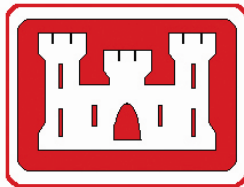


Final

Proposed Plan
CC RVAAP-73 Facility-Wide Coal Storage
Former Ravenna Army Ammunition Plant
Portage and Trumbull Counties, Ohio

Contract No.: W912QR-12-D-0002
Delivery Order: 0003

Prepared for:



United States Army Corps of Engineers
Louisville District
600 Dr. Martin Luther King, Jr. Place
Louisville, Kentucky 40202

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February 01, 2018

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13. SUPPLEMENTARY NOTES None.					
14. ABSTRACT This Proposed Plan (PP) presents the conclusions, recommendations, and preferred alternative for soil, surface water, and sediment within CC RVAAP-73 Facility-Wide Coal Storage at Camp Ravenna. The Area of Concern (AOC) includes the North Line Road Coal Tipple, Sand Creek Coal Tipple, and Building U-16 Boiler House. No Chemicals of Concern (COCs) were identified in the Human Health Risk Assessment (HHRA) for any of the three areas assessed as part of this AOC. No Chemicals of Potential Ecological Concern (COPECs) were identified in the Ecological Risk Assessment (ERA). The preferred alternative at the AOC is No Further Action (NFA) for soil, surface water, and sediment to attain Unrestricted (Residential) Land Use.					
15. SUBJECT TERMS CC Compliance Restoration Site, Coal, RVAAP-73 Facility-Wide Coal Storage, PP = Proposed Plan, NFA = No Further Action, AOC = Area of Concern, COCs = Chemicals of Concern, Unrestricted (Residential) Land Use, HHRA = Human Health Risk Assessment, COPECs = Chemicals of Potential Ecological Concern, ERA = Ecological Risk Assessment					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT N/A	18. NUMBER OF PAGES 38	19a. NAME OF RESPONSIBLE PERSON Edward Heyse
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (include area code) (256) 217-2573

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John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

RECEIVED
2/13/2018

February 13, 2018

**Re: US Army Ravenna Ammunition PLT RVAAP
Remediation Response
Project Records
Remedial Response
Trumbull County
267000859244**

Mr. Mark Leeper, P.G., MBA
Team Lead
Cleanup and Restoration Branch
ARNG Directorate
111 George Mason St.
Arlington, VA 22204

**Subject: Final Proposed Plan for RVAAP-73, Facility-wide Coal Storage,
February 8, 2018**

Dear Mr. Leeper:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Final Proposed Plan for RVAAP-73, Facility-wide Coal Storage" document for the Ravenna Army Ammunition Plant (RVAAP), Portage/Trumbull counties. The document, dated February 1, 2018, was received at the Northeast District Office (NEDO) on February 1, 2018. No Further Action is proposed for the site.

Based on the information contained in the Final Proposed Plan (PP) document, other investigation documents/reports and Ohio EPA's oversight participation during the investigation, Ohio EPA concurs with the Final PP document for RVAAP-73, Facility-wide Coal Storage.

As stated in the Final PP, the Army will offer a public comment period and hold an open house/public meeting on February 28, 2018, to present the conclusions and investigative findings for RVAAP-73, Facility-wide Coal Storage.

MR. MARK LEEPER
ARMY NATIONAL GUARD DIRECTORATE
PAGE 2

If you have any questions concerning the above, please feel free to contact Ed D'Amato at (330) 963-1170.

Sincerely,



Michael Proffitt, Chief
Division of Environmental Response and Revitalization

ED/nvp

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Bob Princic, Ohio EPA, NEDO, DERR
Bill Damschroder, Esq., Ohio EPA, Legal

CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Parsons has completed the Final Proposed Plan for CC RVAAP-73 Facility-Wide Coal Storage 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 this 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 the level of data obtained; and the reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing United States Corps of Engineers policy.

Independent Technical Reviewer:

Dan Griffiths, CPG
Technical Director



(Signature)

June 22, 2017
(Date)

Plan Preparer/Reviewer:

Edward Heyse, Ph.D., P.E.
Project Manager



(Signature)

June 22, 2017
(Date)

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Final

**Proposed Plan
CC RVAAP-73 Facility-Wide Coal Storage
Former Ravenna Army Ammunition Plant
Portage and Trumbull Counties, Ohio**

**Contract No.: W912QR-12-D-0002
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**Prepared for:
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600 Dr. Martin Luther King Jr. Place
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**Prepared by:
PARSONS
401 Diamond Drive NW
Huntsville, AL 35806
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February 01, 2018

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DOCUMENT DISTRIBUTION
for the
Final Proposed Plan
for CC RVAAP-73 Facility-Wide Coal Storage
Ravenna Army Ammunition Plant Restoration Program
Camp Ravenna, Ohio

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Kevin Mieczkowski, USACE – Louisville District	2	1
Ed Heyse, Parsons	0	1

ARNG = Army National Guard
OHARNG = Ohio Army National Guard
Ohio EPA = Ohio Environmental Protection Agency
RVAAP = Ravenna Army Ammunition Plant
USACE = United States Army Corps of Engineers
REIMS = Ravenna Environmental Information Management System

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LIST OF ACRONYMS

amsl	above mean sea level
AOC	Area of Concern
bgs	below ground surface
Camp	Camp Ravenna Joint Military Training Center
Ravenna	Training Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMCOPC	Contaminant Migration Chemicals of Potential Concern
COCs	Chemicals of Concern
COEC	Chemicals of Ecological Concern
COPECs	Chemicals of Potential Ecological Concern
COPCs	Chemicals of Potential Concern
DU	Decision Unit
ERA	Ecological Risk Assessment
ft ²	square feet
FWCUGs	Facility-Wide Cleanup Goals
HHRA	Human Health Risk Assessment
HQ	Hazard Quotient
HRR	Historical Records Review
ISM	incremental sampling methodology
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NGT	National Guard Trainee
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
PP	Proposed Plan
RI	Remedial Investigation
ROD	Record of Decision
RSL	Regional Screening Level
RVAAP	Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation

LIST OF ACRONYMS (Continued)

SARA	Superfund Amendments and Reauthorization Act
SRCs	Site-Related Chemicals
U.S. Army	United States Department of the Army
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
WoE	Weight-of-Evidence

1.0 INTRODUCTION

This Proposed Plan (PP) presents the recommendations for environmental media within the Compliance Restoration Site CC (Army Environmental Compliance-Related Cleanup Program) RVAAP-73 Facility-Wide Coal Storage Area of Concern (AOC) at the former Ravenna Army Ammunition Plant (RVAAP). The three areas at this AOC are the North Line Road Coal Tipple, the Sand Creek Coal Tipple, and the Building U-16 Boiler House. 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). The United States Department of the Army (U.S. Army), in coordination with the Ohio Environmental Protection Agency (Ohio EPA), is issuing this PP to provide the public with information to comment upon the selection of an appropriate response action. The remedy will be selected for the AOC 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 is 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 (RI) Report CC RVAAP-73 Facility-Wide Coal Storage* (Parsons 2017), and other documents contained in the Administrative Record File for the AOC. This PP addresses three areas at this AOC; the North Line Road

Public Comment Period:

February 16, 2018, to March 17, 2018

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 CC RVAAP-73 Facility-Wide Coal Storage* (Parsons 2017). Oral and written comments will also be accepted at the meeting. The open house and public meeting are scheduled for 6:00 PM, February 28, 2018, at the Ravenna High School Community Room, 6589 North Chestnut Street, 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:

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

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 an appointment to review the Administrative Record File can be scheduled.

Coal Tipple, the Sand Creek Coal Tipple, and the Building U-16 Boiler House. No Chemicals of Concern (COCs) were identified at any of the three former coal storage areas. The U.S. Army's preferred Alternative is No Further Action for soil, sediment, and surface water at CC RVAAP-73 Facility-Wide Coal Storage.

The U.S. Army encourages the public to review the site background documents to gain a more comprehensive understanding of the AOC, activities that have been conducted to date, and the rationale for the selection of preferred alternative.

2.0 RVAAP DESCRIPTION AND BACKGROUND

The former RVAAP, now known as Camp Ravenna, is located in northeastern Ohio within Portage and Trumbull counties. Camp Ravenna is approximately three (3) miles east/northeast of the City of Ravenna and one (1) mile north/northwest of the Village of Newton Falls. Camp Ravenna is federally owned, approximately 11 miles long and 3.5 miles wide. Camp Ravenna is bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad to the south; Garret, McCormick, and Berry Roads to the west; the Norfolk Southern Railroad to the north; and State Route 534 to the east. In addition, Camp Ravenna is surrounded by the communities of Windham, Garrettsville, Charlestown, and Wayland.

As of September 2013, administrative accountability for the entire 21,683-acre facility has been transferred to the United States Property & Fiscal Officer for Ohio and the property subsequently licensed to the Ohio Army National Guard (OHARNG) for use as a military training site.

3.0 CC RVAAP-73 FACILITY-WIDE COAL STORAGE DESCRIPTION AND BACKGROUND

There were 17 documented former coal storage locations on Camp Ravenna that were investigated in the Final Historical Records Review (HRR) (SAIC 2011). The HRR recommended 3 of the 17 areas for additional investigation: North Line Road Coal Tipple, Sand Creek Coal Tipple, and Building U-16 Boiler House. The North Line Road Coal Tipple and Building U-16 Boiler House are located in the northwestern portion of Camp Ravenna.

Building U-16 Boiler House is located north of Bundling/North Line Road, west of Route 80 (also known as Freedom Road) and north of Newton Falls Road (Figure 2). North Line Road Coal Tipple is located just south of Bundling/North Line Road; east of Road 7C, and north of Newton Falls Road (Figure 2). Sand Creek Coal Tipple is located in the north-central portion of Camp Ravenna, just east of Paris-Windham Road and west of Building 1200 (Figure 2).

Based on the HRR (SAIC 2011) and the RI report, historical use of coal at the former RVAAP's coal storage areas was consistent with conventional industrial practices at the time for steam generation supplying power houses, production facilities, and heating systems. The former RVAAP received bulk coal primarily by rail at the Sand Creek and North Line Road coal tipples. Bulk coal was typically stored and staged in uncovered piles on the ground surface. Coal was distributed throughout the former RVAAP by truck. Coal storage locations included covered bins and uncovered storage piles on the ground surface. No documentation of accidental or large volume spills or releases associated with the coal storage areas was found during the HRR. No aboveground storage tanks or underground storage tanks are associated with the former coal storage areas.

- North Line Road Coal Tipple: This area was used as a bulk coal receiving, storage, and distribution area. Based on historical aerial photographs of this area, coal storage piles appear in the 1952 through 1966 photos. Most of the coal appears to have been removed by 1979. By 1985, there was no evidence of coal storage in this area; however, during a 2004 visit to this area, very small particles of coal were noted as remaining scattered over the ground surface in this area (SAIC 2011). More recent photographs taken in 2010 during the HRR (SAIC 2011) and in 2013 during the RI (Parsons 2017) confirm that coal remains widely scattered over the ground surface.
- Sand Creek Coal Tipple: This area was used as a bulk coal receiving, storage, and

distribution area. However, historical aerial photographs do not show clear evidence of coal storage in this area. Residual coal was observed on the ground surface in this area during the 2004 area visit (SAIC 2011). Minimal coal was observed in more recent photographs taken in 2010 during the HRR (SAIC 2011) and in 2011 during the RI (Parsons 2017).

- **Building U-16 Boiler House:** This area was used to store coal for boiler supply/steam generation. Based on historical aerial photographs of this area, coal storage piles appear in the 1952 through 1966 photos. Most of the coal appears to have been removed by 1979. By 1985, there was no evidence of coal storage in this area; however, during a 2004 visit to this area, residual coal fragments were observed on the ground surface in the area (SAIC 2011). Minimal coal was observed in a more recent photograph taken in 2011 during the HRR (SAIC 2011).

The following environmental investigations have been completed for the CC RVAAP-73 Facility-Wide Coal Storage areas:

- *Historical Records Review Report for the 2010 Phase I Remedial Investigation Services at Compliance Restoration Sites (9 Areas of Concern), Ravenna Army Ammunition Plant, Ravenna, Ohio* (SAIC 2011).
- *Remedial Investigation for CC RVAAP-73 Facility-Wide Coal Storage* (Parsons 2017).

4.0 CC RVAAP-73 FACILITY-WIDE COAL STORAGE CHARACTERISTICS

The areas included in CC RVAAP-73 Facility-Wide Coal Storage were constructed as part of the former original RVAAP facility. No specific documentation was found during the HRR to define the years of operation of each specific former coal storage area. Historical aerial photographs indicate coal storage ceased sometime between 1966 and 1985.

North Line Road Coal Tipple

- The North Line Road Coal Tipple area is approximately 53,347 square feet (ft²) (1.22 acres). The approximate surface elevation of the area is 1,128 feet above mean sea level (amsl). No building is associated with this location, and the area is generally flat with a slight grade to the east-southeast toward Sand Creek. The area is unpaved and partially vegetated with low shrubs (Figure 3). The surrounding area is wooded. The HRR (SAIC 2011) reported that residual coal was observed on the ground surface. A ditch exists to the north of the area along the south side of North Line Road. The ditch flows east-northeast into Sand Creek.
- The native soil at North Line Road Coal Tipple was mapped by the United States Department of Agriculture (USDA) as disturbed soil consisting of a mixture of natural soil and fill soil termed Udorthents (Parsons 2017). Boring logs from the area indicate dark brown to gray silty clays, which may be Lavery Till glacial deposits or fill material. One boring location indicated slag and coal as deep as 8 to 10 inches below ground surface (bgs).
- Based on approximate surface elevation and the top of bedrock elevation, the depth to bedrock in this area is estimated to be approximately 125 feet bgs (1,000 feet amsl) (Parsons 2017).
- No groundwater monitoring wells are located within the North Line Road Coal Tipple. FWGmw-003 is the nearest groundwater monitoring well in the vicinity, it is located approximately 50 feet east and is screened in the unconsolidated sediments from 8.5 and 18.5 feet bgs (Parsons 2017). The depth to water in this well was approximately 3.4 feet bgs during the September 2016 groundwater monitoring event, with a potentiometric elevation of feet amsl (TEC-Weston 2017). Based on the potentiometric surface of the unconsolidated aquifer and the estimated ground surface elevation, the depth to groundwater is likely

within a few feet of the ground surface (i.e., <5 feet bgs) (Parsons 2017). The groundwater flow direction in the unconsolidated aquifer beneath the area is to the east-southeast toward Sand Creek.

- There are no wetlands, creeks, streams, or other water bodies within the North Line Road Coal Tipple area. Based on the topographic map of this area presented in the RI, the ground surface is relatively flat, with a gentle downward slope to the east toward Sand Creek, located approximately 400 feet east (Parsons 2017).
- Several wetlands are present along and near Sand Creek and its tributaries north and east of the North Line Road Coal Tipple. The closest downgradient wetland is located approximately 1,100 feet southeast of the North Line Road Coal Tipple area (Parsons 2017).

Sand Creek Coal Tipple

- The Sand Creek Coal Tipple area is approximately 28,196 ft² (0.65 acres), (Figure 4). The tipple is at the base of the former rail spur, and, based on aerial photographs, it appears to be covered by woody/shrub-type vegetation. The topography in the immediate area of the Sand Creek Coal Tipple is generally flat, but the area topography slopes toward Sand Creek to the east and south. The approximate surface elevation of the area is 945 feet amsl. The HRR (SAIC 2011) reported that residual coal was observed at the surface. Sand Creek runs adjacent to the area to the south and east.
- The native soil at Sand Creek Coal Tipple was mapped by the USDA as Trumbull silt loam (0-2 % slopes) (Parsons 2017). Boring logs from the area indicate dark brown to gray silty clays at the surface, grading to silty sand. These soils may be Hiram Till glacial deposits or fill material.
- Based on approximate surface elevation and the top of bedrock elevation, the depth to bedrock in this area is estimated to be

approximately 20 feet bgs (925 feet amsl) (Parsons 2017).

- No groundwater monitoring wells are located within the Sand Creek Coal Tipple area. Groundwater within the unconsolidated aquifer generally flows east towards Sand Creek, which is located approximately 50 feet from the eastern boundary of the coal tipple area (TEC-Weston, 2017).
- Monitoring wells B12mw-013 and BKGmw-012 are not located within the Sand Creek Coal Tipple, but they are located approximately 2,130 feet east and 3,300 feet west of the area, respectively. They monitor the Sharon Sandstone bedrock aquifer. B12mw-013 is screened 11.5-21.5 feet bgs and had depth to water at 18.48 feet bgs and a potentiometric elevation of 983.32 feet amsl in September 2016 (TEC-Weston 2017). BKGmw-012 is screened 38.6-59.6 feet bgs and had a depth to water at 10.7 feet bgs and a potentiometric elevation of 986.87 feet amsl in September 2016 (TEC-Weston 2017). The estimated depth to groundwater in the Sharon aquifer is approximately 35 feet bgs. The generalized groundwater flow direction within the Sharon aquifer beneath this area is to the east-northeast (Parsons 2017).
- There are no wetlands, creeks, streams, or other water bodies within the Sand Creek Coal Tipple area (Figure 4). However, Sand Creek is located within 50 feet of the southeast corner of the area. Sand Creek flows to the east paralleling the area's southern boundary where a tributary enters the creek approximately 50 feet east of the northeast corner of the area (Parsons 2017). Sand Creek then flows northeast away from the Sand Creek Coal Tipple area. Based on the topographic map of the Sand Creek Coal Tipple area presented in the RI, the ground surface at the coal tipple is relatively flat with a gentle downward slope to the east (Parsons 2017).

Building U-16 Boiler House

- The Building U-16 Boiler House area is approximately 6,050 ft² (0.138 acres) and is generally flat, with a slight grade to the southeast (Figure 5). The boiler house has been demolished, and the area has been graded. There are no structures within the investigated area. The approximate surface elevation of the area is 1,187 feet amsl. The surface of the area is covered mainly with grasses and small shrubs. A rail line exists just north of the area. The HRR (SAIC 2011) reported that residual coal fragments were observed on the ground surface.
- The native soil at the Building U-16 Boiler House was mapped by the USDA as Wadsworth silt loam (2-6 % slopes) (Parsons 2017). Boring logs from the area indicate predominantly brown silty clays, which may be Lavery Till glacial deposits or fill material from site construction. One boring location included coal fragments and gravel from 0 to 6 inches bgs. Based on approximate surface elevation and the top of bedrock elevation, the depth to bedrock in this area is estimated to be approximately 27 feet bgs (1,160 feet amsl) (Parsons 2017).
- No groundwater monitoring wells are located within the Building U-16 Boiler House area. The nearest facility-wide groundwater monitoring well is FWGmw-014, which is located approximately 0.5 mile to the east and is screened in unconsolidated sediments from 8.25 to 18.25 feet bgs (Parsons 2017). The depth to water in this well was approximately 4.88 feet bgs during the September 2016 groundwater monitoring event, with a potentiometric elevation of 1,130.12 feet amsl (TEC-Weston 2017). A background monitoring well, BKGmw-005, is located approximately 0.5 mile to the northeast of the former boiler house and is screened in the unconsolidated aquifer from 8.2 to 18.2 feet bgs (Parsons 2017). The depth to water in this well was approximately 13.72 feet bgs during the September 2016 groundwater monitoring event, with a potentiometric

elevation of 1,135.72 feet amsl (TEC-Weston 2017).

- The estimated groundwater elevation of the unconsolidated aquifer beneath the area is 1,165 feet amsl (approximately 22 feet bgs), and the direction of groundwater flow is presumed to be to the southeast toward a tributary of Hinkley Creek (Parsons 2017).
- The closest bedrock monitoring well, FWGmw-005, is located approximately 2,300 feet to the south and is screened in the uppermost Homewood Sandstone aquifer with a potentiometric surface elevation of 1,147.75 feet amsl (Parsons 2017). There are no monitoring wells west of the area. Groundwater in the Homewood bedrock beneath the area is presumed to be 1,150 feet amsl, and the direction of groundwater flow is presumed to the east-southeast (Parsons 2017).
- There are no wetlands, creeks, streams, or other water bodies within the Building U-16 Boiler House area. Based on the topographic map of this area presented in the RI, the ground surface is relatively flat (Parsons 2017). The nearest downgradient surface water body is a tributary (and associated wetlands) of Hinkley Creek, located approximately 1,100 feet south of the Building U-16 Boiler House area (Parsons 2017).

Sediment and surface water are not present on the coal storage areas, but sediment and surface water are located in the vicinity of the North Line Road Coal Tipple and Sand Creek Coal Tipple. Therefore, wet sediment and surface water sampling was conducted during the RI at the two coal tipples to evaluate whether Site-Related Chemicals (SRCs) in surface soil could be transported to Sand Creek in storm water runoff.

No SRCs were identified in Sand Creek that could be attributable to coal storage within the AOC. SRCs in surface soil at the Decision Units (DUs) of the two coal tipples are not impacting the quality of Sand Creek.

Fate and transport modeling eliminated all SRCs in soil as potential risks to groundwater. No Final Contaminant Migration Chemicals of Potential Concern (CMCOPCs) were identified for areas of the CC RVAAP-73 Facility-Wide Coal Storage.

5.0 SCOPE AND ROLE OF RESPONSE ACTION

The OHARNG future Land Use for CC RVAAP-73 Facility-Wide Storage is for military training. Unrestricted (Residential) Land Use was evaluated using the Residential Receptor exposure scenario to assess baseline conditions. The Resident Receptor is the Representative Receptor for Unrestricted (Residential) Land Use, and the National Guard Trainee (NGT) is the Representative Receptor for Military Training Land Use. Military Training Land Use is the most likely future use and the Unrestricted (Residential) Land Use allows for full use without restrictions such as Land Use Controls. Based on the results of the Ecological Risk Assessment (ERA) (see Section 6.2), no ecological risks are anticipated for the AOC.

Groundwater is addressed under the Facility-Wide Groundwater Monitoring Program RVAAP-66 Facility-Wide Groundwater. However, the selected remedy for soil at the CC RVAAP-73 Facility-Wide Coal Storage areas 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 during the RI to identify COCs and provide a risk management evaluation to determine if remediation is required under CERCLA based on potential risks to human receptors. The exposure media and depths evaluated in the HHRA for the Resident Receptor (Adult and Child) were surface soil (0-1 foot bgs) and subsurface soil (1-13 feet bgs). Surface water bodies have not been impacted by SRCs; therefore, HHRA and ERA were not

performed on surface water and sediment as part of the RI.

RI data (Parsons 2017) were used to determine SRCs, Chemicals of Potential Concern (COPCs), and COCs in accordance with the *Final Facility-Wide Cleanup Goals Report* (SAIC, 2010). The final list of COPCs includes those SRCs where sample results from any depth within the area exceeded the most stringent Facility-Wide Cleanup Goals (FWCUGs) Resident Receptor and NGT FWCUGs at a target cancer risk level of 10^{-6} and non-carcinogenic target Hazard Quotient (HQ) of 0.1. United States Environmental Protection Agency (USEPA) Residential Regional Screening Levels (RSLs) were used for those analytes with no established FWCUGs. The COPCs identified for each area are presented below:

North Line Road Coal Tipple

- Surface soil (0-1 foot bgs): arsenic, manganese, benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene
- Subsurface soil (1-13 feet bgs): benzo(a)pyrene

Sand Creek Coal Tipple

- Surface soil (0-1 foot bgs): chromium and benzo(a)pyrene
- Subsurface soil (1-13 feet bgs): benzo(a)pyrene

Building U-16 Boiler House

- Surface soil (0-1 foot bgs): cobalt
- Subsurface soil (1-13 feet bgs): none

COPCs were selected as a COC if the ratio of the Exposure Point Concentration to the FWCUG corresponding to a target cancer risk of 10^{-5} and target HQ of 1 was greater than 1. No COCs were identified in Sand Creek Coal Tipple or Building U-16 Boiler House.

Arsenic and benzo(a)pyrene were initially identified as COCs for the Resident Receptor in surface soil at the North Line Road Coal Tipple. Manganese was also identified as an initial COC for the NGT receptor in surface soil at the North

Line Road Coal Tipple. Coal is widely present on the ground surface and coal dust or coal fragments were likely included in the surface soil incremental sampling methodology (ISM) sample, resulting in the arsenic, benzo(a)pyrene, and manganese detections. No other COCs were identified in surface soil and no COCs were identified in subsurface soil. The Weight-of-Evidence (WoE) provided in the RI eliminated all COCs from further evaluation for Resident Receptor and NGT. No Further Action is recommended for North Line Road Coal Tipple, Sand Creek Coal Tipple, and Building U-16 Boiler House surface soil, subsurface soil, sediment, and surface water.

6.2 Ecological Risk Assessment

The purpose of the ERA performed during the RI was to evaluate the potential for chemicals detected in surface soil (0-1 foot bgs) at CC RVAAP-73 Facility-Wide Coal Storage areas to adversely affect ecological receptors. For the ERA, maximum concentrations of analytes detected in surface soil were compared to site-specific background screening values and to conservative ecological screening benchmarks for generic receptors. Analytes retained for further evaluation were subsequently assessed using more realistic assumptions in a refining step.

Eight Chemicals of Potential Ecological Concern (COPECs) were identified in surface soil and retained for further evaluation (arsenic, cadmium, manganese, selenium, thallium, zinc, dibenzofuran, and tetryl). The list of COPECs was subsequently refined on a COPEC-by-COPEC basis. Considering site-specific factors such as the small individual and collective size (2.01 acres) and the low-quality habitat, and considering mitigating uncertainties, no ecological risks are anticipated for the AOC. Therefore, no further investigation (e.g., Level III Baseline ERA) or remedial action is considered necessary at CC RVAAP-73 Facility-Wide Coal Storage for the protection of ecological receptors. No Chemicals of Ecological Concern (COECs) were identified for the AOC.

7.0 CONCLUSIONS

Based on results of the RI, no remedial actions are required for this AOC. Further investigation is not warranted for the following reasons: (1) the nature and extent of chemicals detected in soil at the AOC has been characterized; (2) no COCs for human health were identified at the AOC; and (3) the ERA ended at a Level II assessment, and no further investigation or action was recommended. Therefore, No Further Action is required for soil, sediment and surface water at CC RVAAP-73 Facility-Wide Storage areas and Unrestricted (Residential) Land Use is appropriate for this AOC. Groundwater will be addressed as part of a separate RI for RVAAP-66 Facility-Wide Groundwater.

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 February 16, 2018 to March 17, 2018. 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 February 16, 2018 to March 17, 2018, 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 CC RVAAP-73 Facility-Wide Coal Storage. 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 matters, please deliver comments to the U.S. Army at the public meeting or mail written comments (postmarked no later than March 17, 2018).

<p style="text-align: center;">POINTS OF CONTACT FOR WRITTEN COMMENTS</p> <p>Mailing Address: Camp Ravenna Joint Military Training Center Environmental Office Attn: Kathryn Tait 1438 State Route 534 SW Newton Falls, Ohio 44444</p> <p>Email Address: kathryn.s.tait.nfg@mail.mil</p>

8.4 Public Meeting

The U.S. Army will hold an open house and public meeting on this PP on February 28, 2018, at 6:00 PM, in the Ravenna High School Community Room, 6589 North Chestnut Street, Ravenna, Ohio 44266 to accept comments. This meeting will provide an opportunity for the public to comment on the proposed action.

8.5 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.

<p style="text-align: center;">ADMINISTRATIVE RECORD FILE</p> <p>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</p> <p>Note: Access is restricted to Camp Ravenna, but an appointment to review the Administrative Record File can be scheduled.</p>

<p style="text-align: center;">INFORMATION REPOSITORIES</p> <p>Reed Memorial Library 167 East Main Street Ravenna, Ohio 44266 (330) 296-2827</p> <p><u>Hours of operation:</u> 9 AM-9 PM Monday-Thursday 9 AM-6 PM Friday 9 AM-5 PM Saturday 1 PM-5 PM Sunday</p> <p>Newton Falls Public Library 204 South Canal Street Newton Falls, Ohio 44444 (330) 872-1282</p> <p><u>Hours of operation:</u> 10 AM-8 PM Monday-Thursday 9 AM-5 PM Friday and Saturday</p> <p>Online http://www.rvaap.org/</p>
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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 preferred alternatives.

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 Chemicals of Potential Concern (CMCOPCs): 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.

Chemicals of Concern (COCs): 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.

Chemicals of Ecological Concern (COECs): a chemical substance specific to an AOC identified in the Level III ERA that poses ecological risks and is subject to further investigation, monitoring, risk management, and/or remedial actions.

Chemicals of Potential Concern (COPCs): 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.

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

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

Hazard Quotient (HQ): the ratio of the potential exposure to a substance and the level at which no adverse effects are expected.

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.

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.

REFERENCES

Ohio Environmental Protection Agency (Ohio EPA) 2004. *Director's Final Findings and Orders for the Ravenna Army Ammunition Plant*. June.

Parsons 2017. *Final Remedial Investigation (RI) CC RVAAP-73 Facility-Wide Coal Storage, Ravenna Army Ammunition Plant, Ravenna, Ohio*. February 17.

Science Applications International Corporation (SAIC) 2010. *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant, RVAAP, Ravenna, Ohio*. March.

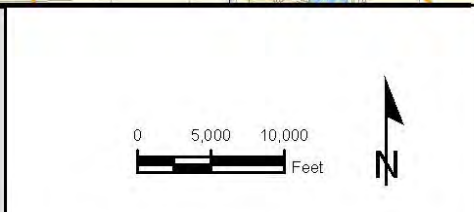
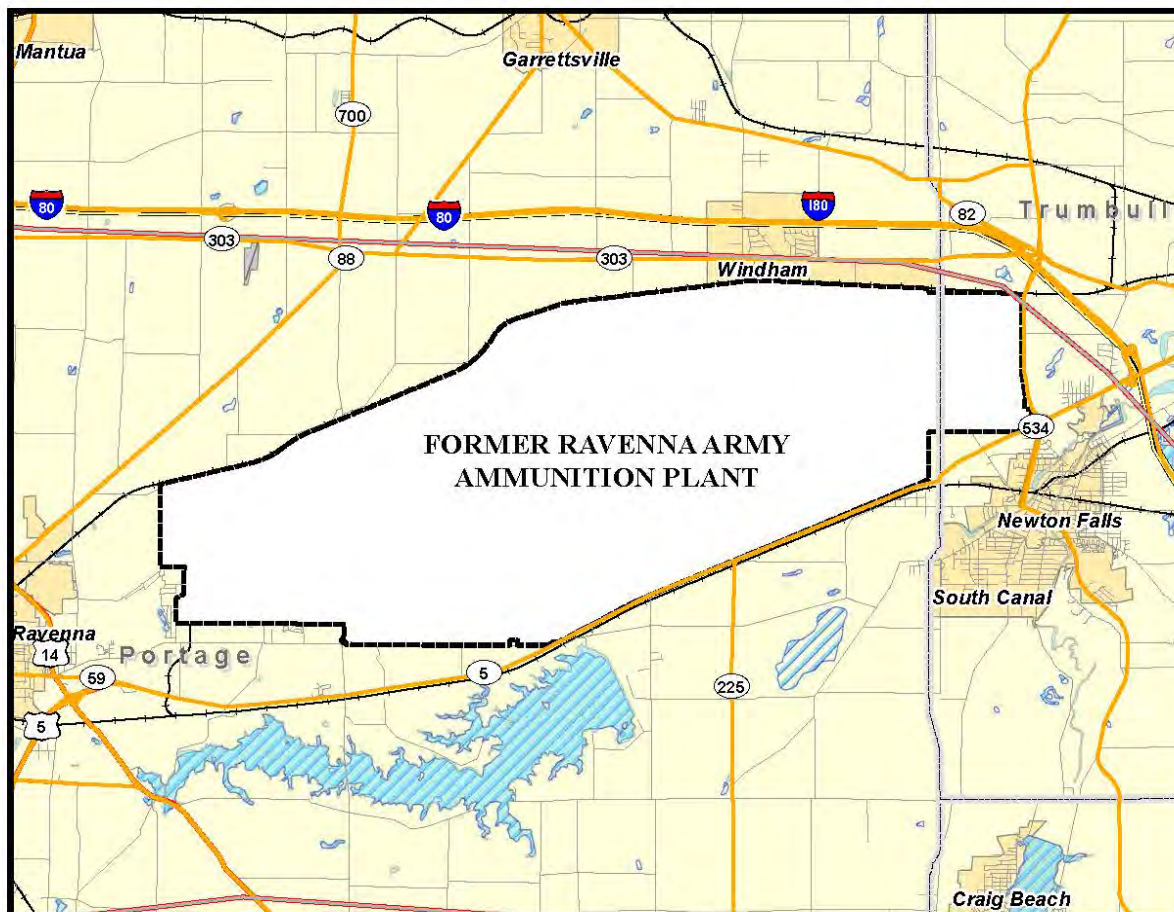
SAIC 2011. *Historical Records Review Report for the 2010 Phase I Remedial Investigation Services at Compliance Restoration Sites (9 Areas of Concern)*. Ravenna Army Ammunition Plant, Ravenna, Ohio. April.

TEC-Weston 2017. *Final Facility-Wide Groundwater Monitoring Program RVAAP-66 Facility-Wide Groundwater Semi-Annual Report for May 2016 Sampling Event*, Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio. January 3.

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FIGURES

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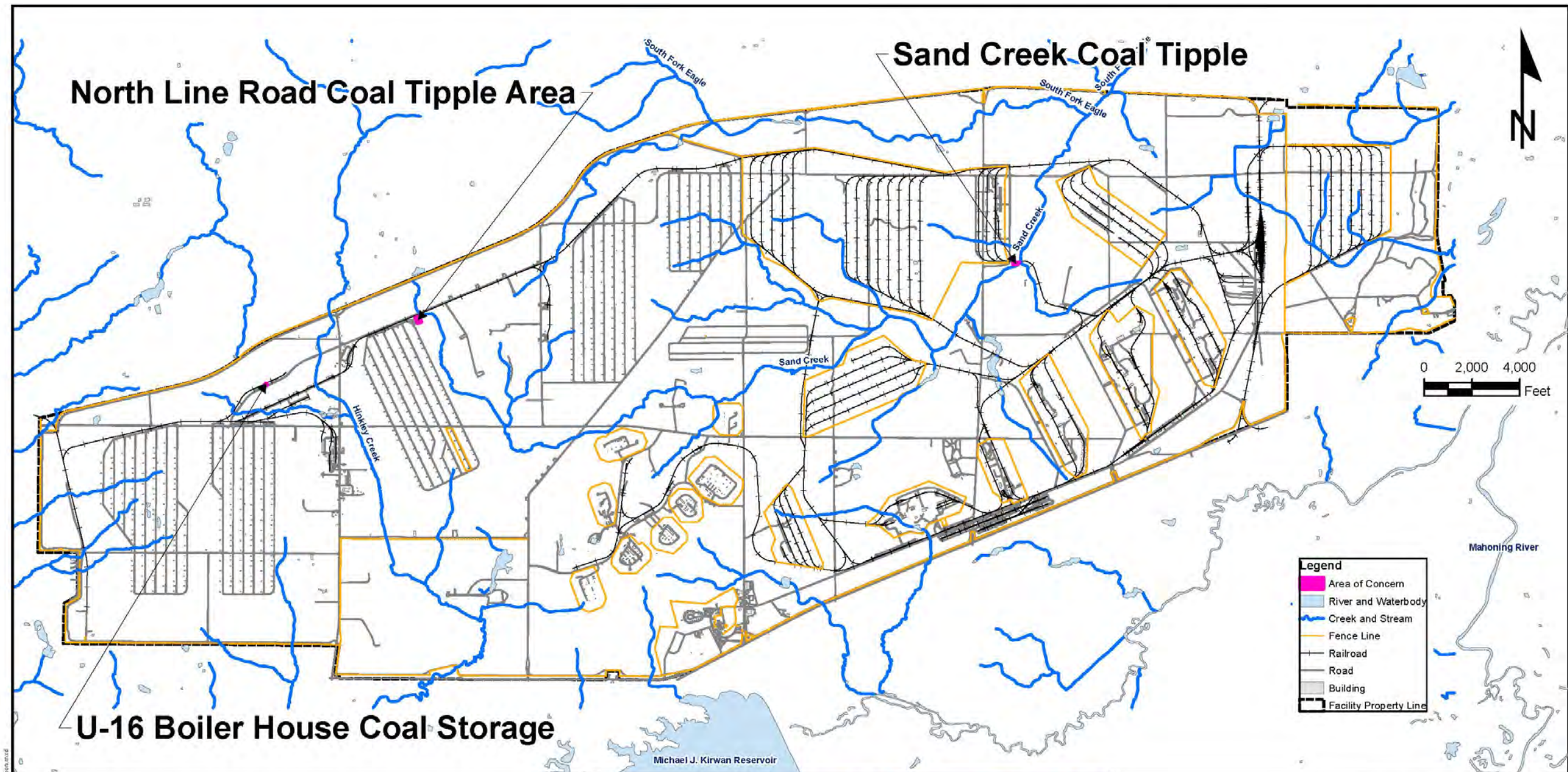


NOTES & SOURCES
 Map Coordinates: WGS 84, UTM Zone 17N in Meters
 The scale is for upper map only.

PARSONS		Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio	
DESIGNED BY:	BT	Figure 1 General Location and Orientation of Former Ravenna Army Ammunition Plant/Camp Ravenna CC RVAAP-73 Facility-Wide Coal Storage Proposed Plan	
DRAWN BY:	LH	SCALE:	As Shown
CHECKED BY:	EH	PROJECT NUMBER:	640030.0005.110051
SUBMITTED BY:	EH	DATE:	June 2017
FILE:	Ravenna_AOC	FIGURE NUMBER:	1

Figure 1 General Location and Orientation of Former Ravenna Army Ammunition Plant/Camp Ravenna

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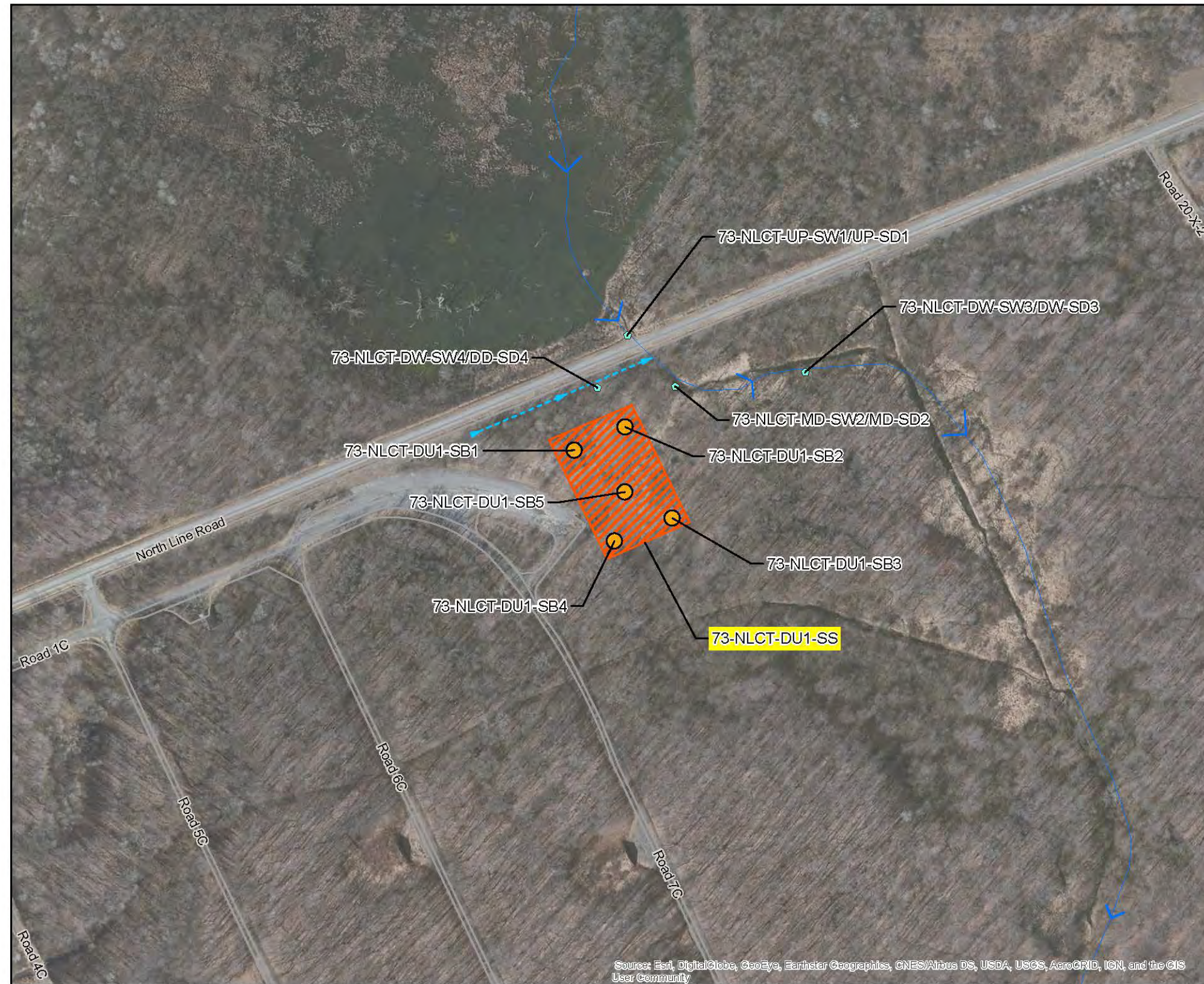
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PARSONS	Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio	
	Figure 2 CC RVAAP-73 Facility-Wide Coal Storage Location Proposed Plan	
SCALE	As Shown	PROJECT NUMBER 110051.05000
DATE	June 2017	FIGURE NUMBER 2
FILE	Ravenna_AOC	

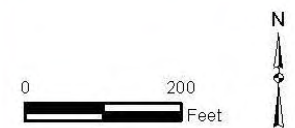
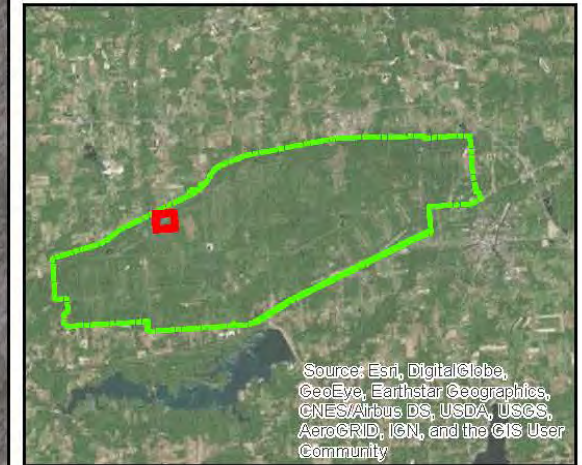
Figure 2 CC RVAAP-73 Facility-Wide Coal Storage Location

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Legend

- 2013 Direct-Push Boring Location
- ⊕ Collocated Sediment/Surface Water Sample Location
- Ditch and Flow Direction
- Creek and Flow Direction
- Decision Unit
- ISM Surface Soil Sample for Decision Unit
- Roads
- Installation Boundary



PARSONS		Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio	
DESIGNED BY: BT	Figure 3 CC RVAAP-73 Facility-Wide Coal Storage North Line Road Coal Tipple Site Features and Sampling Locations Proposed Plan		
DRAWN BY: LH			
CHECKED BY: EH			
SUBMITTED BY: EH			
SCALE: As Shown	PROJECT NUMBER: 110051.05000	FIGURE NUMBER: 3	
DATE: June 2017			
FILE: CC RVAAP-73 Area			

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

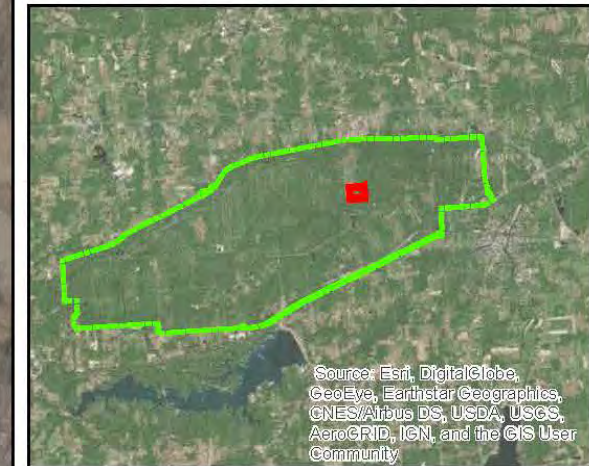
Figure 3 CC RVAAP-73 Facility-Wide Coal Storage North Line Road Coal Tipple Site Features and Sample Locations

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Legend

- 2013 Direct-Push Boring Location
- Collocated Sediment/Surface Water Sample Location
- Creek and Flow Direction
- Decision Unit
- ISM Surface Soil Sample for Decision Unit
- Roads
- Installation Boundary



PARSONS		Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio	
DESIGNED BY:	BT	Figure 4 CC RVAAP-73 Facility-Wide Coal Storage Sand Creek Coal Tipple Site Features and Sampling Locations Proposed Plan	
DRAWN BY:	LH		
CHECKED BY:	EH		
SCALE:	As Shown	PROJECT NUMBER:	110051.05000
SUBMITTED BY:	EH	DATE:	June 2017
FILE:	CC RVAAP-73 Area	FIGURE NUMBER:	4

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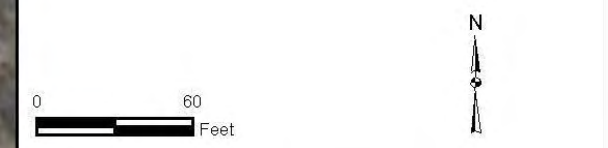
Figure 4 CC RVAAP-73 Facility-Wide Coal Storage Sand Creek Coal Tipple Site Features and Sample Locations

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Legend

- 2013 Direct-Push Boring Location
- Decision Unit
- ISM Surface Soil Sample for Decision Unit
- Roads
- Installation Boundary



PARSONS		Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio	
DESIGNED BY: BT	Figure 5 CC RVAAP-73 Facility-Wide Coal Storage Building U-16 Boiler House Site Features and Sampling Locations Proposed Plan		
DRAWN BY: LH			
CHECKED BY: EH			
SUBMITTED BY: EH	SCALE: As Shown	PROJECT NUMBER: 110051.05000	
	DATE: June 2017	FIGURE NUMBER: 5	
	FILE: CC RVAAP-73 Area		

Figure 5 CC RVAAP-73 Facility-Wide Coal Storage Building U-16 Boiler House Site Features and Sample Locations

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ATTACHMENT 1 – OHIO EPA CORRESPONDENCE



John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

RECEIVED
10/15/2017

September 22, 2017

Re: **US Army Ravenna Ammunition PLT RVAAP
Remediation Response
Project Records
Remedial Response
Portage County
267000859244**

Mr. Mark Leeper, P.G., MBA
Team Lead
Cleanup and Restoration Branch
ARNG Directorate
111 South George Mason Drive
Arlington, VA 22204

**Subject: Revised Letter on Draft Proposed Plan for RVAAP-73, Facility-wide Coal Storage,
September 6, 2017**

Dear Mr. Leeper:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft Proposed Plan for RVAAP-73, Facility-wide Coal Storage" document for the Ravenna Army Ammunition Plant (RVAAP), Portage/Trumbull Counties. The document, dated September 6, 2017, was received at the Northeast District Office (NEDO) on September 6, 2017. No further action is proposed for the site.

Based on the information contained in the Draft PP document, other investigation documents/reports, and Ohio EPA's oversight participation during the investigation, Ohio EPA has no further comments on the Draft PP document for the RVAAP-73, Facility-wide Coal Storage.

As stated in the Draft PP, the Army will submit a final PP, offer a public comment period, and hold an open house/public meeting in the near future to present the conclusions and investigative findings for RVAAP-73, Facility-wide Coal Storage.

If you have any questions concerning the above, please feel free to contact Ed D'Amato at (330) 963-1170.

Sincerely,

Edward D'Amato, Site Coordinator
Division of Environmental Response and Revitalization

ED/nvr

cc: Katie Tait, ARNG, Camp Ravenna Kevin Sedlak, ARNG, Camp Ravenna
Gail Harris, Vista Sciences Rebecca Shreffler, Vista Sciences
Craig Combs, USACE
ec: Mark Leeper, ARNGD Rod Beals, Ohio EPA, NEDO, DERR
Bob Princic, Ohio EPA, NEDO, DERR Tom Schneider, Ohio EPA, SWDO, DERR
Bill Damschroder, Esq., Ohio EPA, Legal

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epa.ohio.gov • (330) 963-1200 • (330) 487-0769 (fax)