Final
No Further Action Record of Decision for
RVAAP-034-R-01 Sand Creek Dump Munitions Response Site
Version 1.0

Former Ravenna Army Ammunition Plant
Portage and Trumbull Counties, Ohio

Contract No. W912DR-09-D-0005
Delivery Order No. 0002

Prepared for:

US Army Corps of Engineers®

U.S. Army Corps of Engineers
Baltimore District
10 S. Howard Street, Room 7000
Baltimore, Maryland 21201

Prepared by:

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September 29, 2015

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The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless designated by other documentation.

14. ABSTRACT

This Record of Decision (ROD) provides the final remedy of No Further Action (NFA) that was selected for RVAAP-034-R-01 Sand Creek Dump Munitions Response Site (MRS) at the former Ravenna Army Ammunition Plant under the Military Munitions Response Program (MMRP). The selection of the final remedy included a public meeting that was presented by the U.S. Army followed by a 30-day public comment period in accordance with 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 of 1986 and Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations 300). The recommendation of NFA at the MRS under the MMRP is protective of human health and the environment and meets the statutory requirements for cleanup standards established in Section 121 of CERCLA.

15. SUBJECT TERMS

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Ohio Environmental Protection Agency

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

December 3, 2015

Re: US Army Ravenna Ammunition Plt RVAAP
Remediation Response
Approval
Remedial Response
Portage County
267000859226

Mr. Mark Leeper, P.G., MBA
Army National Guard Directorate
Environmental Programs Division
ARNG-ILE-CR
111 South George Mason Drive
Arlington, VA 22204

Subject: Approval of the "Final No Further Action Record of Decision for RVAAP-034-R-01 Sand Creek Dump Munitions Response Site, Version 1.0" Former Ravenna Army Ammunition Plant, Ravenna, Ohio: Dated September 29, 2015 (Work Activity No. 267-000859-226)

Dear Mr. Leeper:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR), has received and reviewed the, "Final No Further Action Record of Decision for RVAAP-034-R-01 Sand Creek Dump Munitions Response Site, Version 1.0" document, dated September 29, 2015. This document received by Ohio EPA's NEDO on September 30, 2015, was prepared by CB&I Federal Services LLC.

The Military Munitions Response Program (MMRP) Remedial Investigation (RI) for the RVAAP-034-R-01 Sand Creek Dump Munitions Response Site (MRS) investigated the potential presence of munitions debris and munitions of explosives of concern within the defined portion of the MRS area. The MRS was investigated due to historical knowledge and reports of potential munitions items being dumped between 1950 through 1960. The site is collocated with an installation restoration program area of concern (Sand Creek Disposal Road Landfill) that will continue to be addressed after no further action has occurred for the MMRP. No evidence of MEC or source of MC was found at the MRS during the RI field work. Based on these results, no risks associated with exposures to MEC or MC appear to be present. As there are no further comments or potential issues to address for the MRS, Ohio EPA concurs with the remedy of no further action and has signed and dated the final record of decision for the MRS and will submit a signed copy for your records.

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If you have any questions or concerns, please do not hesitate to contact me at (614) 644-2896.

Sincerely,

Peter Whitehouse
Division Chief
Division of Environmental Response and Revitalization

PW:NCR/nvr

cc: Gregory F. Moore, USACE, Louisville District
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ARNG—Army National Guard
CB&I—CB&I Federal Services LLC
Ohio EPA—Ohio Environmental Protection Agency
RVAAP—former Ravenna Army Ammunition Plant
USACE—United States Army Corps of Engineers

Table of Contents

List of Figures

Acronyms and Abbreviations

AMEC	AMEC Earth and Environmental, Inc.
amsl	above mean sea level
AOC	area of concern
ARNG	U.S. Army National Guard
bgs	below ground surface
BHC	benzene hexachloride
Camp Ravenna	Camp Ravenna Joint Military Training Center
CB&I	CB&I Federal Services LLC
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act*
cm/s	centimeters per second
CMCOPC	contaminant migration chemical of potential concern
COC	chemical of concern
COL	colonel
Community Relations Plan	Final *Community Relations Plan for the Ravenna Army Ammunition Plant Restoration Program in Portage and Trumbull Counties, Ohio*
COPC	chemical of potential concern
DERR	Division of Environmental Response and Revitalization
DFFO	*Director's Final Findings and Orders (DFFO) for RVAAP*
DGM	digital geophysical mapping
Draft Phase I RI Report	Draft *Phase I Remedial Investigation Report for RVAAP-34 Sand Creek Disposal Road Landfill*
e^2M	engineering-environmental Management, Inc.
EPA	U.S. Environmental Protection Agency
ERA	ecological risk assessment
FWCUG	Facility-Wide Cleanup Goal
FWCUG guidance	Final *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant, Ravenna, Ohio*
HHRA	human health risk assessment
IRP	Installation Restoration Program
MC	munitions constituents
MD	munitions debris
MEC	munitions and/or explosives of concern
MEC HA	Interim *Munitions and Explosives of Concern Hazard Assessment Methodology*
MKM	MKM Engineers, Inc.
mm	millimeter
MMRP	Military Munitions Response Program
MRS	Munitions Response Site
NFA	No Further Action

Acronyms and Abbreviations (continued)

NFA Proposed Plan	*No Further Action Proposed Plan for RVAAP-034-R-01 Sand Creek Dump Munitions Response Site*
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
RAB	Restoration Advisory Board
RI	Remedial Investigation
RI Report	Final *Remedial Investigation Report for RVAAP-034-R-01 Sand Creek Dump Munitions Response Site*
ROD	Record of Decision
RVAAP	former Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation
Shaw	Shaw Environmental & Infrastructure, Inc.
SI	Site Inspection
TNT	trinitrotoluene
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture

PART I: DECLARATION

A. Site Name and Location

This No Further Action (NFA) Record of Decision (ROD) addresses investigations conducted at RVAAP-034-R-01 Sand Creek Dump Munitions Response Site (MRS) under the Military Munitions Response Program (MMRP) at the former Ravenna Army Ammunition Plant (RVAAP), now known as the Camp Ravenna Joint Military Training Center (Camp Ravenna). Camp Ravenna is located in east-central Portage County and southwestern Trumbull County, Ohio, approximately 3 miles east-northeast of Ravenna and approximately 1 mile northeast of the city of Newton Falls (**Figure 1**). The Sand Creek Dump MRS is located at the eastern portion of Camp Ravenna (**Figure 2**). The United States (U.S.) Environmental Protection Agency (EPA) *Comprehensive Environmental Response, Compensation, and Liability Information System* Identifier for Camp Ravenna is OH5210020736.

B. Statement of Basis and Purpose

The U.S. Army National Guard (ARNG) is the lead agency and presents the decision that NFA is considered as the recommended alternative for the Sand Creek Dump MRS. NFA is selected in accordance with the requirements of 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*. The ARNG's decision is based on information contained in the Administrative Record file for the Sand Creek Dump MRS.

The Ohio Environmental Protection Agency (Ohio EPA), the lead regulatory agency as per the *Director's Final Findings and Orders (DFFO) for RVAAP* (DFFO; Ohio EPA, 2004), reviewed and concurred with the *No Further Action Proposed Plan for RVAAP-034-R-01 Sand Creek Dump Munitions Response Site* (NFA Proposed Plan; CB&I Federal Services [CB&I], 2015a). The NFA Proposed Plan presented the ARNG's preliminary recommendations concerning how best to address the Sand Creek Dump MRS where no munitions and/or explosives of concern (MEC) were found that had the potential to originate from historical activities associated with manufacturing, storing, transporting, testing, training, and/or disposal that occurred at the facility. The NFA decision under the MMRP at this MRS satisfies the requirements of the DFFO (Ohio EPA, 2004).

C. Description of the Selected Remedy

NFA under CERCLA is necessary for the Sand Creek Dump MRS under the MMRP. No evidence of MEC or a source of munitions constituents (MC) from MEC or munitions-

related activities were found at the MRS during the Remedial Investigation (RI) field work that was conducted under the MMRP.

D. Statutory Determination

No MEC were encountered at the Sand Creek Dump MRS, and there are no explosive hazards or sources for MC. The recommendation of NFA at the MRS under the MMRP is protective of human health and the environment and meets the statutory requirements for cleanup standards established in Section 121 of CERCLA.

E. Authorizing Signature

Approved by:

Hallet Brazelton Jr 11/12/19

HALLET BRAZELTON, JR. Date
Acting Chief,
I&E, Army National Guard

PART II: DECISION SUMMARY

A. Site Name, Location, and Description

Camp Ravenna, formerly known as the RVAAP, is located in northeastern Ohio within Portage and Trumbull Counties and is approximately 3 miles east-northeast of the City of Ravenna and 1 mile west-northwest of the City of Newton Falls. The facility is federally owned and is approximately 11 miles long and 3.5 miles wide. The facility 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, the facility is surrounded by the communities of Windham, Garrettsville, Newton Falls, Charlestown, and Wayland (**Figure 1**).

Camp Ravenna was formerly utilized as a load, assemble, and pack facility. Administrative control of the 21,683-acre facility has been transferred to the U.S. Property and Fiscal Officer for Ohio in a series of transfers, with the last one taking place in September 2013. The property is licensed to the Ohio Army National Guard (OHARNG) for use as a military training site, Camp Ravenna. When the RVAAP was operational, Camp Ravenna did not exist and the entire 21,683-acre parcel was a federal government-owned, contractor-operated, industrial facility. The RVAAP restoration program involves cleanup of former production areas across the facility related to former operations under the RVAAP.

The Sand Creek Dump MRS is an approximately 0.85-acre area that is located in the eastern portion of Camp Ravenna (**Figure 2**). The only cultural feature at the MRS is a former rail bed that bisects the site. The former rail bed culvert that crossed over Sand Creek was removed in 2013. Several buildings associated with the former Sand Creek Sewage Treatment Plant are located northeast of the MRS. **Figure 3** presents the current MRS boundaries and cultural features associated with the Sand Creek Dump MRS.

B. Site History

The RVAAP was constructed between 1940 and 1941 for depot storage and ammunition assembly/loading. During operations as an ammunition plant, the RVAAP was a government-owned and contractor-operated industrial facility. Industrial operations at the facility consisted of 12 munitions assembly facilities, referred to as “load lines.” Load Lines 1 through 4 were used to melt and load 2,4,6-trinitrotoluene (TNT) and Composition B (mixture of TNT and Research Department Explosive) into large-caliber shells and bombs. The operations on the load lines produced explosive dust, spills, and vapors that collected on the floors and walls of each building. Periodically, the floors and walls were cleaned with

water and steam. Following cleaning, the "pink water" waste water, which contained TNT and Composition B, was collected in concrete holding tanks, filtered, and pumped into unlined ditches for transport to earthen settling ponds. Load Lines 5 through 11 were used to manufacture fuzes, primers, and boosters. From 1946 to 1949, Load Line 12 was used to produce ammonium nitrate for explosives and fertilizers prior to use as a weapons demilitarization facility.

In 1950, the facility was placed in standby status and operations were limited to renovation, demilitarization, and normal maintenance of equipment, along with storage of munitions. Production activities were resumed from July 1954 to October 1957 and again from May 1968 to August 1972. In addition to production missions, various demilitarization activities were conducted at facilities constructed at Load Lines 1, 2, 3, and 12. Demilitarization activities included disassembly of munitions and explosives melt-out and recovery operations using hot water and steam processes. Periodic demilitarization of various munitions continued through 1992.

In addition to production and demilitarization activities at the load lines, other facilities at the RVAAP include MRSs that were used for the burning, demolition, and testing of munitions. These burning and demolition grounds consist of large parcels of open space or abandoned quarries. Other areas of concern (AOCs) present at the facility include landfills, an aircraft fuel tank testing area, and various general industrial support and maintenance facilities (Science Applications International Corporation [SAIC], 2011).

The Sand Creek Dump MRS is collocated with an Installation Restoration Program (IRP) AOC known as the Sand Creek Disposal Road Landfill (Army Environmental Database Restoration No. RVAAP-34). The site is a former open dump area that operated from 1950 to 1960. Details regarding the operational history of disposal activities are incomplete, including the types of materials and quantities dumped at the site; however, the following kinds of construction and debris materials have been verified during previous actions at the collocated AOC:

- Asbestos-containing material (i.e., large piles of corrugated transite roofing and flat transite siding)
- Rubble (i.e., concrete, brick, and masonry fragments)
- Drywall and plaster
- Glass bottles, fluorescent light tubes, and broken glass
- Scrap metal items including wire fencing
- Wooden debris

In general, it is assumed that the construction- and debris-type materials were delivered and dumped over an embankment located immediately adjacent to Sand Creek. The dump site extended along the embankment for approximately 1,200 feet and varied in width from 20 to 40 feet from the top of the bank to the bottom. The bank slopes from east to west towards Sand Creek at 40 to 60 degrees from horizontal (CB&I, 2015b).

B.1 MKM 2003 Removal Action

In October 2003, a Removal Action was performed under the IRP to remove all surface and subsurface debris in order to eliminate source contamination to protect human and ecological receptors. Prior to the Removal Action, the entire site was littered with the aforementioned types of construction and debris materials, with large piles of debris concentrated mostly in the southern portion of the AOC.

During confirmation sampling following the Removal Action, two 75 millimeter (mm) projectile shells were discovered at the northern portion of the AOC. The shells were verified to be inert and were considered munitions debris (MD). Evaluation of the Sand Creek Dump as an MRS was initiated under the MMRP following the MD findings during the Removal Action.

B.2 e^{2}M 2007 Site Investigation

In 2007, a Site Inspection (SI) was conducted at the MRS under the MMRP, and the field activities included a meandering-path magnetometer and metal detector–assisted MEC survey at all open areas. Multiple subsurface anomalies were recorded, but the nature of the anomalies could not be determined because an intrusive investigation was not performed during the SI. No evidence of MEC was found on the ground surface during the SI field work; however, a 105mm projectile was observed on the bottom of Sand Creek at the portion of the creek located adjacent to the northern boundary of the MRS. The projectile appeared to be empty, but it was not inspected to determine the explosive safety status as either "safe" or "hazardous." Based on historical findings and SI field observations made, further characterization for potential MEC was recommended in the SI Report (engineering-environmental Management [e^{2}M], 2008). Sampling for MC was not conducted during the SI field work because chemical contamination was being addressed at the collocated AOC under the IRP.

B.3 Shaw 2010 Phase I Remedial Investigation

A Phase I RI was completed at the collocated AOC under the IRP in 2010. The activities conducted for the Phase I RI included a full-coverage digital geophysical mapping (DGM) survey and the collection of surface soil, subsurface soil, and sediment samples.

The primary objective of the full-coverage DGM survey was to determine the horizontal extent of potential MEC and other suspected buried anomalies without performing intrusive activities. The secondary objective was to evaluate the data to characterize the anomaly density at the AOC. The DGM survey data indicated that the largest area of metal debris is present northeast of the former railroad bed. Several areas characterized by relatively higher densities of anomalies are located between the stream and the edge of the eastern plateau. Areas characterized by relatively lower densities of anomalies are present throughout the southern portion of the collocated AOC (CB&I, 2015b). In addition to providing valuable information regarding potential contamination source areas at the site under the IRP, it was expected that the results of the DGM survey for MEC would be used as part of future investigations to be conducted at the collocated MRS under the MMRP.

The results of the Phase I RI samples were aggregated with the qualified historical data to identify site-related chemicals in accordance with the evaluation process presented in the Final *Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant, Ravenna, Ohio* (Facility-Wide Cleanup Goal [FWCUG] guidance; SAIC, 2010). The site-related chemicals were then used to evaluate for contaminant fate and transport and were carried forward into the risk assessments in the Draft *Phase I Remedial Investigation Report for RVAAP-34 Sand Creek Disposal Road Landfill* (Draft Phase I RI Report; Shaw Environmental & Infrastructure, Inc. [Shaw], 2012) for human and ecological receptors.

The contaminant migration chemicals of potential concern (CMCOPCs) identified in the Draft Phase I RI Report as having the potential for impacting groundwater and surface water include 2,4,6-TNT and 2-amino-4,6-dinitrotoluene, 1,4-dichlorobenzene, carbazole, pentachlorophenol, benzene, alpha-benzene hexachloride (BHC), and beta-BHC. It was noted in the Draft Phase I RI Report that the identified CMCOPCs represented a conservative comparison, since groundwater at the Sand Creek Dump has not been investigated and the hydrogeological parameters were either assumed values or literature values for comparable lithologies. Of the identified CMCOPCs, alpha-BHC and beta-BHC are pesticides that are not considered as MC at the collocated MRS under the MMRP (Shaw, 2012).

The AOC was considered as a single exposure unit under the Phase I RI; however, soil data collected within and adjacent to the AOC were aggregated by depth intervals to better define exposure at various depths. The Draft Phase I RI Report (Shaw, 2012) included analyses to assess for subsurface soil. The soil interval for Unrestricted Land Use, which includes evaluation for the Adult and Child Resident Receptors, was also assessed. Sediment samples collected for the Phase I RI and the results of the surface water samples collected from Sand Creek at stations located adjacent to the AOC (as part of previous investigations, namely the 2003 Removal Action and 2003 Facility-Wide Biological and Water Quality Study) were

evaluated in the same manner for the identified receptors. The sample intervals that were evaluated in the Draft Phase I RI Report (Shaw, 2012) are as follows:

- Surface soil (0 to 1 foot and 0 to 4 feet below ground surface [bgs])
- Subsurface soil (1 to 13 feet and 4 to 7 feet bgs)
- Sediment (0 to 0.5 feet bgs)
- Surface water

The human health risk assessment (HHRA) in the Draft Phase I RI Report (Shaw, 2012) was prepared using the streamlined approach to risk decision-making as described in the *Ravenna Army Ammunition Plant Position Paper for the Application and Use of Facility-Wide Human Health Cleanup Goals* (U.S. Army Corps of Engineers [USACE], 2012). The approach identifies chemicals of potential concern (COPCs) by comparing detected concentrations to background values, eliminating essential nutrients, and comparing those concentrations to the cleanup goals in the FWCUG guidance (SAIC, 2010). The chemicals of concern (COCs) were identified through additional screening of the COPCs by comparing detected concentrations to specific FWCUGs and using a "Sum of Ratios" approach to account for cumulative effects.

Only chemicals associated with the munitions that may have been historically used and/or disposed at the MRS are considered MC for evaluation under the MMRP. As such, not all of the COCs identified at the collocated AOC under the IRP were considered as MC. A summary of the COCs identified in the HHRA in the Draft Phase I RI Report (Shaw, 2012) that were considered as potential MC are as follows:

- Antimony, copper, mercury, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h) anthracene in surface soil (0 to 1 foot bgs) for the Resident Receptor (Adult and Child)
- Benzo(a)pyrene in subsurface soil (1 to 13 feet bgs) for the Resident Receptor (Adult and Child)
- Benzo(a)pyrene and benzo(b)fluoranthene in surface soil (0 to 4 feet bgs) for the National Guard Trainee
- Lead in subsurface soil (4 to 7 feet bgs) for the National Guard Trainee

No COCs were identified in sediment or surface water for the Resident Receptor (Adult and Child) or the National Guard Trainee (CB&I, 2015b).

B.4 CB&I 2011 Remedial Investigation

Between December 2011 and August 2013, CB&I conducted RI field work under the MMRP at the Sand Creek Dump MRS. The RI field work included a DGM survey that encompassed the remainder of the MRS that was not covered during the 2010 DGM survey and intrusive investigation activities for the locations identified as potentially containing buried MEC. The DGM survey included an additional 150-foot (0.13-acre) section north of the AOC boundary as well as a number of small fill-in areas within the MRS.

Sampling for MC at the MRS was not proposed during development of the RI field work unless MEC or concentrated areas of MD were found (Shaw, 2011). No MEC or MD were identified at the Sand Creek Dump MRS during RI field work, and sampling for MC was not warranted.

To date, no confirmed MEC have been found at the Sand Creek Dump MRS. Two demilitarized 75mm projectiles were found following the 2003 Removal Action at the collocated AOC and were considered MD. A 105mm projectile was observed in Sand Creek during the SI field work; however, it is not known from where the projectile originated. The projectile appeared to be empty, but it was not inspected to determine the explosive safety status as either "safe" or "hazardous." The projectile was not observed in the creek during the RI field work, and the disposition of this projectile is unknown. The RI field work confirmed the results of previous investigations at and outside the MRS where no MEC have ever been found; therefore, an explosive safety hazard is not present at the Sand Creek Dump MRS. Based on the results of MEC investigation, it was determined that no potential source of MC was present at the Sand Creek Dump MRS. Chemical contamination identified as COCs in the Phase I RI will continue to be addressed at the collocated AOC under the IRP (e^2M, 2008).

C. Highlights of Community Participation

Using the RVAAP community relations program, the ARNG and the Ohio EPA have interacted with the public through news releases, public meetings, reading materials, direct mailing, an internet website, and receiving and responding to public comments. Specific items of the community relations program include the following:

- **Restoration Advisory Board (RAB):** The U.S. Army established the RAB in 1996 to promote community involvement in the U.S. Department of Defense environmental cleanup activities and to allow the public to review and discuss the progress with decision makers. RAB meetings are typically held every 4 months, except during the summer months, and are open to the public.

- **RVAAP Community Relations Plan:** The Final *Community Relations Plan for the Ravenna Army Ammunition Plant Restoration Program in Portage and Trumbull Counties, Ohio* (Community Relations Plan; USACE, 2015) was prepared to establish processes to keep the public informed of activities being conducted as part of the RVAAP restoration program.
- **RVAAP Internet Website:** The U.S. Army established an internet website in 2004 for the RVAAP restoration program. This internet website is accessible to the public at www.rvaap.org.

In accordance with Section 117(a) of CERCLA and Section 300.430(f)(2) of the *National Oil and Hazardous Substances Pollution Contingency Plan*, the ARNG released the NFA Proposed Plan for the Sand Creek Dump MRS (CB&I, 2015a) to the public in May 2015. The NFA Proposed Plan and other project-related documents were made available to the public in the Administrative Record maintained at Camp Ravenna and in the two Information Repositories at Reed Memorial Library in Ravenna, Ohio and Newton Falls Public Library in Newton Falls, Ohio. The notice of availability for the NFA Proposed Plan was sent to the following media outlets: radio stations, television stations, and newspapers (*Newton Falls Press*, *Youngstown Vindicator*, *Warren Tribune-Chronicle*, *Akron Beacon Journal*, and *Ravenna Record Courier*), as specified in the Community Relations Plan (USACE, 2015). The notice of availability initiated the 30-day public comment period beginning June 4, 2015, and ending July 3, 2015.

The ARNG held a public meeting on June 3, 2015, at the Newton Falls Community Center, 52 East Quarry Street, Newton Falls, Ohio 44444, to present the NFA Proposed Plan to the public. At this meeting, representatives of the ARNG provided information and answered questions about the results of the MMRP-related investigations at the Sand Creek Dump MRS. A transcript of the public meeting is available to the public and has been included in the Administrative Record. Responses to the verbal and written comments received at this meeting and during the public comment period are included in the Responsiveness Summary, which is Part III of this ROD. The ARNG considered the public's input from the public meeting on the NFA Proposed Plan in selecting NFA under the MMRP at the Sand Creek Dump MRS.

D. Scope and Role of Response Action

The Sand Creek Dump MRS is federal property that is licensed to the OHARNG for future use as a military training site. The purpose of the RI field work was to evaluate for the presence of MEC associated with the historical findings of MD at the MRS in support of its intended use. The selected remedy must be protective of the receptors associated with the future land use.

No explosive safety hazards have ever been found at the Sand Creek Dump MRS during the RI or at the collocated AOC during previous investigations under the IRP. Further, since no MEC or concentrated areas of MD have been identified, there is no potential source of MC. Therefore, there are no source materials or impacted environmental media resulting from MMRP-related hazards at the MRS.

Former dumping and disposal operations occurred at the Sand Creek Dump site, and the potential exists for non-MMRP COCs or other non-munitions-related hazards to be present in the environmental media there. The collocated AOC is still being investigated under the IRP. Since no MEC or MC sources were identified at the MRS, any response actions associated with non-MMRP-related hazards will be addressed under the IRP.

E. Summary of Site Characteristics

Characteristics, nature and extent of contamination, and the conceptual site model for the Sand Creek Dump MRS are based on the various assessments, investigations, and/or removal actions that were conducted at the MRS.

E.1 Topography/Physiography

This section presents the discussion of the topography and physiography characteristics at Camp Ravenna and the Sand Creek Dump MRS. Camp Ravenna, in general, is located within the Southern New York section of the Appalachian Plateaus physiographic province. Rolling topography containing incised streams and dendritic drainage patterns are prevalent in the province. Rounded ridges, filled major valleys, and areas covered with glacially derived unconsolidated deposits were the product of glaciation in the Southern New York section. In addition, bogs, kettle lakes, and kames are evidence of past glacial activity in the province; however, none are located at the MRS. Old stream drainage patterns were disturbed and wetlands were created within the province as a result of past glacial activity (e^2M, 2008).

The Sand Creek Dump MRS is located in the eastern portion of the facility along the eastern bank of Sand Creek (**Figure 2**). The bank slopes from east to west towards Sand Creek 40 to 60 degrees from horizontal. Topographic relief between the top of embankment and the surface of Sand Creek varies across the MRS, but ranges from approximately 15 to 25 feet. The slope of the embankment is the area at the MRS where construction debris was historically dumped. A former railroad bed bisects the MRS, and the top of the embankment at both the northern and southern portions of the MRS are relatively level with elevations ranging between approximately 965 to 970 feet above mean sea level (amsl). A narrow floodplain occupies the land between the bottom of the embankment and Sand Creek. The

bottom of the embankment represents the lowest elevation at the MRS at approximately 950 feet amsl (CB&I, 2015b).

E.2 Soils and Geology

This section presents the discussion of the soils and geology characteristics at Camp Ravenna and the Sand Creek Dump MRS. Based on regional geology, the facility consists of Mississippian- and Pennsylvanian-age bedrock strata, which dip to the south at approximately 5 to 10 feet per mile. The bedrock is overlain by unconsolidated glacial deposits of varying thickness.

Bedrock is overlain by deposits of Wisconsin-age Lavery Till and Hiram Till in the western and eastern portions of the facility, respectively. The thickness of the glacial deposits varies throughout the facility, ranging from ground surface in parts of the eastern portion of the facility to an estimated 150 feet in the south-central portion of the facility.

Bedrock is present near the ground surface in many locations at Camp Ravenna, particularly at the east end of the facility. Where glacial deposits are still present, their distribution and character are indicative of ground moraine origin. Laterally discontinuous groupings of yellow-brown, brown, and gray silty clays to clayey silts, with sand and rock fragments are present. Glacial-age standing-water-body deposits may be present at the facility, in the form of uniform light gray silt deposits over 50 feet thick. At approximately 200 feet bgs, the Mississippian Cuyahoga Group is present throughout most of the facility. In the northeastern corner of the facility, the Meadville Shale Member of the Cuyahoga Group is present close to the surface. The Meadville Shale Member of the Cuyahoga Group is blue-gray silty shale characterized by alternating thin beds of sandstone and siltstone.

The Sharon Member of the Pennsylvanian Pottsville Formation unconformably overlies the Meadville Shale Member of the Mississippian Cuyahoga Group. A relief of as much as 200 feet exists in Portage County, which can be seen in the Sharon Member thickness variations. The Sharon Member is made up of shale and a conglomerate.

The Sharon Member conglomerate unit is identified as highly porous, permeable, cross-bedded, frequently fractured, and weathered quartzite sandstone, which is locally conglomeratic and has an average thickness of 100 feet. A thickness of as much as 250 feet exists in the Sharon Conglomerate where it was deposited in a broad channel cut into Mississippian rocks. In marginal areas of the channel, the conglomerate unit may thin out to approximately 20 feet, or in places, it may be missing owing to nondeposition on the uplands of the early Pennsylvanian erosional surface. Thin shale lenses occur intermittently within the upper part of the conglomerate unit.

The Sharon Member shale unit is identified as a light to dark gray fissile shale, which overlies the conglomerate in some locations; however, it has been eroded throughout the majority of the facility. The Sharon Member outcrops in many locations in the eastern half of the facility.

The remaining members of the Pottsville Formation overlie the Sharon Member in the western portion of the facility. Due to erosion and because the land surface is above the level of deposition, the Pottsville Formation is not found in the eastern half of the facility.

The Connoquenessing Sandstone Member, which is sporadic, relatively thin-channel sandstone comprised of gray to white, coarse-grained quartz with a higher percentage of feldspar and clay than the Sharon Conglomerate, unconformably overlies the Sharon Member. The Mercer Member, which is found above the Connoquenessing Sandstone Member, consists of silty to carbonaceous shale with many thin and discontinuous lenses of sandstone in its upper part. The Homewood Sandstone Member unconformably overlies the Mercer Member and consists of the uppermost unit of the Pottsville Formation. The Homewood Sandstone Member ranges from well-sorted, coarse-grained, white quartz sandstone to a tan, poorly sorted, clay-bonded, micaceous, medium- to fine-grained sandstone. The Homewood Sandstone Member occurs as a caprock on bedrock highs in the subsurface (MKM Engineers, Inc. [MKM], 2007).

The soils identified at the facility are generally derived from the Wisconsin-age silty clay glacial till. The majority of native soil at the facility has been reworked or removed during construction activities (MKM, 2007). The major soil types found at the facility are silt or clay loams, ranging in permeability from 6.0×10^{-7} to 1.4×10^{-3} centimeters per second (cm/s) (U.S. Department of Agriculture [USDA] et al., 1978).

As a former dump site, it is expected that much of the native soil at the Sand Creek Dump MRS was reworked, removed, or used as cover material during the disposal activities. Borings were advanced during the Phase I RI field activities that were conducted under the IRP at the collocated AOC in 2010. Evidence of fill material that included coal ash and glass debris was encountered in borings advanced along the top of the embankment as deep as 8 feet bgs, primarily at the northern portion of the AOC. The depth of fill material along the top of the slopes appeared to decrease to less than 2 feet bgs as the borings were advanced south towards the former railroad bed. Only native glacial materials were observed in the one boring that was advanced at the southern portion of the AOC, south of the former railroad bed. Glacial materials encountered in the borings were consistent with the deposits associated with the silt loam types at the facility that include light brown to dark brown, gray, and mottled silt with sand. Associated sediments were observed below the till and consisted of well-sorted, saturated gray silt with clay lenses and unconsolidated fine- to medium-

grained sands. The depth to sediments ranged from 13 to 15 feet bgs across the MRS, which was the approximate depth where groundwater was encountered in three borings at the northern portion of the MRS. Bedrock was not encountered at any of the boring locations that were advanced to a maximum depth of 20 feet bgs (Shaw, 2012).

There are two native soil types at the Sand Creek Dump MRS. These soil types include the Hornell Silt Loam and the Orville Silt Loam (AMEC Earth and Environmental, Inc. [AMEC], 2008).

The Hornell Silt Loam is the predominant soil type at the MRS. The soil type consists of moderately deep, somewhat poorly drained to moderately well drained gently sloping soils that formed partly in glacial till and partly in residuum from the underlying shale bedrock. This soil has a moderately deep root zone and low available water capacity. Permeability is very slow in this soil type and is seasonally saturated with water. The average permeability of the Hornell Silt Loam with a 3 to 8 percent slope is 9.1×10^{-5} cm/s (USDA et al., 1978).

The Orville Silt Loam soil type is situated at the lowland portions of the MRS along Sand Creek. This soil type is characterized with deep, somewhat poorly drained, nearly level soils that formed in loamy alluvium on flood plains. Orville soils have a deep root zone in summer when the water table is low and in drained areas. The available water capacity is high, and permeability is moderate. These soils are subject to occasional flooding, and they have a water table near the surface late in winter and in spring. The average permeability of the Orville Silt Loam is 1.31×10^{-3} cm/s (USDA et al., 1978).

The Sand Creek Dump MRS straddles two bedrock formations, the Sharon Sandstone Conglomerate Unit and the Berea Sandstone. The Berea Sandstone consists of isolated deposits beneath the facility and is the primary formation beneath the MRS (AMEC, 2008). No bedrock formations were observed at the MRS, and bedrock was not encountered in the borings advanced to 20 feet bgs during the Phase I RI at the collocated AOC (Shaw, 2012).

E.3 Hydrology and Hydrogeology

This section presents the discussion of the hydrology and hydrogeology characteristics at Camp Ravenna and the Sand Creek Dump MRS. The facility is located within the Ohio River Basin. The major surface stream at the facility is the west branch of the Mahoning River, which flows adjacent to the western end of the facility, generally from north to south, before flowing into the Michael J. Kirwan Reservoir. After leaving the reservoir, the west branch joins the Mahoning River east of the facility.

Surface water features within Camp Ravenna include a variety of streams, lakes, ponds, floodplains, and wetlands. Numerous streams drain the facility, including approximately

19 miles of perennial streams. The combined stream length at the facility is 212 linear miles (AMEC, 2008).

Three primary watercourses drain Camp Ravenna: (1) the south fork of Eagle Creek, (2) Sand Creek, and (3) Hinkley Creek. Eagle Creek and its tributaries, including Sand Creek, are designated as State Resource Waters. With this designation, the stream and its tributaries fall under the state's antidegradation policy. These waters are protected from any action that would degrade the existing water quality.

Approximately 153 acres of ponds are found on the facility. Most of the ponds were created by beaver activity or small man-made dams and embankments. Some were constructed within natural drainage ways to function as settling ponds for effluent or runoff. No bogs, kettle lakes, or kames have been identified as being present within the MRS (AMEC, 2008).

A planning-level survey (i.e., desktop review of wetlands data and resources [National Wetlands Inventory maps, aerials, etc.]) for wetlands was conducted for the entire facility, including the MRS, and no wetlands have been identified at the Sand Creek Dump MRS; however, the lower portions of the embankments for the MRS run along Sand Creek and the MRS is located within a 100-year floodplain (CB&I, 2015b). Wetlands located within the facility include seasonally saturated wetlands, wet fields, and forested wetlands. Sand and gravel aquifers are present within the buried-valley and outwash deposits in Portage County. In general, the aquifer is too thin and localized to provide large quantities of water; however, yields are sufficient for residential water supplies. Wells located on the facility were primarily located within the sandstone facies of the Sharon Member (MKM, 2007).

There are various depressions and several areas of standing water at the top of the embankment, which is indicative of the silt-clay soils that are present in the surface and subsurface soils at the site. However, in general, surface water runoff follows the topography of the site and flows in a westerly direction where it enters Sand Creek.

No groundwater monitoring wells have been specifically installed for the Sand Creek Dump MRS. Throughout the facility, average depth to groundwater is as deep as 50 feet bgs with static water levels occurring between 958 and 1,184 feet amsl (Kammer, 1982). However, groundwater has been encountered at much shallower depths in the upper unconsolidated aquifer across the facility. The latter is most likely the case at the Sand Creek site where the top of the embankment ranges from 15 to 25 feet above the surface of Sand Creek, and saturated soil was encountered in the soil borings at the northern portion of the AOC during the Phase I RI in 2010 where the embankment is the shortest, at depths of approximately 13 feet bgs (Shaw, 2012).

E.4 Ecology

This section presents the discussion of the ecological habitats and receptors at Camp Ravenna and at the Sand Creek Dump MRS. Camp Ravenna has a diverse range of vegetation and habitat resources. Habitats present within the facility include large tracts of closed-canopy hardwood forest, scrub/shrub open areas, grasslands, wetlands, and open-water ponds and lakes. Vegetation at the facility can be grouped into three categories: (1) herb dominated, (2) shrub dominated, and (3) tree dominated. Tree-dominated areas are most abundant, covering approximately 13,000 acres of the facility. Shrub vegetation covers approximately 4,200 acres. A plant species survey identified 18 vegetation communities on the facility. The facility has seven forest formations, four shrub formations, eight herbaceous formations, and one nonvegetated formation (AMEC, 2008).

The vegetation community present at the Sand Creek Dump MRS is categorized as a "Mixed Swamp Forest Community." The vegetation formation in this community is typically associated with floodplains near streams and rivers and other temporarily flooded areas. The dominant species consist of green ash, American elm, hackberry, and red maple. Black walnut, white ash, swamp white oak, cottonwood, and black willow are also present (AMEC, 2008).

Biological inventories have not occurred specifically within the MRS boundary, although no confirmed sightings of federal- or state-listed species have been reported. Although there is the potential for federal, state-listed, or rare species to be within the MRS boundary, the potential is unlikely due to the minimal size of the MRS (Camp Ravenna, 2010).

E.5 Nature and Extent of Contamination

The determination of the nature and extent of contamination at the Sand Creek Dump MRS is based on the data collected during the RI field work under the MMRP and presented in the Final *Remedial Investigation Report for RVAAP-034-R-01 Sand Creek Dump Munitions Response Site* (RI Report; CB&I, 2015b). Under the MMRP, the evaluation for nature and extent of contamination is inclusive of MEC and MC that may be present at an MRS. MEC and MC are known to be present at other MRSs at Camp Ravenna; however, those media and MRSs are being addressed separately from the Sand Creek Dump MRS included in this NFA ROD.

As outlined in the RI Report (CB&I, 2015b), no evidence of MEC was found at the MRS and there are no explosive hazards or sources for MC. Therefore, there is no evidence of contamination associated with MEC or MC under the MMRP at the Sand Creek Dump MRS.

E.6 Contaminant Fate and Transport

The fate and transport analysis for the Sand Creek Dump MRS in the RI Report concluded that there were no MEC that justified concerns for explosive hazards. Since no MEC were found during the RI field activities at the MRS, there are no sources of potential release of MC and a fate and transport analysis for MC at the MRS was not required (CB&I, 2015b).

F. Current and Potential Future Land Uses

Current activities at the Sand Creek Dump MRS include maintenance, environmental sampling, and natural resource management activities. Possible users associated with the current activities at the MRS include facility personnel, contractors, and potential trespassers (CB&I, 2015b).

The OHARNG future use at the MRS is military training. The potential user for the future land use is the National Guard Trainee (USACE, 2005).

G. Summary of Site Risks

The overall recommendation of NFA under the MMRP must be protective of the human and environmental receptors identified for the MRS. The planned method for risk evaluation for explosive safety hazards at an MRS is the Interim *Munitions and Explosives of Concern Hazard Assessment Methodology* (MEC HA; EPA, 2008). In addition to the risk assessment for MEC, screening-level risk assessments for both human health and ecological risks were proposed when environmental media that represented the potential for MC were identified and collected (Shaw, 2011). The evaluation of risk is required to estimate risk reduction for any response action, including NFA, and the evaluation and determinations for risk at the Sand Creek Dump MRS, as presented in the RI Report (CB&I, 2015b), are discussed in this section.

G.1 MEC Hazard Assessment

The MEC HA (EPA, 2008) addresses human health and safety concerns associated with potential exposure to MEC at a MRS under a variety of site conditions, including various cleanup scenarios and land use assumptions. If an explosive hazard is identified, the MEC HA evaluation will include the information available for the MRS up to and including the RI field activities and provide a scoring summary for the current and future land use activities. If no explosive hazard is found at the MRS, then there is no need to calculate a MEC HA score since there are no human health safety concerns.

No MEC representing an explosive safety hazard at the Sand Creek Dump MRS were identified during the RI field activities. Therefore, calculation of a MEC HA score was not

warranted for the MRS and the MEC exposure pathways for all receptors at the MRS are incomplete (CB&I, 2015b).

G.2 Human Health and Ecological Risk Assessment

The purpose of an HHRA is to document whether MRS conditions may pose a risk to current or future receptors and to identify which, if any, MRS conditions need to be addressed further in the CERCLA process. An ecological risk assessment (ERA) evaluates the potential for adverse effects posed to ecological receptors from potential releases at a MRS.

Since no MEC or concentrated areas of MD were identified between the SI and RI field activities that were conducted at the Sand Creek Dump MRS under the MMRP, media sampling for MC was not warranted. Therefore, an HHRA or an ERA was not required to be performed for the MRS and no risk associated with MC was identified for human or ecological receptors at the MRS (CB&I, 2015b).

H. Documentation of No Significant Change

The NFA Proposed Plan for the Sand Creek Dump MRS (CB&I, 2015a) was released for public comment in May 2015. The Proposed Plan recommended NFA under the MMRP for the MRS. After the public comment period, no significant changes regarding the recommended alternative, as originally identified in the NFA Proposed Plan, were necessary or appropriate.

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PART III: RESPONSIVENESS SUMMARY FOR PUBLIC COMMENTS ON THE PROPOSED PLAN

A. Overview

In May 2015, the ARNG released the NFA Proposed Plan for the Sand Creek Dump MRS (CB&I, 2015a) for public comment. A 30-day public comment period was held between June 4, 2015, and July 3, 2015. The ARNG hosted a public meeting on June 3, 2015, to present the preferred alternative and take questions and comments from the public for the record.

Based on comments received, the community voiced few objections to the NFA recommendation. All public input was considered during the selection of the final decision.

B. Summary of Public Comments and Agency Responses

No site-specific verbal comments were received during the public meeting, and no written or verbal comments were received during the 30-day public comment period. Two written general comments and one site-specific comment were received during the public meeting. The transcript from the meeting was incorporated into the Administrative Record.

B.1 Oral Comments from Public Meeting

No oral questions or comments that were specific to the Sand Creek Dump MRS were received during the public meeting.

B.2 Written Comments from Public Meeting

Written comments received during the public meeting are grouped together in the following site-specific and general topic categories: likelihood of projectiles in Sand Creek, projected future land use, and the potential for future exposures and safety risks. Each comment was reformatted, where appropriate, for presentation in this section. Each comment is followed by a response.

B.2.1 Likelihood of Projectiles in Sand Creek

Comment: What was the likelihood of projectiles washing downstream in the past and what is the potential for this occurring in the future?

Response: Dumping activities occurred at the Sand Creek Dump between 1950 and 1960. Although there did not appear to be extensive disposal of MEC or MD when the dumping activities occurred, as evidenced from the 2003 Removal Action and previous investigations at the site, the presence of the two 75mm projectiles that were found during the Removal Action suggests there was the potential for projectiles to have entered and been washed downstream during flood events. The surface debris and majority of the subsurface debris

associated with the Sand Creek Dump were removed during the Removal Action, and based on the results of the RI field work, the likelihood of projectiles originating from the MRS into Sand Creek in the future is low. Full-coverage DGM and an intrusive investigation were conducted at the MRS during the RI field work with no evidence of MEC or MD found.

B.2.2 Projected Future Land Use

Comment: What is the projected future land use of the RVAAP if not classified?

Response: The facility will be used for military training. Due to residual contamination that may be left in place at some cleanup sites (landfills, asbestos in soil) some sites will be restricted and properly managed with land-use controls. These sites will not be used for military training.

B.2.3 Potential for Future Exposures and Safety Risks

Comment: Do the ongoing investigations protect all future exposures and safety risks for all future involvement on the RVAAP facility?

Response: Investigations of potential contamination are utilized to define nature and extent of contamination from past operations. If contamination is found, then risk assessments are completed to assess potential for future exposure to contamination and develop any remedial action alternatives that may be necessary to address the risk to future receptors. Ongoing cleanup activities, including investigations, are protective for all projected future exposures/uses at the facility. If the land use changes, additional investigative activities would be required to evaluate the new use to ensure protectiveness.

C. Technical and Legal Issues

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

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FIGURES

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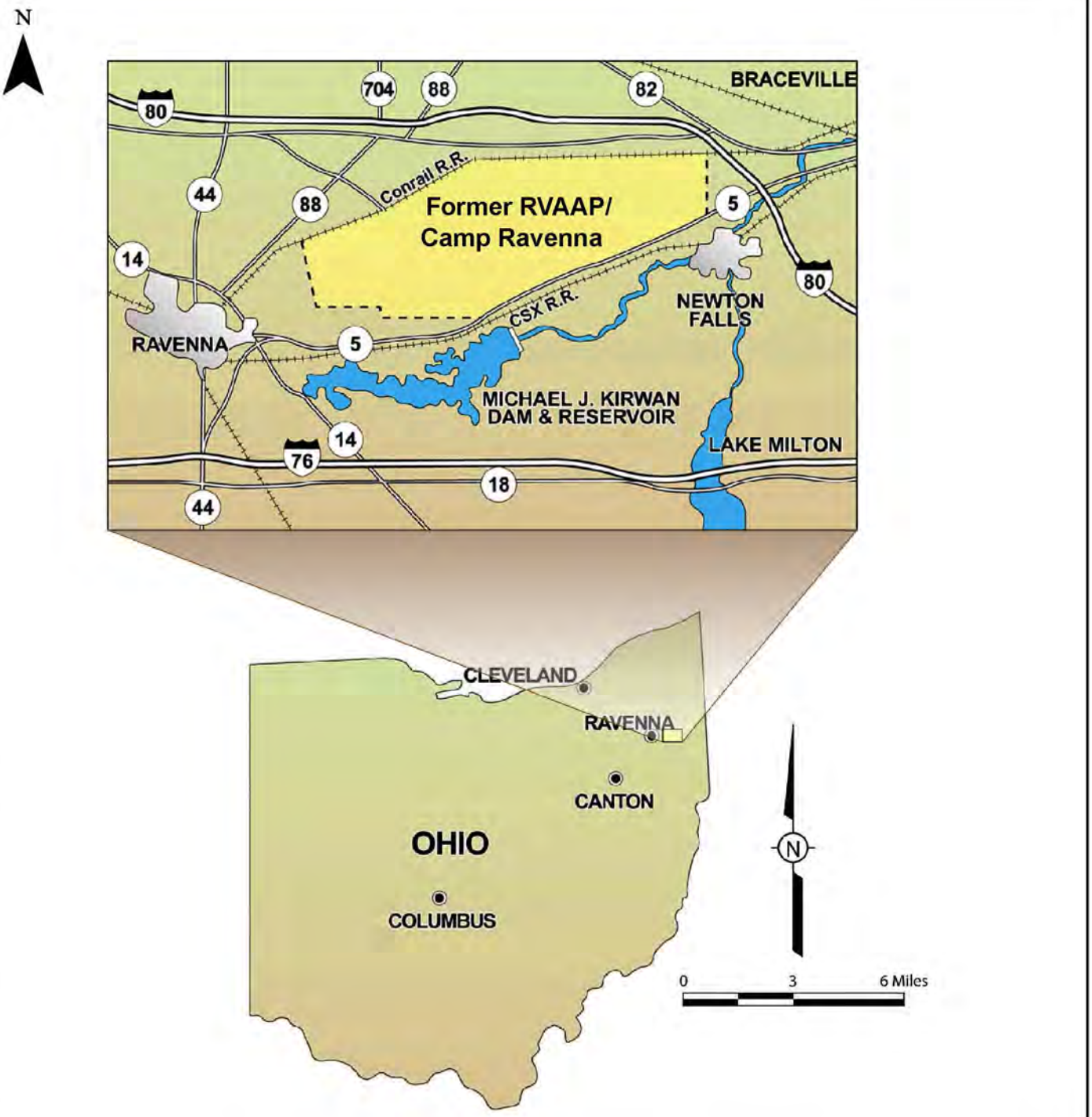

Note:
The Scale is for the Upper Map Only
Showing the Former RVAAP/Camp Ravenna Location

U.S. ARMY
CORPS OF ENGINEERS
BALTIMORE DISTRICT

MILITARY MUNITIONS RESPONSE PROGRAM

FORMER RVAAP/CAMP RAVENNA
PORTAGE AND TRUMBULL COUNTIES, OHIO

CB&I Federal Services LLC
150 Royall Street
Canton, MA 02021

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FIGURE 1 INSTALLATION LOCATION MAP

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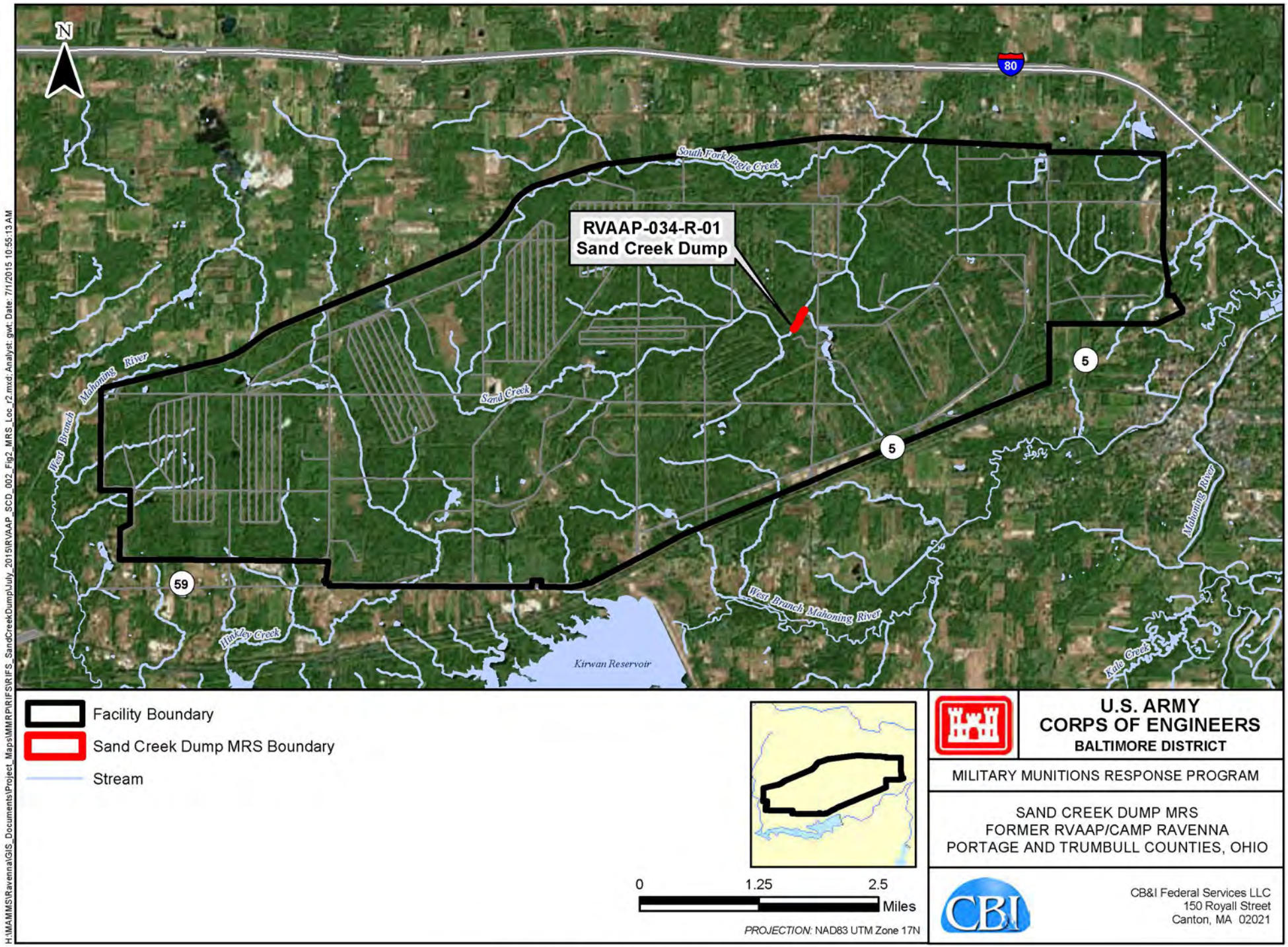

FIGURE 2 MRS LOCATION MAP

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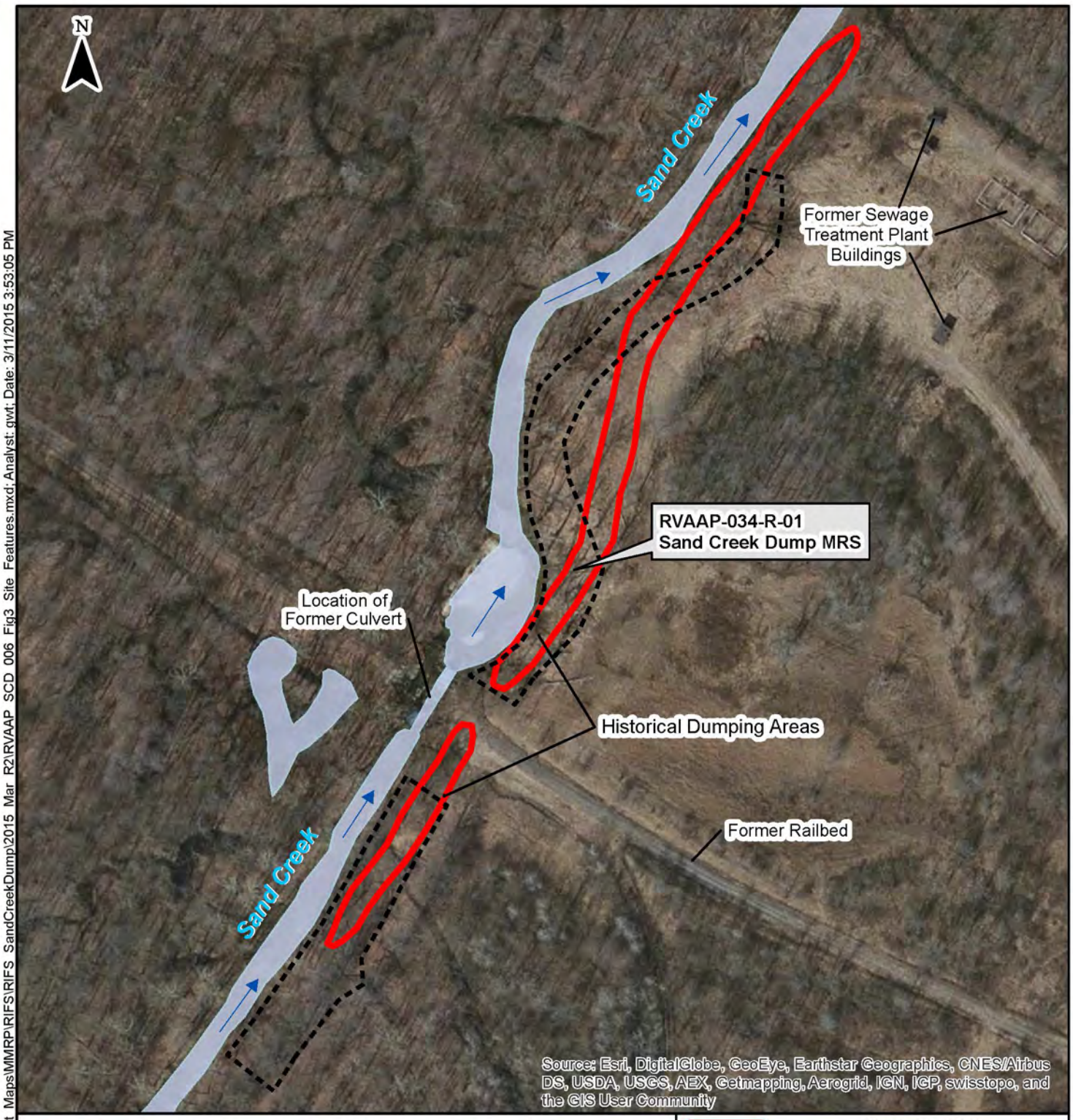

MRS Boundary
AOC Boundary
Stream
Direction of Flow

0 150
Feet
Projection : NAD_1983_UTM_Zone_17N

U.S. ARMY CORPS OF ENGINEERS

MILITARY MUNITIONS RESPONSE PROGRAM

SAND CREEK DUMP MRS
FORMER RVAAP/CAMP RAVENNA
PORTAGE AND TRUMBULL COUNTIES, OHIO

CB&I Federal Services LLC
150 Royall Street
Canton, MA 02021

H:\MAMMS\Ravenna\GIS Documents\Project Maps\MMRP\RIFS\RIFS SandCreekDump\2015 Mar R2\RVAAP SCD 006 Fig3 Site Features.mxd; Analyst: gwt; Date: 3/11/2015 3:53:05 PM

FIGURE 3 SITE FEATURES MAP

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OHIO EPA CORRESPONDENCE

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Ohio Environmental Protection Agency

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

December 3, 2015

Re: US Army Ravenna Ammunition Plt RVAAP
Remediation Response
Approval
Remedial Response
Portage County
267000859226

Mr. Mark Leeper, P.G., MBA
Army National Guard Directorate
Environmental Programs Division
ARNG-ILE-CR
111 South George Mason Drive
Arlington, VA 22204

Subject: Approval of the "Final No Further Action Record of Decision for RVAAP-034-R-01 Sand Creek Dump Munitions Response Site, Version 1.0" Former Ravenna Army Ammunition Plant, Ravenna, Ohio: Dated September 29, 2015 (Work Activity No. 267-000859-226)

Dear Mr. Leeper:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR), has received and reviewed the, "Final No Further Action Record of Decision for RVAAP-034-R-01 Sand Creek Dump Munitions Response Site, Version 1.0" document, dated September 29, 2015. This document received by Ohio EPA's NEDO on September 30, 2015, was prepared by CB&I Federal Services LLC.

The Military Munitions Response Program (MMRP) Remedial Investigation (RI) for the RVAAP-034-R-01 Sand Creek Dump Munitions Response Site (MRS) investigated the potential presence of munitions debris and munitions of explosives of concern within the defined portion of the MRS area. The MRS was investigated due to historical knowledge and reports of potential munitions items being dumped between 1950 through 1960. The site is collocated with an installation restoration program area of concern (Sand Creek Disposal Road Landfill) that will continue to be addressed after no further action has occurred for the MMRP. No evidence of MEC or source of MC was found at the MRS during the RI field work. Based on these results, no risks associated with exposures to MEC or MC appear to be present. As there are no further comments or potential issues to address for the MRS, Ohio EPA concurs with the remedy of no further action and has signed and dated the final record of decision for the MRS and will submit a signed copy for your records.

50 West Town Street • Suite 700 • P.O. Box 1049 • Columbus, OH 43216-1049
epa.ohio.gov • (614) 644-3020 • (614) 644-3184 (fax)

If you have any questions or concerns, please do not hesitate to contact me at (614) 644-2896.

Sincerely,

Peter Whitehouse
Division Chief
Division of Environmental Response and Revitalization

PW:NCR/nvr

cc: Gregory F. Moore, USACE, Louisville District
Katie Tait/Kevin Sedlak, Camp Ravenna Environmental Office, Newton Falls
Haney/Harris, Camp Ravenna Environmental Office, Vista Sciences, Newton Falls

ec: Rod Beals, Ohio EPA, NEDO, DERR
Robert Princic, Ohio EPA, NEDO, DERR
Justin Burke, Ohio EPA, CO, DERR
Andrew Kocher, Ohio EPA, NEDO, DERR
Nicholas Roope, Ohio EPA, NEDO, DERR

hio
Ohio Environmental Protection Agency

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

September 21, 2015

Re: **US Army Ravenna Ammunition Plt RVAAP**
Remediation Response
Plans
Remedial Response
Portage County
267000859226

Mr. Mark Leeper, P.G., MBA
Army National Guard Directorate
Environmental Programs Division
ARNG-ILE-CR
111 South George Mason Drive
Arlington, VA 22204

Subject: **Review of the "Draft No Further Action Record of Decision for RVAAP-034-R-01 Sand Creek Dump Munitions Response Site, Version 1.0," Former Ravenna Army Ammunition Plant, Ravenna, Ohio: Dated August 31, 2015 (Work Activity No. 267-000859-226)**

Dear Mr. Leeper:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR) has received and reviewed the "Draft No Further Action Record of Decision for RVAAP-034-R-01 Sand Creek Dump Munitions Response Site Version 1.0," dated August 31, 2015. This document received by Ohio EPA's NEDO on September 1, 2015, was prepared by CB&I Federal Services LLC. Ohio EPA has completed the review of the draft record of decision and has no further comments. Please submit the final copy of the document for approval.

If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1235.

Sincerely,

Nicholas Roope
Site Coordinator
Division of Environmental Response and Revitalization

NCR/nvr

cc: Gregory F. Moore, USACE, Louisville District
Katie Tait/Kevin Sedlak, Camp Ravenna Environmental Office, Newton Falls
Haney/Harris, Camp Ravenna Environmental Office, Vista Sciences, Newton Falls
ec: Rod Beals, Ohio EPA, NEDO, DERR
Bob Princic, Ohio EPA, NEDO, DERR
Justin Burke, Ohio EPA, CO, DERR
Andrew Kocher, Ohio EPA, NEDO, DERR

RECEIVED 09-24-2015

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