018.					
30						
31	The Army held a public meeting on June 21, 2018, at the Shearer Community Center, 9355 Newton					
32	Falls Road, Ravenna, Ohio 44266 to present the Load Line 7 Proposed Plan. At this meeting,					
33	representatives of the Army provided information and were available to answer any questions. A					
34	transcript of the public meeting is available to the public and has been included in the Administrative					
35	Record. Responses to any comments received at this meeting and during the public notification period					
36	are included in the Responsiveness Summary, which is Part III of this ROD.					

- 36 37
- The Army considered public input from the public meeting on the Load Line 7 Proposed Plan whenselecting the remedy.

1 D SCOPE AND ROLE OF RESPONSE ACTIONS

2 3

The overall program goal of the IRP at the former RVAAP is to clean up previously contaminated lands to reduce contamination to concentrations that are not anticipated to cause risks to human health or the environment. Load Line 7 is one of many IRP sites at the former RVAAP.

5 6

7 This ROD addresses soil, sediment, and surface water at Load Line 7. The CERCLA-related 8 contamination at Load Line 7 is already at concentrations low enough to allow for Unrestricted 9 (Residential) Land Use, and the program goal of the IRP at the former RVAAP has been met for Load 10 Line 7. Therefore, these media are already protective for Unrestricted (Residential) Land Use, and the 11 program goal of the IRP at RVAAP has been met for Load Line 7.

12

Potential impacts to groundwater from soil (e.g., contaminant leaching) were evaluated in the Load
Line 7 RI/FS Report, as protectiveness to groundwater was included in the fate and transport analysis.
However, groundwater will be evaluated as an individual AOC for the entire facility (designated as
RVAAP-66) under the Facility-wide Groundwater Monitoring Program (FWGWMP).

17

18 E SITE CHARACTERISTICS

19

This section presents site characteristics, nature and extent of contamination, and the conceptual site model for Load Line 7. These characteristics and findings are based on investigations conducted from 1978–2011 and are further summarized in the Load Line 7 RI/FS Report (USACE 2016).

23

24 E.1 Physical Characteristics

25

This section describes the topography/physiology, geology, hydrogeology, and ecological characteristics of Camp Ravenna and Load Line 7 that were key factors in identifying the potential contaminant transport pathways, receptor populations, and exposure scenarios to evaluate human health and ecological risks.

30

31 E.1.1 <u>Topography/Physiography</u>

32

33 The topography of Camp Ravenna is gently undulating with an overall decrease in ground elevation 34 from a topographic high of approximately 1,220 ft above mean sea level (amsl) in the far western 35 portion of the facility to low areas at approximately 930 ft amsl in the far eastern portion. 36 Topographic relief at the AOC is moderate, with a topographic high on the western boundary of the 37 AOC that slopes downward to the topographic low in the northeastern boundary of the AOC. Ground 38 elevations within Load Line 7 range from approximately 1,110–1,146 ft amsl (Figure 3). Surface 39 water follows topographic relief and drains into ditches that exit the AOC. A fence exists as the 40 perimeter boundary of the AOC, although it is not currently maintained.

41

All buildings and structures within Load Line 7 have been demolished and building slabs and footers
have been removed. The work areas were re-graded, cavities were filled with approved fill dirt as
needed, and the area was vegetated in 2007 (LES 2007). Remaining features at Load Line 7 include a

1 one-lane asphalt access road that enters the AOC from the south and runs along the east and north

2 sides of the locations of the former production buildings (Figure 3).

3

4 No permanent surface water features are present at the AOC. Surface water intermittently occurs as 5 overland storm water runoff associated with heavy rainfall events and generally drains into small 6 ditches bordering roads. As shown on Figure 3, surface water drainage generally follows the 7 topography of Load Line 7 and drains east toward Fuze and Booster Spur Road.

8 9

E.1.2 Geology

10

As shown on Figure 5, Load Line 7 is located within Hiram Till glacial deposits. Although the unconsolidated deposit's characteristics may vary due to site disturbances (e.g., building construction, demolition, and re-grading), the primary soil type found at Load Line 7 is the Mahoning silt loam which covers over 95% of the AOC. The Mahoning silt loam is a gently sloping, poorly drained soil formed in silty clay loam or clay loam glacial till, generally where bedrock is greater than 6 ft below ground surface (bgs). Mahoning silt loam has low permeability with rapid runoff and seasonal wetness (USDA 2010).

18

19 Mitiwanga silt (2–6% slopes) covers approximately 5% of the AOC on the far central-west portion of 20 the AOC. Mitiwanga silt is characterized as gently sloping, somewhat poorly drained soil formed in 21 silty clay loam glacial till over residuum weather from sandstone, generally where bedrock is less 22 than 4 ft bgs. Mitiwanga silt has moderate permeability with low runoff (USDA 2010).

23

As shown on Figure 6, the bedrock formation underlying the unconsolidated deposits at Load Line 7, as inferred from existing geologic data, is the Pennsylvanian-age Pottsville Formation, Homewood Sandstone and Mercer Members. Bedrock was encountered at Load Line 7 from 1.6–16.9 ft bgs during monitoring well installation activities as part of the Characterization of 14 AOCs (MKM 2007). During the 2008 Performance-based Acquisition Remedial Investigation (PBA08 RI), top of bedrock was encountered in six soil borings drilled at Load Line 7 at depths ranging from 3.5–13 ft bgs (USACE 2016).

31

32 E.1.3 <u>Hydrogeology</u>

33

Six monitoring wells are present at Load Line 7 that were installed in 2004 during the Characterization of 14 AOCs (MKM 2007). All monitoring wells at Load Line 7 are screened in the bedrock. Initial depths to groundwater encountered during groundwater monitoring well installation varied from 11–19 ft bgs. Groundwater depths in monitoring wells at the AOC ranged from 10.50– 22.48 ft bgs with the highest elevation being at the bedrock well LL7mw-005. Potentiometric data indicate the groundwater table occurs within bedrock throughout the AOC.

40

41 E.1.4 <u>Ecology</u>

42

The ecological risk assessment (ERA) in the Load Line 7 RI/FS Report concluded that there are no
 important and significant ecological resources at the AOC. A field survey conducted by Leidos field

biologists at Load Line 7 in 2008 and 2010 identified four main habitat types, as presented in Figure 1 2 7: dry, early-successional, herbaceous field habitat surrounded by dry, mid-successional, cold-3 deciduous shrubland to the west, north, and east and further surrounded by red maple (Acer rubrum) 4 successional forest to the west and north. The seasonally flooded pin-oak/swamp white oak (Quercus palustris/Quercus bicolor) forest alliance within the eastern boundary of Load Line 7 is limited in 5 extent. Although only a small portion (0.2 acres) of the pin-oak/swamp white oak forest alliance is 6 7 within the habitat boundary, the forest alliance extends several hundred feet west of the AOC. The 8 shrubland habitat within Load Line 7 is in the early stages of replacing herbaceous habitat.

9

The northern long-eared bat (*Myotis septentrionalis*; endangered species) exists at Camp Ravenna. There are no other federally listed species and no critical habitat occurs on Camp Ravenna. Load Line 7 has not had a site-specific survey for federal- or state-listed species. However, surveys have been conducted throughout the facility and have not identified state-listed, federally listed, threatened, or endangered species at the AOC (OHARNG 2014).

15

16 The habitats at Load Line 7 were assessed to be healthy and functioning. Functional habitat was 17 determined by noting the absence of large bare spots and dead vegetation or other obvious visual 18 signs of an unhealthy ecosystem (USACE 2016).

19

20 E.2 Site Investigations

21

In 1978, the U.S. Army Toxic and Hazardous Materials Agency conducted an Installation Assessment
of RVAAP to review the potential for contaminant releases at multiple former operations areas, as
documented in *Installation Assessment of Ravenna Army Ammunition Plant* (USATHAMA 1978).
Since 1978, Load Line 7 has been included in various historical assessments and investigations
conducted at the former RVAAP. The following environmental investigations have been completed
for Load Line 7:

- 28 29
- Installation Assessment of Ravenna Army Ammunition Plant (USATHAMA 1978);
- Resource Conservation and Recovery Act 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);
 - 2004 Characterization of 14 AOCs (MKM 2007);
 - 2007 Investigation of the Under Slab Surface Soils (USACE 2009); and
- 35 2010/2011 PBA08 RI (USACE 2016).
- 36

33

34

The results of the PBA08 RI sampling were combined with applicable results of previous sampling
events to evaluate the nature and extent of contamination, examine contaminant fate and transport,
conduct risk assessments, and evaluate potential remedial alternatives, as summarized in the Load
Line 7 RI/FS Report (USACE 2016).

1 E.3 Nature and Extent of Contamination

2

3 Data from the 2004 Characterization of 14 AOCs, 2007 Investigation of Under Slab Surface Soils, 4 and 2010/2011 PBA08 RIs effectively characterized the nature and extent of contamination at the 5 AOC. Figure 8 presents the remedial investigation (RI) sample locations. Based on previous 6 information and the summary below, it can be concluded that no further sampling is needed to 7 evaluate Load Line 7.

8

9 The predominant site-related contaminants (SRCs) in surface and subsurface soil at Load Line 7 were 10 PAHs observed during the 2011 PBA08 RI at sample locations LL7ss-005M, LL7ss-013M, LL7ss-11 043M, LLss-073M, and LL7ss-074M which had an exceedance of at least one Resident Receptor 12 facility-wide cleanup goal (FWCUG) in surface soil. Using the information collected from this 2011 13 sampling event, the human health risk assessment (HHRA) further evaluated benz(a)anthracene, 14 benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene in surface soil (0–1 ft bgs), as 15 discussed in Section G.1.

16

Explosives were a main potential contaminant from previous use of the site. With the exception of hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX), all explosives concentrations in soil were below their screening level. RDX was considered a chemical of potential concern (COPC). The exposure point concentration for RDX was lower than the Resident Receptor (Adult and Child) FWCUG; therefore, RDX was not considered a COC.

22

The former 1B-22 Solvent Storage Building was identified as having potential volatile organic
compound (VOC) contamination. The sample associated with former Building 1B-22 (LL7ss-055D)
had no detectable VOC concentrations in surface soil.

26

Historical records indicate that 11 transformers serviced all buildings at the AOC and were located in
and around Heater House Buildings 1B-23 and 1B-24. Large grid incremental sampling methodology
sample LL7ss-078M was collected adjacent to Heater House 1B-24, and sample LL7ss-073M was
collected adjacent to former Building 1B-23. Polychlorinated biphenyls (PCBs) were not detected in
samples LL7ss-073M and LL7ss-078M. Surface soil sample LL7ss-005M associated with Building
1B-5 had a detected concentration of PCB-1254 at 0.07 mg/kg, which was below the screening level
(0.12 mg/kg).

34

35 E.4 Conceptual Site Model

36

Conceptual site model elements are discussed in this section, including primary and secondary
 contaminant sources and release mechanisms, contaminant migration pathways and discharge or exit
 points, and potential human receptors and ecological resources.

1 2	E.4.1	Primary and Secondary Contaminant Sources and Release Mechanisms				
-3	No pri	mary contaminant sources (e.g., operational facilities) are currently located at Load Line 7. All				
4	buildings were demolished in 2006. Remnant contamination in soil and sediment is considered a					
5	secondary source of contamination.					
6						
7 8	The po	tential mechanisms for contaminant releases from secondary sources at Load Line 7 include:				
9 10 11 12 13 14	•	Eroding soil with sorbed contaminants and mobilization in turbulent surface water flow under storm conditions, Dissolving soluble contaminants and transport in surface water, Re-suspending contaminated sediment during periods of high flow with downstream transport within the surface water system, and Contaminant leaching to groundwater				
15						
16 17	E.4.2	Contaminant Migration Pathways and Exit Points				
18 19 20 21 22 23 24 25	The po evalua may m particu Maxim of gen (CMC	otential for soil contaminants to impact groundwater was evaluated in the fate and transport tion presented in the Load Line 7 RI/FS Report (USACE 2016). Contaminants in surface soil igrate to surface water via drainage ditches in the dissolved phase following a storm event or as lates in storm water runoff. hum SRC concentrations identified in surface and subsurface soil were evaluated using a series eric screening steps to identify initial contaminant migration chemicals of potential concern OPCs). These soil CMCOPCs were further evaluated using the Seasonal Soil Compartment				
26 27 28 29 30 31 32 33 34 35	model wide b contan Recept Dimen and co AT123 as moo COCs.	to predict leaching concentrations and identify final CMCOPCs based on RVAAP facility- background criteria and the lowest risk-based screening criteria among USEPA maximum hinant levels, USEPA tap water RSLs, or RVAAP groundwater FWCUGs for the Resident for Adult. Final CMCOPCs were evaluated using the Analytical Transient 1-, 2-, and 3- sional (AT123D) model to predict groundwater mixing concentrations beneath source areas ncentrations at the nearest downgradient groundwater receptor to the AOC (e.g., stream). The BD modeling results were evaluated with respect to AOC groundwater monitoring data, as well del limitations and assumptions, to identify chemicals to be retained as contaminant migration				
36 37	Conclu	isions of the soil screening, leachate modeling, and groundwater modeling are as follows:				
38 39 40 41 42 43	•	Silver; 2,4-trinitrotoluene; 3-nitrotoluene; and naphthalene were predicted to exceed the screening criteria in groundwater beneath the source area. 2,6-Dinitrotoluene; nitroglycerin; and RDX were predicted to exceed the screening criteria in groundwater beneath the source area and at the downgradient receptor location (i.e., tributary to Sand Creek east of Load Line 7).				

- Evaluation of modeling results with respect to current AOC groundwater data and model limitations 1
- 2 indicated that identified CMCOPCs are not currently impacting groundwater beneath the source areas
- 3 and that modeling assumptions are conservative.
- 4

5 All SRCs identified in surface soil and subsurface soil were evaluated through the stepwise fate and transport evaluation. All SRCs were eliminated as posing future impacts to groundwater, and no 6 7 further action is necessary for surface soil, subsurface soil, and sediment to protect groundwater 8 (USACE 2016). Groundwater will be further evaluated under the FWGWMP.

- 9
- 10

E.4.3 **Potential Human Receptors and Ecological Resources**

- 11 12 In February 2014, the Army and Ohio EPA amended the risk assessment process to address changes
- 13 in the RVAAP restoration program.
- 14

15 The Final Technical Memorandum: Land Uses and Revised Risk Assessment Process for the RVAAP 16 Installation Restoration Program (ARNG 2014) identified the following three Categorical Land Uses 17 and Representative Receptors to be considered during the RI phase of the CERCLA process.

- 18
- 19 1. Unrestricted (Residential) Land Use – Resident Receptor (Adult and Child) (formerly called 20 Resident Farmer).
 - 2. Military Training Land Use National Guard Trainee.
 - Commercial/Industrial Land Use Industrial Receptor (USEPA Composite Worker).
- 22 23

21

24 An evaluation using Resident Receptor (Adult and Child) FWCUGs was used to provide an 25 Unrestricted (Residential) Land Use evaluation. If a site meets the standards for Unrestricted 26 (Residential) Land Use, it can be used for all categories of Land Use at Camp Ravenna. No COCs 27 were identified as requiring remediation to be protective for the Resident Receptor or Unrestricted 28 (Residential) Land Use. The receptor is assumed to be exposed to surface soil from 0-1 ft bgs and 29 subsurface soil from 1–13 ft bgs.

30

31 Load Line 7 does not have any important and significant ecological resources such as wetlands, 32 terrestrial areas used for breeding by large or dense populations of animals, habitats used by 33 threatened and endangered species, state land designated for wildlife or game management, or locally 34 important ecological places. Groundwater is not considered an exposure medium for ecological 35 receptors on the AOC given its depth and occurrence within bedrock, and there are no discharge 36 points (e.g., springs, seeps) that would represent potential exposure points.

- 37
- 38

F CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

39

40 Load Line 7 is currently managed by Army National Guard/OHARNG. The AOC is not currently

41 being utilized for training purposes. The future use of Load Line 7 is military training. The Resident 42 Receptor was evaluated in the HHRA to assess an Unrestricted (Residential) Land Use scenario. This

- 43 ROD discusses future Land Use as it pertains to soil, sediment, and surface water and how it impacts
- 44 human health, the environment, and groundwater.

1 G SUMMARY OF SITE RISKS

2

3 The HHRA and ERA estimated risks to human receptors and ecological resources; identified 4 exposure pathways and COCs and chemicals of potential ecological concern (COPECs), if any; and provided a basis for remedial decisions. This section of the ROD summarizes the results of the HHRA 5 and ERA, which are presented in detail in the Load Line 7 RI/FS Report (USACE 2016) and Load 6 7 Line 7 Proposed Plan (USACE 2018). As indicated in Section G.1, the Load Line 7 Proposed Plan 8 (USACE 2018) contains an updated risk management analysis pertaining to COCs recommended for 9 remediation in the Load Line 7 RI/FS Report (USACE 2016). Both documents are located in the 10 Administrative Record and Information Repositories.

11

12 **G.1** I

13

G.1 Human Health Risk Assessment

An HHRA was performed to identify COCs and provide a risk management evaluation to determine if remediation is required under CERCLA based on potential risks to human receptors. Media of concern evaluated in the Load Line 7 HHRA are surface soil (0–1 ft bgs) and subsurface soil (1–13 ft bgs). Surface water is not a permanent feature at Load Line 7; therefore, sediment and surface water are not media of concern at this AOC.

19

The HHRA in the Load Line 7 RI/FS Report identified four PAH COCs in surface soil (0–1 ft bgs): benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene based on exceedances of Resident Receptor FWCUG at a target risk of 1E-05, hazard quotient of 1. As shown on Figure 9, locations LL7ss-005M, LL7ss-013M, LL7ss-043M, LLss-073M, and LL7ss-074M had an exceedance of at least one Resident Receptor FWCUG in surface soil.

25

26 The area associated with sample locations LL7ss-013M and LL7ss-074M was re-evaluated as part of 27 the April 2011 sampling event using a subset of six incremental sampling methodology samples 28 ranging in size from 0.02–0.11 acres to further refine the area of contamination. The six sample 29 locations were LL7ss-096M to LL7ss-101M and are presented in Figure 10. The results of this new 30 sampling event were discussed in the Load Line 7 RI/FS Report. However, since the finalization of 31 the Load Line 7 RI/FS Report, USEPA updated the cancer slope factors for the carcinogenic PAHs 32 using more recent toxicity studies. These updated values are utilized in the June 2017 USEPA RSLs. 33 The Resident Receptor FWCUG and the USEPA Resident Soil RSLs, updated in June 2017, at a 34 target risk of 1E-05 for the PAH COCs are presented in Table 1.

35

The six locations sampled in April 2011 (LL7ss-096M to LL7ss-101M) and the COC concentrations
 are presented in Table 1 and on Figure 10.

1 The following discusses the April 2011 sample results and compares concentrations to the 2017

2 USEPA Resident Soil RSLs:

3 4

5 6

- The concentration of benzo(a)pyrene at sample location LL7ss-096M (1.3 mg/kg) slightly exceeded the 2017 USEPA Resident Soil RSL of 1.1 mg/kg. This exceedance is attributed to the adjacent asphalt driveway.
- The concentration of benzo(a)pyrene at sample location LL7ss-097M (1.4 mg/kg) slightly exceeded the 2017 USEPA Resident Soil RSL of 1.1 mg/kg. This 0.06-acre sample is surrounded by sample locations LL7ss-098, LL7ss-099, and LL7ss-100 (which represent a combined 0.26 acres). Concentrations in these three samples range from 0.059–0.47 mg/kg.
 - The concentrations of all other PAH COCs collected from the delineation samples were below the 2017 USEPA Resident Soil RSLs.
- 12 13

11

14 Evaluation of PAH concentrations at Load Line 7 indicates concentrations that are consistent with

15 common anthropogenic sources such as asphalt parking lots and roads, vehicle traffic, etc.

16

Concentrations (mg/kg) Screening Levels (TR of 1E-05) **April 2011 Sample Results** USEPA Resident Resident Receptor Soil RSL LL7ss-LL7ss-LL7ss-LL7ss-LL7ss-LL7ss-**Chemical of Concern FWCUG** (June 2017) **096M 097M 098M 099M 100M** 101M Benz(a)anthracene 2.21 11 1.6 1.8 0.58 0.14 0.072 0.33 0.221 1.1 1.3 1.4 0.47 0.12 0.059 0.28 Benzo(a)pyrene 0.083 Benzo(b)fluoranthene 2.21 11 1.5 1.6 0.6 0.14 0.34 0.221 0.23 1.1 0.17 0.071 0.018 0.0076 0.032 Dibenz(a,h)anthracene

Table 1. USEPA RSLs (June 2017) for PAH COCs

COC = Chemical of concern.

FWCUG = Facility-wide cleanup goal.

mg/kg = Milligrams per kilogram.

PAH = Polycyclic aromatic hydrocarbon.

RSL = Regional Screening Level.

USEPA = U.S. Environmental Protection Agency.

17 Based on the updated risk management analysis presented in the Load Line 7 Proposed Plan (USACE 18 2018), including revised screening against the current USEPA Resident RSLs, no COCs are required 19 to be carried forth in a remedial action to be protective of the Resident Receptor (Adult and Child). 20 Because the risk management analysis determined there were no unacceptable risks to the Resident 21 Receptor (Adult and Child), it can be concluded that there is no unacceptable risk to the National 22 Guard Trainee and Industrial Receptor and an FS and remedial action are not required at Load Line 7. 23 24 **G.2 Ecological Risk Assessment**

25

The ecological habitat in Load Line 7 is approximately 37 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

TR = Target Risk.

and within the FPA. During most of the year, there is no water in the drainage ditches; in turn, no

- 2 signs of an aquatic habitat have been observed.
- 3

Ecological resources at Load Line 7 were compared to the list of important ecological places and resources. Based on the 39 criteria defining important places as identified by the Army and Ohio EPA, no important/significant ecological resources were identified at the AOC. The vegetation types present at Load Line 7 are also found elsewhere near the AOC, at Camp Ravenna, and in the ecoregion.

9

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 7 has not had a site-specific survey for federal- or state-listed species. However, surveys have been conducted throughout the facility and have not identified state-listed, federally listed, threatened, or endangered species at the AOC (OHARNG 2014).

15

16 The ERA was conducted in accordance with the *Guidance for Conducting Ecological Risk* 17 *Assessments* (Ohio EPA 2008) and evaluated chemical contamination to determine if it posed a risk to 18 the environment. The ERA incorporated available data to identify integrated COPECs. Four 19 integrated soil COPECs were identified in the Level I ERA.

20

Load Line 7 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 7 concludes with a Level I Scoping Level Risk Assessment, with a recommendation of no further action from the ecological risk perspective.

27

28 H DOCUMENTATION OF NO SIGNIFICANT CHANGE

29

The Load Line 7 Proposed Plan (USACE 2018) was released for public comment on June 6, 2018. Feedback received from the public during the public comment period and public meeting are presented in Part III of this ROD. The Proposed Plan recommended no further action for soil, sediment, and surface water at Load Line 7. No significant changes were necessary or appropriate following the conclusion of the public comment period.

PART III: RESPONSIVENESS SUMMARY FOR PUBLIC 1 COMMENTS ON THE ARMY PROPOSED PLAN FOR RVAAP-40 2 3 LOAD LINE 7

A OVERVIEW

5 6

4

7 On June 6, 2018, the Army released the Load Line 7 Proposed Plan (USACE 2018) for public 8 comment. A 30-day public comment period was held from June 6, 2018, to July 6, 2018. The Army 9 hosted a public meeting on June 21, 2018 to present the Proposed Plan and take questions and 10 comments from the public for the record. This public comment period and public meeting also 11 included Proposed Plans for Load Line 9, Load Line 12, Wet Storage Area, and Upper and Lower 12 Cobbs Ponds.

13

14 For soil, surface water, and sediment at Load Line 7, the Army recommended no further action. 15 During the public meeting, Ohio EPA concurred with the recommendation of no further action. Comments provided during the public comment period and public meeting are summarized in the 16 17 following section.

18

19 The community voiced no objections to the no further action recommendation. All public input was 20 considered during the selection of the final remedy for soil, surface water, and sediment at Load Line 21 7 in this ROD.

- 22
- 23
- **B** STAKEHOLDER ISSUES AND LEAD AGENCY RESPONSES
- 24

25 The following subsections summarize the oral and written comments provided during the public 26 comment period and public meeting. ARNG's responses provided below are considered final upon 27 approval of the Final ROD.

- 28
- 29

B.1

Oral Comments from Public Meeting 30

31 Comment 1: What impacts or what will occur when you excavate the contaminated soil? Is there any 32 testing that is done to monitor airborne contaminants?

33 Response: The recommended alternative for Load Line 7 is "no further action," as soil, sediment, and 34 surface water were determined to not require a remedial action. Consequently, there will be no 35 excavation activities at this site. Generally, excavation of contaminated soil includes using 36 engineering controls to mitigate risk from airborne contaminants to workers and the community. 37 These controls include performing constant visual inspections to verify that excessive dust is not 38 created in excavation or transport, wetting of the contaminated soil if dust is created, and ensuring the 39 contaminated soil is covered when in the haul trucks prior to exiting the site.

40

41 If contaminated media are at concentrations that airborne particulates could pose unacceptable risk to 42 workers or the community via an airborne pathway, the Remedial Design will specify that air 43 monitoring equipment will be on site and continually monitored.

1 **B.2** Written Comments

2

3 *Comment 1: What happens to Sand Creek after the exit from the arsenal area into Windham?*

4 Response: Sand Creek flows through the center of the former RVAAP (Camp Ravenna), generally in

5 a northeast direction to its confluence with South Fork Eagle Creek. This confluence is just inside the

- 6 Camp Ravenna perimeter fence. After the confluence, South Fork Eagle Creek exits Camp Ravenna
- 7 between Windham Road and Snow Road and continues in a northerly direction for approximately 3
- 8 miles to its confluence with Eagle Creek.
- 9

10 C TECHNICAL AND LEGAL ISSUES

- 11
- 12 There were no technical or legal issues raised during the public comment period.

- ARNG (Army National Guard) 2014. Final Technical Memorandum: Land Uses and Revised Risk Assessment Process for the Ravenna Army Ammunition Plant (RVAAP) Installation Restoration Program, Portage /Trumbull Counties, Ohio. Memorandum between ARNG-ILE Cleanup and the Ohio Environmental Protection Agency. February 2014.
- Jacobs (Jacobs Engineering Group, Inc.) 1989. Resource Conservation and Recovery Act Facility Assessment, Preliminary Review/ Visual Site Inspection Ravenna Army Ammunition Plant Ravenna, Ohio. October 1989.
- LES (Lakeshore Engineering Services Inc.) 2007. Project Completion Report: Munitions Response for the Demolition of Load Lines 5, 7, Building 1039, Transite Removal at Building T-1604, Removal of Remaining Concrete and Miscellaneous Debris at Load Lines 6, 9, and 11 at the Ravenna Army Ammunition Plant, Ravenna, Ohio. December 2007.
- MKM (MKM Engineers, Inc.) 2007. Characterization of 14 AOCs at Ravenna Army Ammunition Plant. March 2007.
- OHARNG (Ohio Army National Guard) 2008. Updated Integrated Natural Resources Management Plan for the Ravenna Training and Logistics Site, Portage and Trumbull Counties, Ohio. March 2008.
- OHARNG 2014. Integrated Natural Resources Management Plan at the Camp Ravenna Joint Military Training Center, Portage and Trumbull Counties, Ohio. December 2014.
- Ohio EPA (Ohio Environmental Protection Agency) 2008. *Guidance for Conducting Ecological Risk Assessments (Ohio EPA)*. Division of Emergency and Remedial Response. April 2008.
- USACE (U.S. 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 2009. Final Investigation of the Under Slab Surface Soils, Post Slab and Foundation Removal at RVAAP-39 Load Line 5, RVAAP-40 Load Line 7, RVAAP-41 Load Line 8, and RVAAP-43 Load Line 10, Version 1.0, Ravenna Army Ammunition Plant, Ravenna, Ohio. January 2009.
- USACE 2016. Remedial Investigation/Feasibility Study Report for Soil, Sediment, Surface Water at RVAAP-40 Load Line 7, Former Ravenna Army Ammunition Plant Portage and Trumbull Counties, Ohio. July 2016.
- USACE 2018. Proposed Plan for Soil, Sediment, Surface Water at RVAAP-40 Load Line 7, Former Ravenna Army Ammunition Plant Portage and Trumbull Counties, Ohio. March 2018.

- USACHPPM (U.S. Army Center for Health Promotion and Preventive Medicine) 1998. *Relative Risk Site Evaluation for Newly Added Sites at the Ravenna Army Ammunition Plant, Ravenna, Ohio.* Hazardous and Medical Waste Study No. 37-EF-5360-99. October 1998.
- USATHAMA (U.S. Army Toxic and Hazardous Materials Agency) 1978. *Installation Assessment* of Ravenna Army Ammunition Plant, Records Evaluation Report No. 132. 1978.
- USDA (U.S. Department of Agriculture) 2010. Soil Map of Portage County, Version 4. Website: www.websoilsurvey.nrcs.usda.gov. January 2010.
- USEPA (U.S. Environmental Protection Agency) 1999. *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents.* July 1999.
- Vista (Vista Sciences Corporation) 2017. Community Relations Plan 2017 for the Ravenna Army Ammunition Plant Restoration Program. March 2017.

FIGURES

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Figure 2. RVAAP/Camp Ravenna Installation Map



Figure 3. Load Line 7 Site Features



Figure 4. Load Line 7 Exposure Units



Figure 5. Geologic Map of Unconsolidated Deposits on Camp Ravenna



Figure 6. Geologic Bedrock Map and Stratigraphic Description of Units on Camp Ravenna



Figure 7. Natural Resources Inside and Near Habitat Area at Load Line 7

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Figure 8. Load Line 7 Sample Locations



Figure 9. PAH Exceedances of FWCUG in Surface Soil (Source Area ISM Samples)



Figure 10. Concentrations of PAHs Near LL7ss-013M and LL7ss-074M from April 2011 Sampling Event

	LEGE	ND			
0.02 acres)				DEMOLI	SHED BUILDING
e: 4/22/2011	=====	===		DEMOLIS	SHED WALKWAY
): 0-1					ASPHALT ROAD
(mg/kg)			· · · · · · · · · · · · · · · · · · ·	RAI	FENCE LINE
0.33		~			VEGETATION
0.28		~	GROUN	ND CON	NTOUR (10-FI)
0.34	A CONTRACTOR	·····			
0.032		⊆		•••••	ASPHALI DRIVE
07 gamas)	Sum	3	DEMOLI	SHED	BUILDING 1B-4
.07 ucres)		2004 (N OF 14 AOCA
2: 4/22/2011	[]]]]]]]	2 AND	2010 PB	A08 RI	SAMPLE AREA
): 0-1 (ma/ka)		00			A DELOW 0017
t (mg/kg)			II SAMPI RSI (TR)	LE ARE DE 1E-	A BELOW 2017
1.6					-00, 110 01 17
1.3		2011	SAMPLE A	REA EX	CEEDING 2017
1.5		JUSEPA	RSL (TR	OF 1E-	-05, HQ OF 1)
0.17					
LL7ss-074M LL7ss-013M					
Chemical of Co	Concent	ration at 1 (n	TR of 1 ng/kg)	E-05, HQ of 1	
		Kesider FV	it Kecepto /CUG	r 2 R	UT7 USEPA Resident RSL
				<u> </u>	
Benz(a)anthrac	ene	2	2.21		11
Benzo(a)pyrene	e	0	.221		1.1
Benzo(b)fluora	nthene	2	2.21		11
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10 20 30	US Army of Engir Louisville	y Corps leers a District	.OAD LI	le NE 7 AMP F	idos
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APPENDIX A

Affidavits

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Affidavit of Publication, Tribune Chronicle, June 6, 2018

NOTICE OF DOCUMENT AVAILABILITY Proposed Plans for Load Line 7, Load Line 9, Load Line 12, Wet Storage Area and Upper and Lower Cobbs Ponds at the Former Ravenna Army Ammunition Plant (RVAAP) The Proposed Plans for Load Line 7, Load Line 12, and Upper and Lower Cobbs Ponds each present a recommendation of No Further Action and provide the rationale for this recommendation. The Proposed Plans for Load Line 9 and Wet Storage Area present the preferred alternative, Ex-situ Thermal Treatment. These Proposed Plans are now available for public review for 30 days from June 8, 2018 to July 6, 2018. The Proposed Plans are evailable at: Newton Falls Public Library 204 South Canal Street 167 East Main Street PROOF OF PUBLICATION STATE OF OHIO SS: PAMELA EAZOR TRUMBULL COUNTY BEING DULY SWORN, UPON OATH STATES THAT SHE IS AN AUTHORIZED REPRESENTATIVE OF THE TRIBUNE CHRONICLE, (A DIVISION OF EASTERN OHIO NEWSPAPERS INC) A DAILY NEWSPAPER PRINTED IN THE CITY OF WARREN, COUNTY OF TRUMBULL, STATE OF OHIO AND OF Newton Falls Public Lorary Heed Memoral Lorary 204 South Canal Street 167 East Main Street Newton Falls, Ohio 44444 Bavenna, Ohio 44266 The Proposed Plans are also available at www.rxaap.org Please join us for an OPEN HOUSE and PUBLIC MEETING. The Army will host an informational open house and a public meeting to explain the recommendations in the Proposed Plans. Oral and written comments will host an accented at the prepting Written comments may be GENERAL CIRCULATION IN THE CITY OF WARREN, TRUMBULL COUNTY, OHIO AND IS INDEPENDENT IN POLITICS. THAT THE ATTACHED ADVERTISEMENT WAS PUBLISHED IN THE TRIBUNE CHRONICLE EVERY explain the recommendations in the Proposed Plans. Oral and written comments will be accepted at the meeting. Written comments may be mailed to the Camp Ravenna Environmental Office, 1438 State Route 534 SW, Newton Falls, OH 44444. Comments will be accepted during the pub-lic comment period from June 6, 2018 to July 6, 2018. The public meeting is scheduled for: Thursday, June 21, 2018 Shearer Community Center 6:00 pm Open House (Parls Township Hall) 6:30 pm Public Meeting 9355 Newton Falls Road Bravena OH 442956 DNE FOR WEEKS AND THAT THE FIRST INSERTION WAS **CONSECU** SAU THE DAY ON (Paris Township Hall) 9355 Newton Fells Road Ravenna, OH 44266 OF For more information or If you need special accommodations to attend, please contact Katie Tait at 614-336-6136. #157-1T-June 6, 2018 #3674 SWORN TO BEFORE ME AND SUBSCRIBED IN MY PRESENCE ON THIS CI SCAL DAY OF NOTARY PUBLIC CONSTANCE A. PACEK Notary Public, State of Ohio My Commission Expires March 7, 2021

X7.32 ADVERTISING COST \$

Affidavit of Publication, Record Courier, June 6, 2018



Proof of Publication Record Publishing Company 1050 W. Main Street, Kent, OH 44240 Phone (330) 541-9400 Fax (330) 673-6363

I. Humers being first duly sworn depose and say that I am Advertising Clerk of Record Publishing Company

30 Record-Courier a newspaper printed and published in the city of Kent, and of General circulation in the County of Portage, State of Ohio, and personal knowledge of the facts herein stated and that the notice hereto annexed was Published in said newspapers for 1 insertions on the same day of the week from and after the 6th day of June, 2018 and that the fees charged are legal.

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2018. and this 6th day of June,

Elizabeth McDaniel Notary Public Commission Expires June 19, 2021

Notice of Document Availability



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204 South Canal Street Newton Falls, Ohio 44444 Reed Memorial Library 167 East Main Street Ravenna, Ohio 44266

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