Final Explanation of Significant Differences for Post-ROD Changes to the Remedy at RVAAP-05 Winklepeck Burning Grounds Former Ravenna Army Ammunition Plant/Camp Ravenna, Portage and Trumbull Counties, Ohio

March 2015

Prepared for:
National Guard Bureau
Army National Guard (ARNG-ILE Cleanup)
111 South George Mason Drive
Arlington, Virginia 22204-1373

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

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
26-03-2015	Explanation of Significant Differences	From April 2014 To March 2015

4. TITLE AND SUBTITLE

Final Explanation of Significant Differences for Post-ROD Changes to the Remedy at RVAAP-05 Winklepeck Burning Grounds
Former Ravenna Army Ammunition Plant/Camp Ravenna, Portage and Trumbull Counties, Ohio

5a. CONTRACT NUMBER
Project Order #24-12

5b. GRANT NUMBER
N/A

5c. PROGRAM ELEMENT NUMBER
N/A

6. AUTHOR(S)
Nathaniel Peters

5d. PROJECT NUMBER
N/A

5e. TASK NUMBER
N/A

5f. WORK UNIT NUMBER
N/A

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

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

8. PERFORMING ORGANIZATION REPORT NUMBER
N/A

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

Army National Guard (ARNG-ILE Cleanup)
111 South George Mason Drive
Arlington, Virginia 22204

10. SPONSOR/MONITOR'S ACRONYM(S)
ARNG-ILE

11. SPONSOR/MONITOR'S REPORT NUMBER(S)
N/A

12. DISTRIBUTION/AVAILABILITY STATEMENT

Reference Distribution Page

13. SUPPLEMENTARY NOTES

None

14. ABSTRACT

This Final Explanation of Significant Differences (ESD) for Post-ROD Changes to the Remedy for RVAAP-05 Winklepeck Burning Grounds (WBG) describes changes to the remedy. The Remedial Investigation (RI)/Feasibility Study (FS) Supplement identified five distinct areas of additional soil removal that are needed to meet the Commercial/Industrial Land Use, so that the site can be used as planned. This ESD documents the additional areas of soil excavation required, the additional volume and cost associated with those areas, the change in Land Use designation, and the changes in Land Use Controls (LUCs) at the WBG AOC. These changes are considered "significant" rather than "fundamental," because the basic remedy of soil removal is not changing. Since the proposed changes are not "fundamental," an ESD is appropriate and a ROD amendment is not required.

15. SUBJECT TERMS

Explanation of Significant Differences (ESD); ROD; RVAAP-05, Winklepeck Burning Grounds, Ravenna Army Ammunition Plant, Camp Ravenna

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Nathaniel Peters
UU	UU	UU	UU	41	19b. TELEPHONE NUMBER *(Include area code)* (502) 315-2624

Reset

Standard Form 298 (Rev. 8/98)
Prescribed by ANSI Std. Z39.18

STATEMENT OF INDEPENDENT TECHNICAL REVIEW

U.S. Army Corps of Engineers (USACE) has completed the preparation of this Explanation of Significant Differences for RVAAP-05 Winklepeck Burning Grounds for former RVAAP/Camp Ravenna. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This independent technical review included evaluation of assumptions; methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing USACE policy.

Nathaniel Peters, II 3/26/2015

Design Team Leader Date

Angela L. Schmidt 3/27/2015

Independent Technical Reviewer Date

DOCUMENT DISTRIBUTION
Explanation of Significant Differences for
RVAAP-05 Winklepeck Burning Grounds
Former RVAAP/Camp Ravenna, Portage and Trumbull Counties, Ohio

Organization/Name	Number of Printed Copies	Number of Electronic Copies
Camp Ravenna Katie Tait	1	0
ARNGD, Arlington, VA Mark Leeper	1	1
ARNGD, Camp Ravenna Kevin Sedlak	0	1
REIMS	0	1
Ohio EPA Sue Netzly-Watkins	1	3
USACE - Louisville District Nathaniel Peters	1	2
Vista/Adm Record Gail Harris	2	2

Camp Ravenna = Camp Ravenna Joint Military Training Center

ARNGD = Army National Guard Directorate

REIMS = Ravenna Environmental Information Management System

RVAAP = Ravenna Army Ammunition Plant

USACE = U.S. Army Corps of Engineers

Ohio EPA = Ohio Environmental Protection Agency

Table of Contents

Appendices

Figures and Tables

Acronyms/Abbreviations

AEC	Army Environmental Command
AOC	Area of Concern
ARNGD	Army National Guard Directorate
bgs	below ground surface
Camp Ravenna	Camp Ravenna Joint Military Training Center
CERCLA	Comprehensive Environmental Response, Compensation, & Liability Act
COC	chemical of concern
DA	Department of the Army
DFFO	Director's Final Findings and Orders
DMM	Discarded Military Munitions
DoD	Department of Defense
DSMOA	Defense State Memorandum of Agreement
ESD	Explanation of Significant Differences
FS	Feasibility Study
HI	Hazard Index
IRP	Installation Restoration Program
km	kilometer
LUC	Land Use Control
LUCIP	Land Use Control Implementation Plan
MEC	munitions and explosives of concern
MK19	Mark 19 Machine Gun
MKM	MKM Engineers, Inc.
MPMG	Multi-Purpose Machine Gun
NCP	National Contingency Plan
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
Pam	Pamphlet (e.g., DA Pam 385-63)
PMP	Property Management Plan
RA	Removal Action
RAFLU	Reasonably Anticipated Future Land Use
RAR	Remedial Action Completion Report
RD	Remedial Design
REIMS	Ravenna Environmental Information Management System
RI	Remedial Investigation
ROD	Record of Decision
RSL	USEPA Regional Screening Level
RVAAP	Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
UXO	Unexploded Ordinance
WBG	Winklepeck Burning Grounds

1.0 Introduction to the Site and Statement of Purpose

This Explanation of Significant Differences (ESD) was completed by the United States Army Corps of Engineers, Louisville District (USACE) to present significant differences to the *Final Record of Decision for Soil and Dry Sediment at the RVAAP-05 Winklepeck Burning Grounds at the Ravenna Army Ammunition Plant, Ravenna, Ohio* (SAIC, 2008). The Final Record of Decision (ROD) was signed by the lead agency, the U.S. Army, on August 19th, 2008. The Final ROD was signed by the regulatory agency, the Ohio Environmental Protection Agency (Ohio EPA), on August 15th, 2008.

The USACE is working under a Project Order with the Army National Guard Directorate (ARNGD) and Army Environmental Command (AEC), as part of the restoration/cleanup program for the former Ravenna Army Ammunition Plant (RVAAP) at the Area of Concern (AOC) known as Winklepeck Burning Grounds (WBG), or RVAAP-05. Planning and performance of all elements of this project and document are in accordance with the requirements of the Ohio Environmental Protection Agency (Ohio EPA) Director's Final Findings and Orders (DFFO) for RVAAP, dated June 10, 2004 (Ohio EPA, 2004). The DFFO requires conformance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP). In preparing this ESD, the lead agency is complying with CERCLA §117(c) and NCP §§300.435(c)(2)(i) to document significant changes to the remedy as required. Preparation of this ESD also complies with NCP §§300.825(a)(2). Additionally, the ROD remains protective and continues to meet ARARs (NCP §§300.430(f)(1)(ii)(B)(1) and (2).

1.1 Site Name and Location

The former RVAAP is located in northeastern Ohio within Portage and Trumbull counties, approximately 1.6 kilometer (km) (1 mile) northwest of the city of Newton Falls and 4.8 km (3 miles) east-northeast of the city of Ravenna (Figure 1-1). The installation is a parcel of property approximately 17.7 km (11 miles) long and 5.6 km (3.5 miles) wide bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad on the south; Garret, McCormick, and Berry roads on the west; the Norfolk Southern Railroad on the north; and State Route 534 on the east.

As of September 2013, administrative accountability of the entire 21,683-acre former RVAAP has been transferred to the United States Property and Fiscal Office for Ohio. The installation has been licensed to the Ohio Army National Guard (OHARNG) for use as a military training site known as the Camp Ravenna Joint Military Training Center (Camp Ravenna). Subsequent references in this document to RVAAP, or the former RVAAP, relate to previous activities at the installation as related to former munitions production activities or to activities being conducted under the restoration/cleanup program.

During former RVAAP's operational years, the entire 21,683-acre property was a government-owned, contractor-operated industrial facility. The RVAAP Installation Restoration Program (IRP) encompasses investigation and cleanup of past activities over the entire 21,683 acres of the former RVAAP (Figure 1-2). WBG is located in the center of Camp Ravenna and encompasses approximately 200 acres (Figure 1-3).

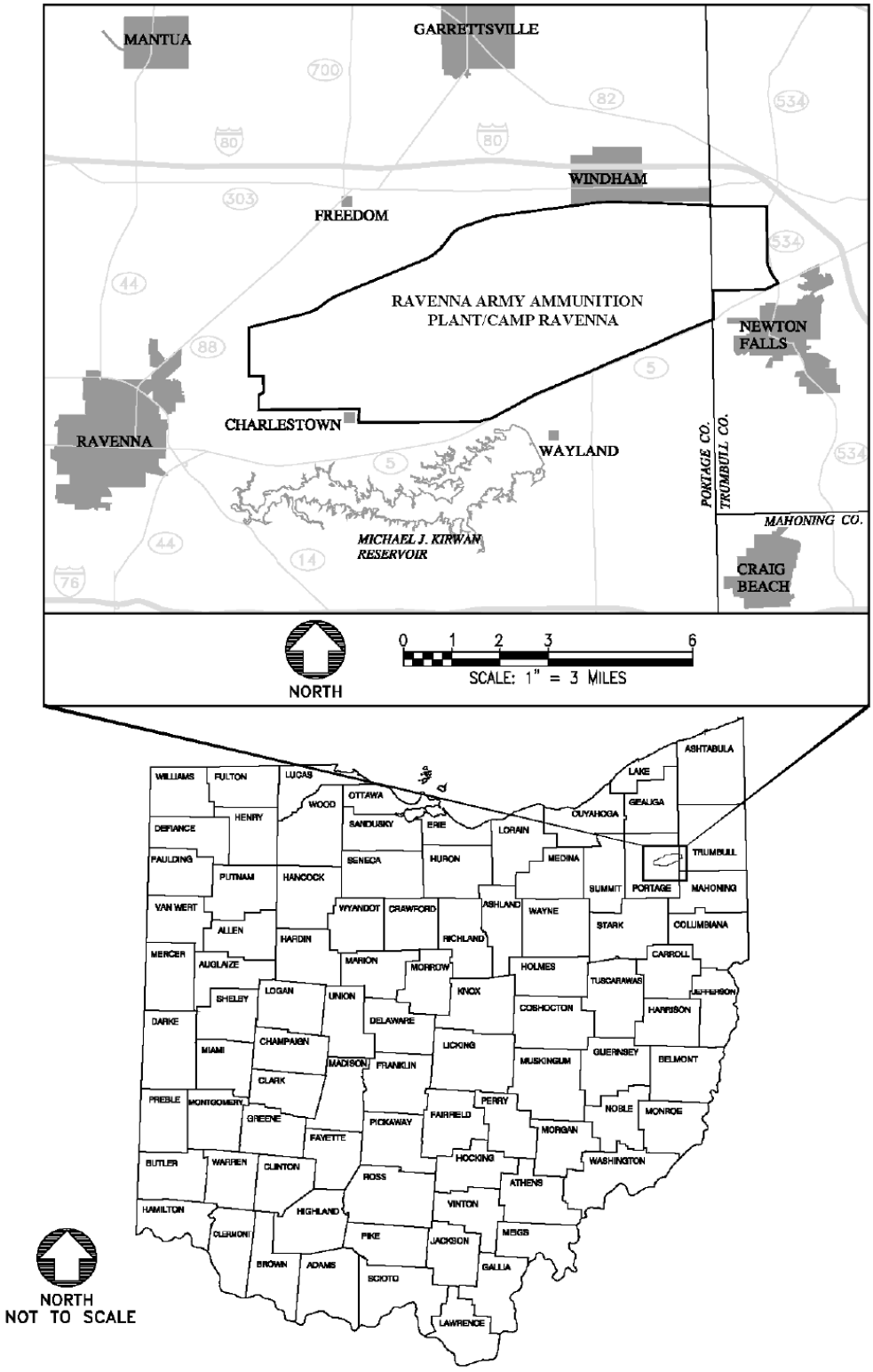


FIGURE 1-1. Location of former RVAAP/Camp Ravenna, Portage and Trumbull Counties, Ohio.

1.2 Statement of Purpose

This ESD presents proposed post-ROD changes to the remedy at the WBG AOC. A Remedial Investigation/Feasibility Study (RI/FS), Record of Decision (ROD), Remedial Design (RD), and Remedial Action Completion Report (RAR) have been completed for the WBG AOC. These investigations and remedial actions were completed so that the AOC could be used as a Mark 19 Machine Gun Range (MK19 Range). Although remedial actions were completed for WBG, the associated restrictions (see Section 4.3) placed on the AOC limit the use and future development of the AOC. The proposed future use for this AOC is military training. The site is planned to be further developed as a Multi-Purpose Machine Gun (MPMG) Range which will require intrusive activities at various depths over the entire AOC. Additionally, the Army determined that future use of the site may involve full-time employees, thereby requiring that it meet the applicable standards for the Commercial/Industrial Land Use. An RI/FS Supplement (USACE, 2014) has been completed showing that the AOC has three Chemicals of Concern (COCs) related to the Commercial/Industrial Land Use. The RI/FS Supplement identified five distinct areas of additional soil removal that are needed to meet the Commercial/Industrial Land Use, so that the site can be used as planned, with appropriate ordnance safety support. This ESD documents the additional areas of soil excavation required, the additional volume and cost associated with those areas, the change in Land Use designation, and the changes in Land Use Controls (LUCs) at the WBG AOC. These changes are considered "significant" rather than "fundamental," because the basic remedy of soil removal is not changing. Rather, the Army is proposing to remove additional residual contamination, thereby reducing the long-term risk. Since the proposed changes are not "fundamental," an ESD is appropriate and a ROD amendment is not required.

1.3 Administrative Record

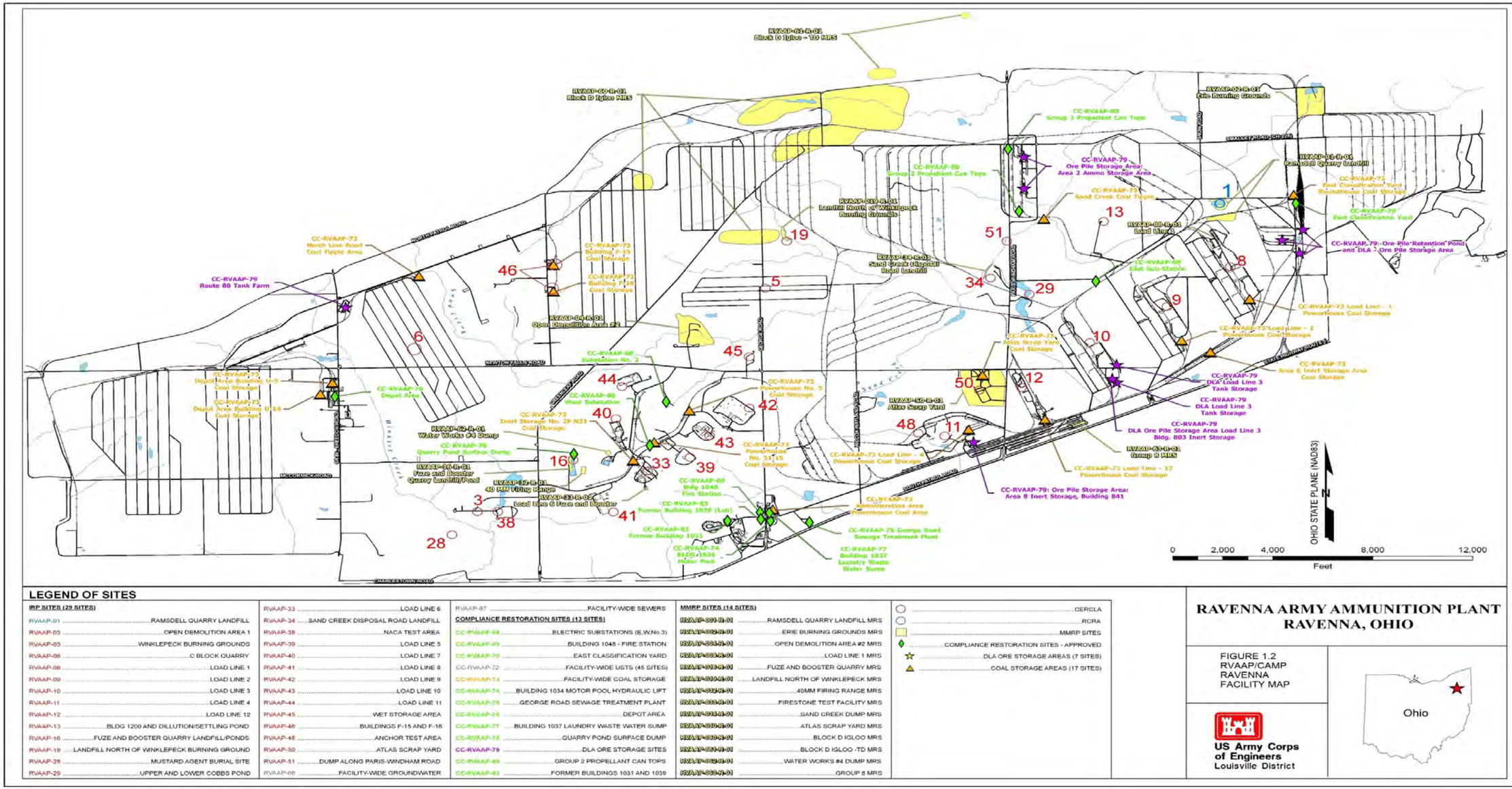
This ESD will become part of the administrative record file in accordance with NCP §§300.825(a)(2). The Administrative Record File is established and maintained by the Army, and is located at:

Camp Ravenna Joint Military Training Center
Environmental Office
1438 State Route 534, SW
Newton Falls, Ohio 44444
(614) 336-6136

Since the Administrative Record File is located at the installation, access is controlled, but can be obtained with prior notice. Current information and final documents are placed in the Information Repositories and maintained by the Army. An Information Repository has been established at the following locations:

Reed Memorial Library
167 East Main St
Ravenna, Ohio 44266
(330) 296-2827
Hours: Mon-Fri 9am-8pm
Sat 9am-5pm

Newton Falls Public Library
204 South Canal St
Newton Falls, Ohio 44444
(330) 872-1282
Hours: Tues-Thurs 9am-8pm
Fri-Sat 9am-5pm



LEGEND OF SITES

IRP SITES (29 SITES)

RVAAP-01	RAMSDELL QUARRY LANDFILL
RVAAP-03	OPEN DEMOLITION AREA 1
RVAAP-05	WINKLEPECK BURNING GROUNDS
RVAAP-06	C BLOCK QUARRY
RVAAP-08	LOAD LINE 1
RVAAP-09	LOAD LINE 2
RVAAP-10	LOAD LINE 3
RVAAP-11	LOAD LINE 4
RVAAP-12	LOAD LINE 12
RVAAP-13	BLDG 1200 AND DILLUTION/SETTLING POND
RVAAP-16	FUZE AND BOOSTER QUARRY LANDFILL/PONDS
RVAAP-19	LANDFILL NORTH OF WINKLEPECK BURNING GROUND
RVAAP-28	MUSTARD AGENT BURIAL SITE
RVAAP-29	UPPER AND LOWER COBBS POND
RVAAP-33	LOAD LINE 6
RVAAP-34	SAND CREEK DISPOSAL ROAD LANDFILL
RVAAP-38	NACA TEST AREA
RVAAP-39	LOAD LINE 5
RVAAP-40	LOAD LINE 7
RVAAP-41	LOAD LINE 8
RVAAP-42	LOAD LINE 9
RVAAP-43	LOAD LINE 10
RVAAP-44	LOAD LINE 11
RVAAP-45	WET STORAGE AREA
RVAAP-46	BUILDINGS F-15 AND F-16
RVAAP-48	ANCHOR TEST AREA
RVAAP-50	ATLAS SCRAP YARD
RVAAP-51	DUMP ALONG PARIS-WINDHAM ROAD
RVAAP-66	FACILITY-WIDE GROUNDWATER
RVAAP-67	FACILITY-WIDE SEWERS

COMPLIANCE RESTORATION SITES (13 SITES)

CC-RVAAP-69	ELECTRIC SUBSTATIONS (E,W,No.3)
CC-RVAAP-69	BUILDING 1048 - FIRE STATION
CC-RVAAP-70	EAST CLASSIFICATION YARD
CC-RVAAP-72	FACILITY-WIDE USTS (45 SITES)
CC-RVAAP-73	FACILITY-WIDE COAL STORAGE
CC-RVAAP-74	BUILDING 1034 MOTOR POOL HYDRAULIC LIFT
CC-RVAAP-75	GEORGE ROAD SEWAGE TREATMENT PLANT
CC-RVAAP-78	DEPOT AREA
CC-RVAAP-77	BUILDING 1037 LAUNDRY WASTE WATER SUMP
CC-RVAAP-78	QUARRY POND SURFACE DUMP
CC-RVAAP-79	DLA ORE STORAGE SITES
CC-RVAAP-80	GROUP 2 PROPELLANT CAN TOPS
CC-RVAAP-83	FORMER BUILDINGS 1031 AND 1039

MMRP SITES (14 SITES)

RVAAP-001-R-01	RAMSDELL QUARRY LANDFILL MRS
RVAAP-002-R-01	ERIE BURNING GROUNDS MRS
RVAAP-003-R-01	OPEN DEMOLITION AREA #2 MRS
RVAAP-008-R-01	LOAD LINE 1 MRS
RVAAP-016-R-01	FUZE AND BOOSTER QUARRY MRS
RVAAP-019-R-01	LANDFILL NORTH OF WINKLEPECK MRS
RVAAP-032-R-01	40MM FIRING RANGE MRS
RVAAP-038-R-01	FIRESTONE TEST FACILITY MRS
RVAAP-039-R-01	SAND CREEK DUMP MRS
RVAAP-050-R-01	ATLAS SCRAP YARD MRS
RVAAP-066-R-01	BLOCK D IGLOO MRS
RVAAP-067-R-01	BLOCK D IGLOO -TD MRS
RVAAP-002-R-01	WATER WORKS #4 DUMP MRS
RVAAP-003-R-01	GROUP 8 MRS

CERCLA
RCRA
MMRP SITES
COMPLIANCE RESTORATION SITES - APPROVED
DLA ORE STORAGE AREAS (7 SITES)
COAL STORAGE AREAS (17 SITES)

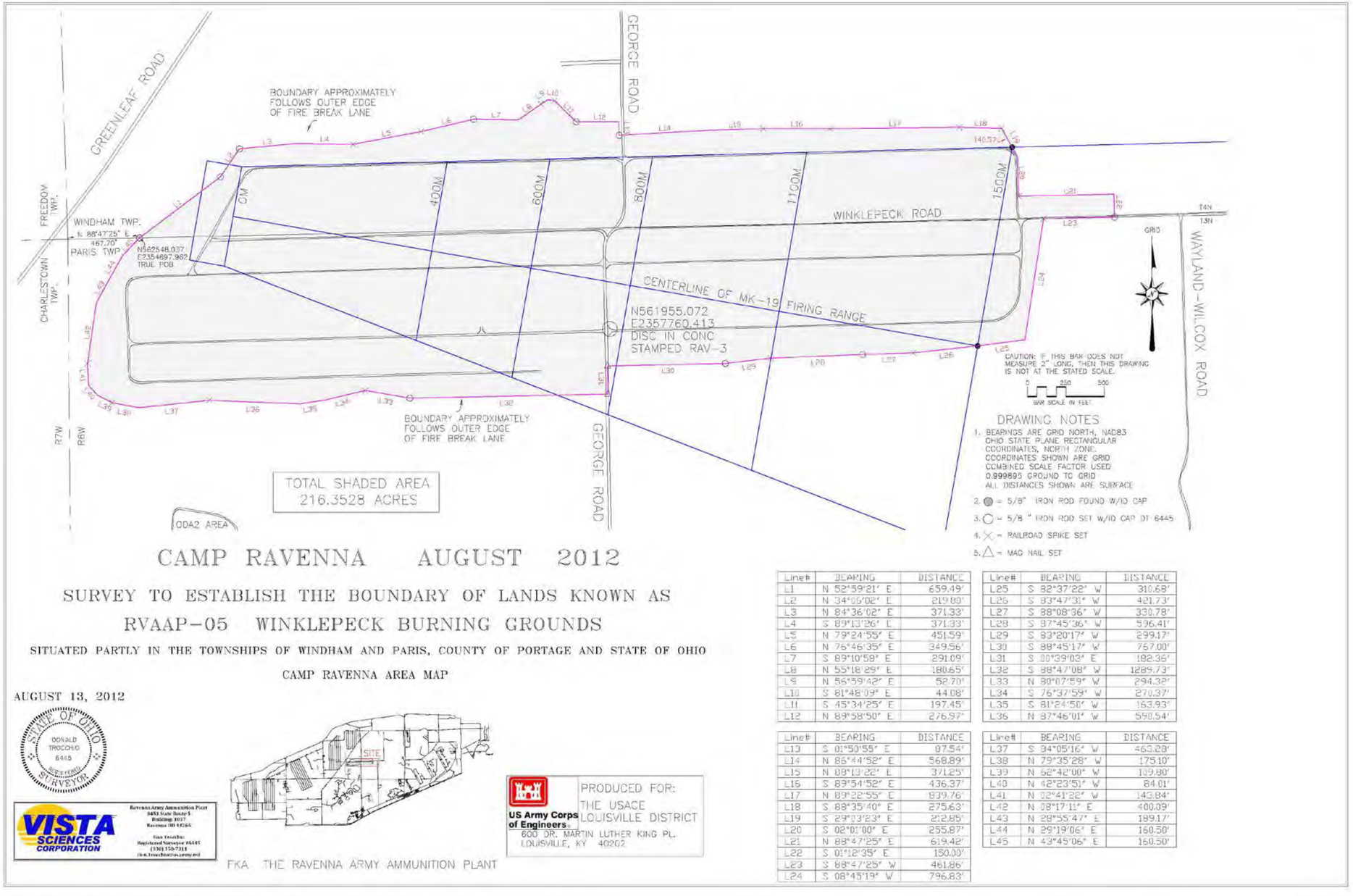
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

FIGURE 1.2
RVAAP/CAMP
RAVENNA
FACILITY MAP

US Army Corps of Engineers
Louisville District

Ohio

FIGURE 1-2. Map of the former RVAAP or Camp Ravenna, Portage and Trumbull Counties, Ohio.



Line#	BEARING	DISTANCE
L1	N 52°59'21" E	659.49'
L2	N 34°05'02" E	219.80'
L3	N 84°36'02" E	371.33'
L4	S 89°13'26" E	371.33'
L5	N 79°24'55" E	451.59'
L6	N 76°46'35" E	349.56'
L7	S 89°10'58" E	291.09'
L8	N 55°18'29" E	180.65'
L9	N 56°59'42" E	52.70'
L10	S 81°48'09" E	44.08'
L11	S 45°34'25" E	197.45'
L12	N 89°58'50" E	276.97'

Line#	BEARING	DISTANCE
L13	S 01°50'55" E	87.54'
L14	N 86°44'52" E	568.89'
L15	N 08°19'22" E	371.25'
L16	S 89°54'52" E	436.37'
L17	N 89°22'55" E	839.76'
L18	S 88°35'40" E	275.63'
L19	S 29°13'23" E	212.85'
L20	S 02°01'00" E	255.87'
L21	N 88°47'25" E	619.42'
L22	S 01°12'35" E	150.00'
L23	S 88°47'25" W	461.86'
L24	S 08°45'19" W	796.83'

Line#	BEARING	DISTANCE
L25	S 82°37'22" W	310.68'
L26	S 83°47'31" W	421.73'
L27	S 88°08'36" W	330.78'
L28	S 87°45'36" W	596.41'
L29	S 83°20'17" W	299.17'
L30	S 88°45'17" W	757.00'
L31	S 00°39'03" E	182.35'
L32	S 88°47'08" W	1285.73'
L33	N 80°07'59" W	294.38'
L34	S 76°37'59" W	270.37'
L35	S 81°24'50" W	163.93'
L36	N 87°46'01" W	598.54'

Line#	BEARING	DISTANCE
L37	S 34°05'16" W	463.28'
L38	N 79°35'28" W	175.10'
L39	N 62°42'00" W	109.80'
L40	N 42°23'51" W	84.01'
L41	N 02°41'22" W	143.84'
L42	N 08°17'11" E	400.09'
L43	N 28°55'47" E	189.17'
L44	N 29°19'06" E	150.50'
L45	N 43°45'06" E	150.50'

FIGURE 1-3. Map of Winklepeck Burning Grounds, Camp Ravenna, Portage and Trumbull Counties, Ohio.

Note: The red line represents the boundary of Winklepeck Burning Grounds and the blue lines represent the range fan of the existing Mark-19 Firing Range.

2.0 Site History, Contamination, and Selected Remedy

2.1 Site History and Contamination

Historical operations at WBG included destruction of explosives from various types of munitions by open burning. Historical activities at WBG also included destruction of bulk explosives, propellants, and explosive-contaminated combustible material using open burning. In some instances, black powder and explosives were laid out along roads and burned. Prior to 1980, materials destroyed by burning included bulk explosives and explosives-contaminated burnable wastes, propellants, black powder, sludge and sawdust from load lines, and domestic wastes. Also, small amounts of laboratory chemicals were burned during production periods. Metallic munitions fragments were allowed to remain on the site after burning, as were possible residual explosives. Waste oil (hydraulic oils from machines and lubrication oils from vehicles) was burned in the northeast corner of WBG until 1973.

Prior to 1980, burning was carried out on several burn pads, in four burn pits, and sometimes on the roads. Figure 2-1 depicts the burn pads and their respective numbers. The burn pads generally consisted of level areas without berms 6 to 12.2 m (20 to 40 ft) in width and length, with gravel cover or bare soil. Although the exact number is not known, 70 burn pads have been identified from historical drawings and aerial photographs. The burn pits consisted of areas, with earthen berms on three sides, approximately 15.2 to 22.9 m (50 to 75 ft) in width and length. The four burn pits are believed to correspond to Pads 58, 59, 60, and 61. Ash from these areas was not collected. Unsalvageable scrap metal was taken to the landfill north of WBG (RVAAP-19); salvageable metal was taken to a scrap salvage yard and sold as marketable scrap metal (SAIC, 2008).

After 1980, burns were conducted in two metal refractory lined trays set on top of a bed of slag. These trays were located at Pad 37. Ash residues were drummed and stored in Building 1601 until being tested for proper disposal. Burning at this location ceased in the early 1990's and this area was closed under RCRA in 1999.

The topography at WBG is gently undulating with a general elevation decrease from west to east. Surface water drainage during storm events generally flows from west to east to southeast across WBG. Storm water run-off ditches ultimately flow into Sand Creek. The former burn pads are located along five east/west oriented gravel or dirt roads. The former burn pads range in appearance from distinct areas of soil and slag that are partially vegetated to non-descript (no visible slag and heavily vegetated).

2.2 Description of the Selected and Implemented Remedy

The selected remedy in the signed Final ROD (SAIC, 2008) is summarized here:

The selected and implemented remedy for WBG addressed residual chemical contaminants in soil and dry sediment only. No perennial streams exist within the AOC and surface water flow within drainage ditches occurs only during storm events. Therefore, surface water was not and is not an exposure media at WBG and all sediment within the AOC boundary is classified as dry (i.e., there are no wet sediments on the AOC).

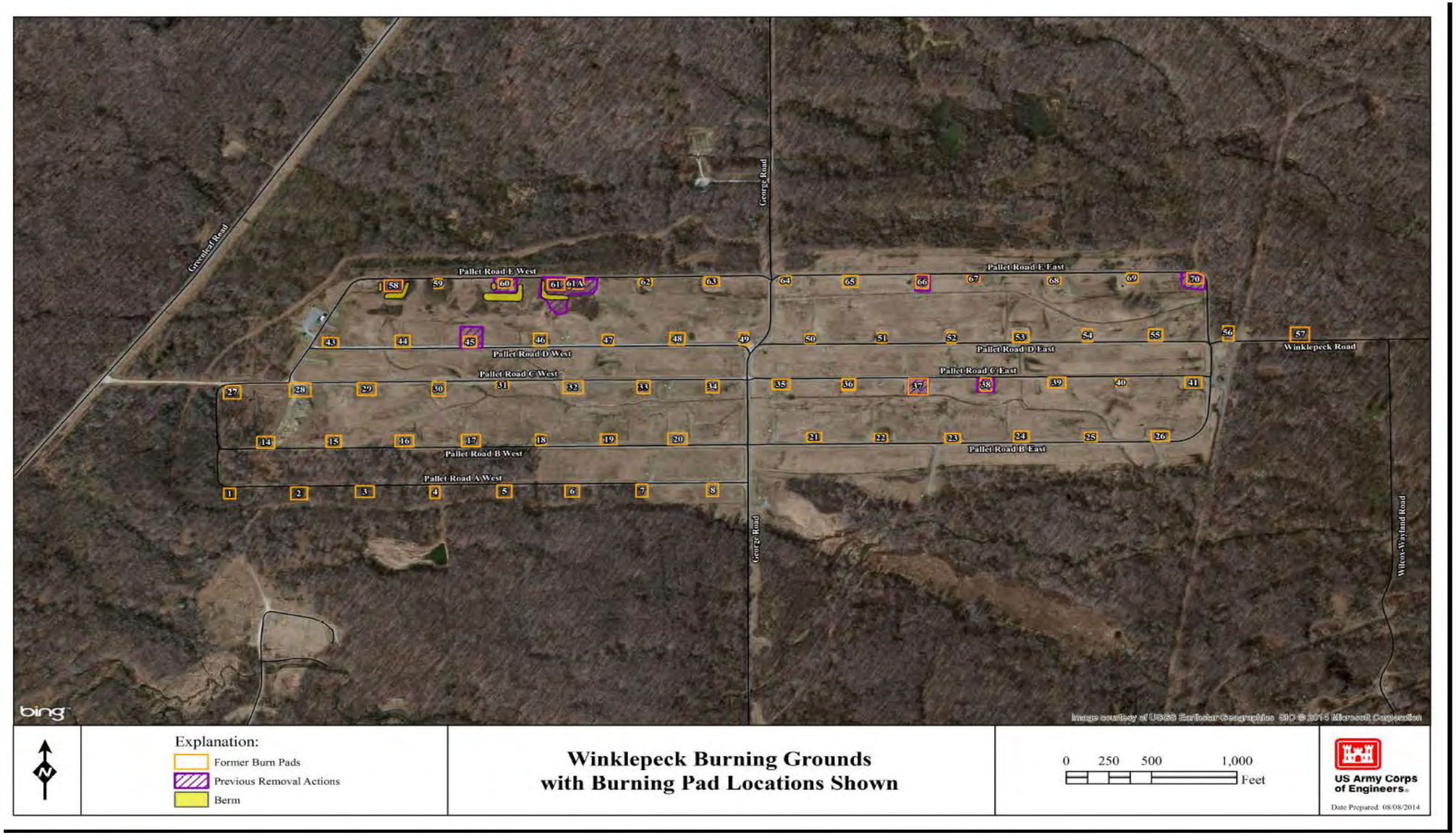


FIGURE 2-1. Winklepeck Burning Grounds with Burning Pad Locations shown.

Therefore, wet sediment, surface water, and groundwater were not addressed in the scope of the selected remedy. Groundwater is being addressed under the facility-wide groundwater AOC (RVAAP-66). Potential remedial actions for groundwater at WBG will be addressed under separate future decisions.

The selected remedy for chemically contaminated soil and dry sediment consisted of excavation and disposal of contaminated soil identified at three locations at WBG: Pads 61/61A, Site WBG-217 located near Pads 61/61A, and Pad 67. In addition, soil containing friable asbestos was excavated and disposed from a fourth location (Pad 70). Munitions and explosives of concern (MEC) exist at WBG; therefore, MEC survey and clearance procedures were incorporated into the excavation activities at WBG conducted pursuant to the ROD. Following remediation, some residual chemical contamination remained at WBG; therefore, LUCs were implemented and enforced to deter unauthorized access and limit exposure. The selected alternative described in the ROD included the following:

- clearing of vegetation,
- geophysical surveys and visual inspections for identifying metal debris,
- removal of transite and friable asbestos from the surface and subsurface within the footprint of Pad 70,
- excavation of contaminated soil by layers to a depth of 0.3 to 1.2 m (1 to 4 ft),
- screening (sifting) of the excavated soil for metal debris (potential MEC),
- confirmation sampling of the chemical characteristics of the remaining soil and for the absence of visible asbestos within the sides and bottom of the excavation,
- multi-increment sampling and testing of sifted soil to determine disposal requirements,
- disposal of contaminated soil (above remedial goals) at an approved off-site facility,
- backfill of the excavations using fill material from a source approved by the U. S. Army and Ohio EPA,
- site restoration,
- implementation of LUCs for the AOC, and
- conducting 5-year reviews of the performance of the selected remedy.

The selected remedy in the ROD followed the *Final Remedial Action Work Plan, Winklepeck Burning Grounds, Ravenna Army Ammunition Plant, Ravenna, Ohio* (MKM, 2008b) (herein referred to as the RD), and documented in the *Final Remedial Action Completion Report for RVAAP-05 Winklepeck Burning Grounds, Pads 61/61A, 67, and 70* (MKM, 2009) (herein referred to as the RAR).

3.0 Basis for the Explanation of Significant Differences

A RI/FS, ROD, RD, and RAR have been completed for the WBG AOC. These investigations and remedial actions were completed so that the AOC could be used as a MK19 Range. Use of the AOC as a MK19 Range was achieved, but there were several associated restrictions/LUCs placed on the AOC which are now limiting the use and future development of the AOC. Additional development of the AOC as a Multi-Purpose Machine Gun (MPMG) Range is planned and will require more flexibility for training than currently allowed at the MK19 Range. For these reasons, the AOC required additional assessment.

The planned future use of the AOC is military training, but Commercial/Industrial Land Use was chosen as the proposed Reasonably Anticipated Future Land Use (RAFLU) to allow for the potential of full-time employees on the AOC. The site is planned to be further developed as a MPMG Range which will require intrusive activities at various depths over the entire AOC. Any intrusive activities, including construction, will be conducted using Unexploded Ordnance (UXO) Support per Army's authority in accordance with range safety regulations such as *Department of Defense (DoD) Manual Number 6055.9-M* (DoD, 2012), *Department of the Army (DA) Pamphlet (Pam) 385-63* (DA, 2014), and *DA Pam 385-64* (DA, 2013). The RI/FS Supplement (USACE, 2014) was prepared in general accordance with *The Final Work Plan for Additional Evaluation of the RVAAP-05 Winklepeck Burning Grounds, RVAAP/Camp Ravenna* (USACE, 2012). The Work Plan described methods to implement a study and evaluation of LUCs and the use of the WBG for Military Training, using information and data from previously completed studies. The Work Plan identified data gaps and presented a sampling scheme to address those data gaps. During preparation of the RI/FS Supplement Report, the Army determined that the site should be evaluated for the Commercial/Industrial Land Use to allow for the potential of employees to work full time on the site. In order to reduce or limit the current LUCs, thereby making the WBG AOC more available for the anticipated future Land Use, risks were evaluated for the Industrial receptor considering the full extent of contamination. The goal of the evaluation of risks was to optimize access to soils without limitations based on the presence of chemicals at their depth of occurrence.

During work on the RI/FS Supplement (USACE, 2014), an evaluation of previously collected data for the AOC was completed to identify any data gaps where additional sampling and analysis were required to fully define the nature and extent of residual chemical contamination, and this additional sampling was completed. Details of the nature and extent of the residual contamination were used to assess potential risks to the full-time occupational exposure receptor by using the U.S. Environmental Protection Agency's (USEPA's) Industrial Regional Screening Levels (RSLs) (May 2013) at the remediation level (cancer risk 1×10^{-5} or Hazard Quotient (HQ) of 1, whichever is lower). In the RI/FS Supplement, risks were evaluated to the maximum depth that the chemical contamination occurred, optimizing the depth of soils that receptors can access. The risk assessment calculations described in the RI/FS Supplement verified that meeting the Industrial RSL for each contaminant of concern would also ensure that the site-wide risk meets the 1×10^{-5} cumulative excess lifetime cancer risk and the non-cancer hazards meet an HI of 1.

The results of the additional evaluation and risk assessment, in the RI/FS Supplement, indicated that there are three COCs for the full-time worker at five distinct areas involving Pad 38, Pad 61/61A, and Pad 66/67. The RI/FS Supplement also showed that limited additional soil removal in these five areas would allow the site to be used as planned in the future, with appropriate ordnance safety support, with fewer restrictions or LUCs.

4.0 Description of Significant Differences

This section describes the significant differences between the selected/implemented remedy as presented in the ROD and the modification to the remedy proposed in this ESD. The significant differences are the change in future Land Use, additional soil removal, and change in restrictions/LUCs. The modified remedy satisfies CERCLA §121.

4.1 Land Use

The ROD states the land use designation at WBG is a Mark 19 Grenade Machinegun Range for training. The RD states the current and future land use for WBG is for various small arms weapons ranges, including the existing Mark 19 Range. The RAFLU has changed to Commercial/Industrial for potential full-time use. The RI/FS Supplement (USACE, 2014) demonstrates that, with some limited additional soil removal, the site-wide risk can meet the 1×10^{-5} cumulative excess lifetime cancer risk and the non-cancer hazards can meet an HI of 1; thereby meeting the requirements of Commercial/Industrial Land Use and allowing for safe use by full-time military workers.

4.2 Additional Soil Removal

Section 2.2 of this ESD document presents the soil removal that was prescribed in the ROD. This section of the ESD presents the five areas of additional soil removal needed to achieve the Commercial/Industrial Land Use and allow development of the MPMG Range with fewer restrictions.

The total additional soil excavation is estimated to be 5,250 cubic yards. The previous remedial action involved excavation, screening, and disposal of 7,384 cubic yards of soil. The screening was conducted to remove MEC. Prior to the remedial action, a removal action was conducted, which involved the excavation, screening and partial disposal of 12,000 cubic yards of soil. Table 1 summarizes the five areas of additional removal, along with the applicable COCs, depth of removal, area of removal, and estimated volume of removal. Figure 4-1 shows the areas identified for additional soil removal.

TABLE 1. Estimated Volume of Soil Removal to Achieve Commercial/Industrial Land Use.

Potential Exposure Area	Proposed Remediation Location	COC	Depth (ft)	Surface Area (acres)	Estimated Volume (yd^3)
Pad 38	Previous removal action area at Pad 38	TNT	2	0.2	645.3
Pad 61/61A	Previous removal action area at Pad 61/61A	PAHs	2	1.2	3872.0
Pad 66/67	Previous Pad 66 removal area	RDX & TNT	2	0.2	645.3
	Sample Station WBG-252 within Pad 67		10	0.005	80.7
	Previous removal action west of pad 67 centered on Station WBG-070		2	0.002	6.5
Source: RI/FS Supplement (USACE, 2014).			**Totals:**	**1.6**	**5250**

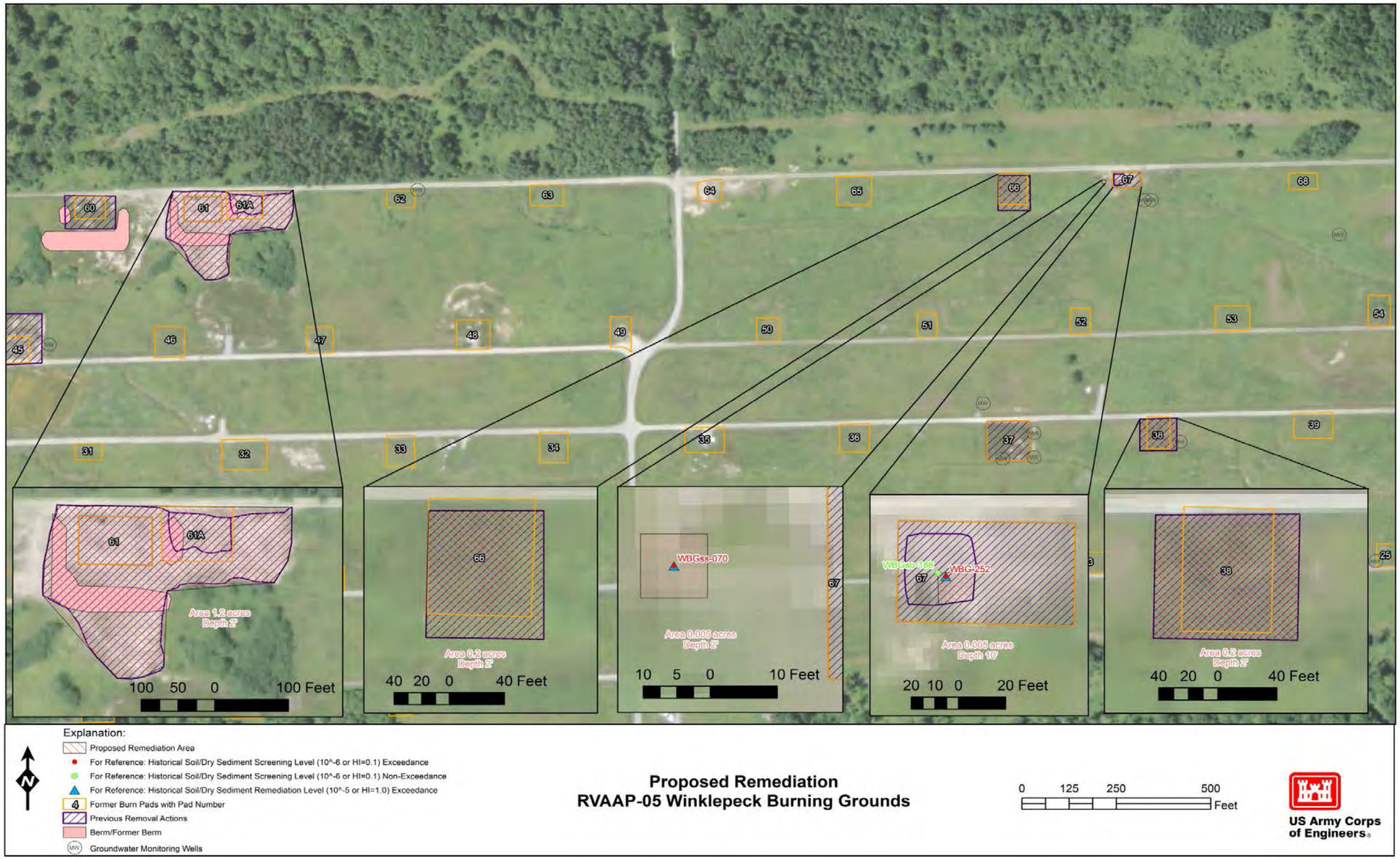


FIGURE 4-1. Proposed Locations for Remediation at Winklepeck Burning Grounds.

The additional capital cost of the added soil removal, including screening for potential MEC, conducting incremental confirmation sampling, and disposing excavated soil off-site, is estimated to be approximately $1,500,000. Based on historical knowledge, it is assumed that waste will be non-hazardous and disposed of in a Subtitle D facility. Costs will decrease if all or some of the sifted soils could be beneficially re-used, as allowed in the original ROD, while costs will increase if wastes are classified as hazardous. Detailed costs are presented in Appendix K of the RI/FS Supplement. The cost of the previous removal action and remedial action totaled approximately $4,104,000, not including investigations and project oversight.

4.3 Existing Restrictions/Land Use Controls

Attachment 1 to the original RD (MKM, 2008b) is the "Land Use Control RD", which provides LUC performance objectives, the LUCs to be used, and the LUC implementation actions relevant to WBG.

The LUC performance objectives listed in the LUC RD are as follows:

- Maintain the perimeter fence of the Ravenna Training and Logistics Site (now known as Camp Ravenna).
- Restrict future land use to small arms weapons ranges.
- Limit activities to target practice; maintenance of targetry and associated lifting mechanisms; range maintenance, compatible natural resource management activities, and other activities that are consistent with the Range Maintenance Soldier exposure scenario.
- Prohibit digging or excavation at the WBG AOC outside of any UXO/MEC/Discarded Military Munitions (DMM)-cleared areas.

The LUC RD then provides a description of the LUCs, the logic for their selection, and implementation actions to meet the LUC performance objectives. The LUCs were then formalized and documented in the Property Management Plan (PMP) (USACE, 2012). The LUCs for the WBG AOC provided in the PMP are as follows:

- Land use of the WBG AOC shall be limited by the maintenance of the existing Camp Ravenna perimeter fence.
- All activities executed within the WBG AOC must be in compliance with OHARNG range safety regulations, established digging restrictions, and established exposure limits.
- The range will be marked with signage that is in conformance with the requirements of the most current Department of Army Regulations.
- Groundwater use or extraction of groundwater located at or underlying the WBG AOC or any portion thereof is prohibited, except for the following:
    - The installation, development, purging, and sampling of new or existing monitoring wells in accordance with the most recent Facility-Wide Sampling and Analysis Plan (FWSAP) as part of the AOC-specific IRP or Facility-Wide Ground Water Monitoring Program Plan (FGWMPP).
    - The abandonment and replacement of monitoring wells damaged by activities conducted on the Installation, and wells no longer utilized as part of IRP or FGWMPP activities, in accordance with Ohio EPA guidance, the most recent FWSAP, and applicable Ohio Administrative Code requirements.
- All digging, intrusive activities, or excavation on the WBG AOC outside of the UXO/MEC-cleared areas within the Mark 19 Grenade Machinegun Range is prohibited with the following exceptions:
    - Routine maintenance of roads, ditches, culverts, and activities listed in A-1.4 above.

- Ground surface repairs by authorized range personnel in support of authorized range activities.
- Digging along target array areas by authorized range personnel to a depth of 1 foot below ground surface.

4.4 Revised Restrictions/Land Use Controls

Implementation of this ESD will effectively terminate the previously established LUCs and restrictions identified in the ROD, the original RD, and the PMP. Based on the results of the additional evaluation and risk assessment presented in the RI/FS Supplement, two new LUCs will be established:

- The AOC cannot be used for Unrestricted (Residential) Land Use unless or until additional evaluation shows that risk levels resulting from residual contamination have been reduced to levels acceptable for Residential Land Use and any residual MEC hazards have been removed and
- Groundwater use or extraction of groundwater located at or underlying the WBG AOC or any portion thereof is prohibited, except for the following:
  - The installation, development, purging, and sampling of new or existing monitoring wells in accordance with the most recent Facility-Wide Sampling and Analysis Plan (FWSAP) as part of the AOC-specific IRP, the Facility-Wide Ground Water Monitoring Program Plan (FGWMPP), or the Facility-Wide Groundwater Remedial Investigation.
  - The modification of existing monitoring wells, if necessary, to allow for construction on the range.
  - The abandonment and replacement of monitoring wells damaged by activities or removed for construction, and abandonment of wells no longer utilized as part of IRP or FGWMPP activities, in accordance with Ohio EPA guidance, the most recent FWSAP, and applicable Ohio Administrative Code requirements.

The cost of implementation, maintenance, and monitoring of the new LUCs will be offset by LUCs which are being eliminated.

4.5 Implementation Actions for Revised Restrictions/Land Use Controls

The Army, through a Land Use Control Implementation Plan (LUCIP) or similar document, shall restrict the use of the WBG AOC to non-Residential usage and shall restrict use of groundwater on the AOC to non-potable uses. The PMP for the former RVAAP (Camp Ravenna) currently functions as the LUCIP for the AOCs and Munitions Response Sites at Camp Ravenna.

All previous implementation actions in the LUC RD and the PMP are no longer required as this ESD terminates the LUCs and restrictions described in those documents.

Additional information pertaining to the Army's requirements for implementing LUCs can be found in a DoD Memorandum with the subject: *Policy on Land Use Controls Associated with Environmental Restoration Activities* (DoD, 2001). This DoD Policy Memorandum states the following:

- On active installations, Components (Army for Camp Ravenna) have the authority over land use.
- Components shall put appropriate control mechanisms (discussed in guidance attached to the Policy Memorandum) in place to manage LUCs and shall incorporate LUCs into the existing land use management processes of the locality (for property being transferred out of Federal control) or the installation (for DoD-controlled property).
- Components should use a layering strategy or a system of mutually reinforcing controls, as described in guidance attached to the Policy Memorandum, to effectively implement LUCs.

- Components should describe the LUC strategy, delineating the responsibilities of all parties involved in implementing the LUCs. The level of detail should be commensurate with the size of the parcel and controls needed, and can be part of an existing land use management document or process. This strategy or plan is an internal management tool and does not impose any additional legal obligations.
- Components should not use Defense-State Memoranda of Agreement (DSMOA) as the mechanism for paying for monitoring, enforcing, or otherwise managing LUCs by state regulatory agencies.

Guidance attached to the DoD Policy Memorandum (DoD, 2001), titled *Department of Defense Guidance on Land Use Controls Associated with Environmental Restoration Activities for Active Installations* states: "Components control land use at active installations and can internally restrict the use of such property." This guidance also states: "Once a decision has been made in consultation with the supporting land use planning/management office to place limitations on the use of DoD real property due to environmental restoration concerns, the installation shall develop an implementation plan for LUCs. The implementation plan is an internal management tool that explains how LUCs will be established and documented. It also defines who will be responsible for maintaining and managing them."

4.6 Monitoring and Reporting of the Revised Restrictions/Land Use Controls

The revised LUCs will now be maintained using options in the *Department of Defense Guidance on Land Use Controls Associated with Environmental Restoration Activities for Active Installations* which attached to the DoD's 2001 Policy Memorandum. The Army considers this to be a reasonable approach given that, the chemical contamination in the soil will be remedied to meet the 1×10^{-5} cumulative excess lifetime cancer risk and the non-cancer HI of 1, and the AOC will continue to be used and controlled as an Operational Range.

The PMP required periodic monitoring in the form of site inspections to be conducted as necessary, but not less than once per quarter, and documented in an annual LUC monitoring report. The Army will monitor the LUCs, as necessary, to ensure they are maintained; however, given that there will be no engineering controls to inspect, this ESD terminates the requirement of quarterly and annual reporting to the Ohio EPA for WBG AOC.

4.7 CERCLA 121(C) Five-Year Reviews

As part of the CERCLA Section 121(c) 5-Year remedy review process, the Army shall prepare a report evaluating the continued effectiveness of the remedy, including effectiveness of the LUCs and an assessment of whether there is a need to modify the LUCs. The Army will verify whether the LUCs continue to be properly documented and maintained. Each remedy review will evaluate whether conditions have changed due to contaminant attenuation, migration or other factors such as land use. If risk levels have changed since initial LUC implementation, LUC modification will be considered.

4.8 LUC Enforcement of Revised Restrictions/Land Use Controls

If the Army discovers any land use that is inconsistent with the revised LUCs or that impairs the effectiveness of the remedial actions at the WBG AOC, the Army will take appropriate action to enforce the LUCs or maintain remedy integrity.

The Army may take immediate action pursuant to its CERCLA authorities to prevent any perceived risk(s) to human health or the environment. Any breach of a LUC will be reported to the appropriate civil authorities. Potential response measures include informal resolution with the owner or violator, and the institution of judicial action under State property law or CERCLA.

The LUC RD and PMP listed requirements for reporting to state regulatory agencies. This ESD terminates these reporting requirements, as the Army will internally control and restrict land use in accordance with DoD policy.

5.0 Public Participation Compliance

Public participation requirements in NCP §§300.435(c)(2)(i) have been or will be met by:

- Making this ESD and supporting information available to the public in the administrative record and information repositories. and;

- Publishing a notice that briefly summarizes the explanation of significant differences, including the reasons for such differences, in a major local newspaper of general circulation.

6.0 References

DA. 2014. Pamphlet 385-63. Range Safety. April 16.

DA. 2013. Pamphlet 385-64. Ammunition and Explosives Safety Standards. October 10.

DoD. 2012a. 2011. 2010. 2008. Manual Number 6055.9-M, Eight Volumes. DoD Ammunition and Explosives Safety Standards. February 29, 2008. Administratively Reissued August 4, 2010. Incorporating subsequent Changes.

DoD. 2012b. Manual Number 6055.9-M, Volume 1. DoD Ammunition and Explosives Safety Standards: General Explosives Safety Information and Requirements. February 29, 2008. Administratively Reissued August 4, 2010. Incorporating Change 1, March 12, 2012.

DoD. 2012c. Manual Number 6055.9-M, Volume 2. DoD Ammunition and Explosives Safety Standards: Explosives Safety Construction Criteria. February 29, 2008. Administratively Reissued August 4, 2010. Incorporating Change 1, April 6, 2012.

DoD. 2012d. Manual Number 6055.9-M, Volume 8. DoD Ammunition and Explosives Safety Standards: Glossary. February 29, 2008. Administratively Reissued August 4, 2010. Incorporating Change 1, March 12, 2012.

DoD. 2011. Manual Number 6055.9-M, Volume 6. DoD Ammunition and Explosives Safety Standards: Contingency Operations, Toxic Chemical Munitions and Agents, and Risk-Based Siting. February 29, 2008. Administratively Reissued August 4, 2010. Incorporating Change 1, August 31, 2011.

DoD. 2010a. Manual Number 6055.9-M, Volume 3. DoD Ammunition and Explosives Safety Standards: General Quantity-Distance Criteria for Accidental Detonations. February 29, 2008. Administratively Reissued August 4, 2010.

DoD. 2010b. Manual Number 6055.9-M, Volume 7. DoD Ammunition and Explosives Safety Standards: Criteria for Unexploded Ordnance, Munitions Response, Waste Military Munitions, and Material Potentially Presenting an Explosive Hazard. February 29, 2008. Administratively Reissued August 4, 2010.

DoD. 2001. MEMORANDUM for Assistant Secretary of the Army (Installations and Environment), Assistant Secretary of the Navy (Installations and Environment), Assistant Secretary of the Air Force (Manpower, Reserve Affairs, Installations and Environment), Director, Defense Logistics Agency (D), SUBJECT: *Policy on Land Use Controls Associated with Environmental Restoration Activities.* January.

MKM Engineers, Inc. (MKM). 2009. Final Remedial Action Completion Report for RVAAP-05 Winklepeck Burning Grounds Pads 61/61A, 67, and 70 at Ravenna Army Ammunition Plant. Nov 19.

MKM. 2008a. Final Field Sampling and Analysis Plan MEC Clearance and Munitions Response Amendment 1 for RVAAP-05 Winklepeck Burning Grounds at Ravenna Army Ammunition Plant. October.

MKM. 2008b. Final Remedial Action Work Plan, Winklepeck Burning Grounds, Ravenna Army Ammunition Plant, Ravenna, Ohio, Amendment 1. September.

MKM. 2005a. Final Phase I MEC Density Survey After Action Report at RVAAP-05 Winklepeck Burning Grounds. March.

MKM. 2005b. Final Work Plan for Phase II MEC Clearance and Munitions Response at RVAAP-05 Winklepeck Burning Grounds. March.

MKM. 2005c. Final Phase II MEC Clearance and Munitions Response at Winklepeck Burning Grounds. December 16.

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

Science Applications International Corporation (SAIC). 2010. Final Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant, Ravenna, Ohio. March 23.

SAIC. 2008. Final Record of Decision for Soil and Dry Sediment at the RVAAP-05 Winklepeck Burning Grounds at the Ravenna Army Ammunition Plant, Ravenna, Ohio. August.

SAIC. 2006. Revised Final Report On The Biological Field-Truthing Effort At Winklepeck Burning Grounds At Ravenna Army Ammunition Plant, Ravenna, Ohio. August.

SAIC. 2005. Final Phase III Remedial Investigation Report for the Winklepeck Burning Grounds at the Ravenna Army Ammunition Plant, Ravenna, Ohio. March.

SAIC. 2001. Final Phase II Remedial Investigation Report for the Winklepeck Burning Grounds at RVAAP, Ravenna, Ohio. April.

SAIC. 1998, Final Phase I Remedial Investigation Report for High Priority Areas of Concern at the Ravenna Army Ammunition Plant, Ravenna, Ohio. February.

Shaw. 2011. Final Data Quality Objectives Report for RVAAP-05 Winklepeck Burning Grounds. June.

United States Army Corps of Engineers (USACE). 2014. Remedial Investigation/Feasibility Study Supplement for RVAAP-05 Winklepeck Burning Grounds, RVAAP/Camp Ravenna, Portage and Trumbull Counties, Ohio. January 10.

USACE. 2013. Final Risk Assessment Assumptions Document (RAAD): Addendum to the Work Plan for the Additional Evaluation of the RVAAP-05 Winklepeck Burning Grounds, RVAAP/Camp Ravenna, Ravenna, Ohio. July.

USACE. 2012. Final Work Plan for Additional Evaluation of the RVAAP-05 Winklepeck Burning Grounds RVAAP/Camp Ravenna, Ravenna, Ohio. October.

USACE. 2012. Final Property Management Plan for the Designated Areas of Concern and Munitions Response Sites, Volume One – Version 1.0. Ravenna Army Ammunition Plant, Ravenna , Ohio.

USACE. 2011. Final Guidance Document for the Evaluation of Land Use Controls at Ravenna Army Ammunition Plant.

USACE. 2009. Position Paper for the Application and Use of Facility-Wide Human Health Cleanup Goals. June.

USACE. 2005. Ravenna Army Ammunition Plant Facility-Wide Human Health Risk Assessor Manual, Amendment 1.

Appendix A

Ohio EPA Comments and Army Response to Comments

OhioEPA

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

October 22, 2014

Mr. Brett Merkel
Army National Guard Directorate
ARNGD-ILE Clean UP
111 South George Mason Drive
Arlington, VA 22203

Re: US Army Ravenna Ammunition Plt RVAAP Assessment
Remedial Response
Portage County
267000859

Subject: Comments for the "Draft Explanation of Significant Differences for Post ROD Changes to the Remedy at RVAAP-05 Winklepeck Burning Grounds Revision 0", Former Ravenna Army Ammunition Plant, Ravenna, Ohio, Dated August 2014 (Work Activity No. 267-000859-138)

Dear Mr. Merkel:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR) has received and reviewed the document entitled, "Draft Explanation of Significant Differences for Post ROD Changes to the Remedy at RVAAP-05 Winklepeck Burning Grounds Revision 0," dated August 2014. This document was received by Ohio EPA's NEDO on September 4, 2014.

1) Figure 1-3 shows the outline of the Winklepeck Burning Grounds with an over lay of the proposed firing range. This is a helpful figure; however, it is difficult to interpret what the blue overlain image is. There is no key on the figure to help the reviewer interpret this figure.

   - **Action Item:** Add a key to the figure to clarify what the blue image is on the map and if the red line represents the Winklepeck boundary.

2) Page 14, Section 4.6 indicates the soil will be remedied to industrial standards and the AOC will continue to be used and controlled as an Operational Range. The noted cleanup standard is referenced as being commercial/industrial land use in Sections 3 and 4.1

   - **Action Item:** Clarify the land use cleanup standard for Winklepeck.

E-MAILED 10-28-2014 RMH

Scanned By: RMH Date: 10-28-2014

Northeast District Office • 2110 East Aurora Road • Twinsburg, OH 44087-1924
www.epa.ohio.gov • (330) 963-1200 • (330) 487-0769 (fax)

RECEIVED 10-28-2014

Ohio EPA notes that impacted ground water underlying areas of Winklepeck will be included as part of the facility wide ground water monitoring program plan. If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1201.

Sincerely,

Sue Netzly-Watkins
Site Coordinator
Division of Environmental Response and Revitalization

SN-W/nvr

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

ec: Rod Beals, Ohio EPA, NEDO, DERR
Nancy Zikmanis, Ohio EPA, NEDO, DERR
Justin Burke, Ohio EPA, CO, DERR
Andrew Kocher, Ohio EPA, NEDO, DERR

NATIONAL GUARD BUREAU
111 SOUTH GEORGE MASON DRIVE
ARLINGTON VA 22204-1373

November 25, 2014

Ohio Environmental Protection Agency
DERR-NEDO
Attn: Ms. Sue Netzly-Watkins
2110 East Aurora Road
Twinsburg, OH 44087-1924

Subject: Response to Ohio EPA Comments for
Draft Explanation of Significant Differences (ESD) for
Post-ROD Changes to the Remedy at RVAAP-05,
Winklepeck Burning Grounds, Former Ravenna Army Ammunition
Plant/Camp Ravenna, Portage and Trumbull Counties, Ohio (Ohio EPA
Work Activity No. 267-000859-138)

Dear Ms. Netzly-Watkins,

The Army received your comment letter on the Draft ESD for Winklepeck Burning Grounds on October 28, 2014. We have reviewed your comments and offer the following proposed responses.

1) **Ohio EPA**: Add a key to Figure 1-3 to clarify what the blue image is on the map and if the red line represents the Winklepeck boundary.

Army Response: Figure 1-3 is a copy of a survey prepared by a licensed land surveyor. The Army would prefer not to do anything that might appear to be an addition to the surveyor's map. The Army suggests that a note be added after the figure title. The revised figure caption would read as follows:

FIGURE 1-3. Map of Winklepeck Burning Grounds, Camp Ravenna. (Note: The red line represents the boundary of Winklepeck Burning Grounds and the blue lines represent the range fan of the existing Mark-19 Firing Range.)

2) **Ohio EPA**: Page 14 Section 4.6 indicates the soil will be remedied to industrial standards and the AOC will continue to be used and controlled as an Operational Range. The noted cleanup standard is referenced as being commercial/industrial land use in Sections 3 and 4.1 Clarify the land use cleanup standard for Winklepeck.

Army Response: The approved Technical Memorandum for Land Use and Risk Assessment added a third Land Use for Camp Ravenna called Commercial/Industrial Land Use. To achieve this Land Use, the land must meet the U.S. EPA's Industrial Regional Screening Levels (RSLs) at the remediation level (cancer risk 1 x 10^{-5} and/or Hazard Index (HI) of 1.0). The RI/FS Supplement for Winklepeck Burning Grounds used the May 2013 Industrial RSLs to determine the area that should be remediated to achieve the Commercial/Industrial Land Use.

The second paragraph of Section 3 of the ESD states: "Details of the nature and extent of the residual contamination were used to assess potential risks to the full-time occupational exposure receptor by using

the U.S. Environmental Protection Agency's (USEPA's) Industrial Regional Screening Levels (RSLs) (May 2013) at the remediation level (cancer risk 1 x 10^{-5} and/or Hazard Index (HI) of 1.0). In the RI/FS Supplement, risks were evaluated to the maximum depth that the chemical contamination occurred, optimizing the depth of soils that receptors can access."

The Army suggests that the following clarifications be added to the document.

The last sentence of section 4.1 is revised to:

The RI/FS Supplement (USACE, 2014) demonstrates that, with some limited additional soil removal, the site can meet USEPA's Industrial Regional Screening Levels (RSLs) (May 2013) at the remediation level; thereby meeting the requirements of Commercial/Industrial Land Use and allowing for safe use by full-time military workers.

The last sentence of the first paragraph of section 4.6 is revised to:

The Army considers this to be a reasonable approach, given that the chemical contamination in the soil will be remedied to meet USEPA's Industrial RSLs (May 2013) at the remediation level (cancer risk 1 x 10^{-5} and/or Hazard Index (HI) of 1.0), and the AOC will continue to be used and controlled as an Operational Range.

In addition to the responses included in this letter, the Army is also providing an electronic version of the revised document for your review. Thank you for your review of our responses. If these proposed revisions are acceptable, the document will be finalized and appropriate copies provided.

Please contact the undersigned at (703) 601-7785 or brett.a.merkel.civ@mail.mil if there are issues or concerns with this submittal.

Sincerely,

Brett Merkel

Brett A. Merkel
RVAAP Restoration Program Manager
Army National Guard Directorate

No enclosures (revised document to be submitted via email)

cc: Nancy Zikmanis, Ohio EPA, DERR-NEDO
Rod Beals, Ohio EPA, DERR-NEDO
Kevin Sedlak, ARNG-ILE, Camp Ravenna
Katie Tait, OHARNG, Camp Ravenna
Greg Moore, USACE Louisville

Subject: Response to Ohio EPA Comments for Draft Explanation of Significant Differences (ESD) for Post-ROD Changes to the Remedy at RVAAP-05, Winklepeck Burning Grounds, Former Ravenna Army Ammunition Plant/Camp Ravenna, Portage and Trumbull Counties, Ohio

Nat Peters, USACE Louisville
Gail Harris, Vista Sciences Corporation
REIMS - attn. Pat Ryan, Leidos

From: Netzly-Watkins, Susan [Susan.Netzly-Watkins@epa.ohio.gov]
Sent: Monday, December 01, 2014 9:41 AM
To: Peters, Nathaniel II LRL
Cc: Merkel, Brett A CIV NG NGB (US); Zikmanis, Nancy; Burke, Justin; Sedlak, Kevin M CTR (US); Tait, Kathryn S NFG NG OHARNG (US); 'Rebecca Haney'; Bob Guthrie; Moore, Gregory F; Zikmanis, Nancy; Tucker, Brian; Rasik, Carrie
Subject: [EXTERNAL] RE: Responses to Comments on the Draft ESD for Winklepeck Burning Grounds (UNCLASSIFIED)

Nat,

Hope you had a great Thanksgiving holiday!

Thank you for your November 26, 2014 response to Ohio EPA comments on the Draft ESD for Winklepeck Burning Grounds.

Comment 1) Your suggestion of adding a note on the figure will address the comment. No further comment.

Comment 2) The RSLs are adjusted to DERR's risk goal of 1E-5. As written in the response to the second comment, it appears that only the single RSL value may have been adjusted.

Link to the guidance is below.
http://www.epa.state.oh.us/portals/30/rules/HH%20Cumulative%20Carc%20Risk%20and%20Non-Carc%20Hazard%20Goals.pdf

Make sure that the site-wide risk meets the 1 E-5 (cumulative) excess lifetime cancer risk (ELCR) and the non-cancer hazards meet a HI of 1.

Please let us know if you have any questions regarding our feedback.

Sincerely,

Sue Netzly-Watkins

NATIONAL GUARD BUREAU
111 SOUTH GEORGE MASON DRIVE
ARLINGTON VA 22204-1373

January 27, 2015

Ohio Environmental Protection Agency
DERR-NEDO
Attn: Ms. Sue Netzly-Watkins
2110 East Aurora Road
Twinsburg, OH 44087-1924

Subject: Revised Response to Ohio EPA Comments for Draft Explanation of Significant Differences (ESD) for Post-ROD Changes to the Remedy at RVAAP-05, Winklepeck Burning Grounds, Former Ravenna Army Ammunition Plant/Camp Ravenna, Portage and Trumbull Counties, Ohio (Ohio EPA Work Activity No. 267-000859-138)

Dear Ms. Netzly-Watkins,

The Army received your comment letter on the Draft ESD for Winklepeck Burning Grounds on October 28, 2014. We reviewed your comments and offered a response on November 25, 2014. Based on subsequent correspondence with your agency, the following revised responses are provided.

1) **Ohio EPA**: Add a key to Figure 1-3 to clarify what the blue image is on the map and if the red line represents the Winklepeck boundary.

Army Response: Figure 1-3 is a copy of a survey prepared by a licensed land surveyor. The Army would prefer not to do anything that might appear to be an addition to the surveyor's map. The Army suggests that a note be added after the figure title. The revised figure caption would read as follows:

FIGURE 1-3. Map of Winklepeck Burning Grounds, Camp Ravenna. (Note: The red line represents the boundary of Winklepeck Burning Grounds and the blue lines represent the range fan of the existing Mark-19 Firing Range.)

2) **Ohio EPA**: Page 14 Section 4.6 indicates the soil will be remedied to industrial standards and the AOC will continue to be used and controlled as an Operational Range. The noted cleanup standard is referenced as being commercial/industrial land use in Sections 3 and 4.1 Clarify the land use cleanup standard for Winklepeck.

Response: The approved Technical Memorandum for Land Use and Risk Assessment added a third Land Use for Camp Ravenna called Commercial/Industrial Land Use. To achieve this Land Use, the land must meet the U.S. EPA's Industrial Regional Screening Levels (RSLs) at the remediation level (cancer risk 1 x 10^{-5} and/or Hazard Quotient (HQ) of 1). The RI/FS Supplement for Winklepeck Burning Grounds used the May 2013 Industrial RSLs to determine the area that should be remediated to achieve the Commercial/Industrial Land Use. The risk assessment calculations supporting the RI/FS Supplement verified that meeting the Industrial RSL for each contaminant of concern also ensured that the site-wide risk meets the 1 x 10^{-5} cumulative excess lifetime cancer risk and the non-cancer hazards meet an HI of 1.

Subject: Revised Response to Ohio EPA Comments for Draft Explanation of Significant Differences (ESD) for Post-ROD Changes to the Remedy at RVAAP-05, Winklepeck Burning Grounds, Former Ravenna Army Ammunition Plant/Camp Ravenna, Portage and Trumbull Counties, Ohio

The Army proposes the following changes to the ESD document to clarify the cleanup standard.

In the proposed revision, the passage in the third paragraph of Section 3, which begins "Details of the nature and extent," would be rewritten as follows:

"Details of the nature and extent of the residual contamination were used to assess potential risks to the full-time occupational exposure receptor by using the U.S. Environmental Protection Agency's (USEPA's) Industrial Regional Screening Levels (RSLs) (May 2013) at the remediation level (cancer risk 1×10^{-5} or Hazard Quotient (HQ) of 1, whichever is lower). In the RI/FS Supplement, risks were evaluated to the maximum depth that the chemical contamination occurred, optimizing the depth of soils that receptors can access. The risk assessment calculations described in the RI/FS Supplement verified that meeting the Industrial RSL for each contaminant of concern would also ensure that the site-wide risk meets the 1×10^{-5} cumulative excess lifetime cancer risk and the non-cancer hazards meet an HI of 1."

In the proposed revision, the last sentence of section 4.1 would be rewritten as follows:

The RI/FS Supplement (USACE, 2014) demonstrates that, with some limited additional soil removal, the site-wide risk can meet the 1×10^{-5} cumulative excess lifetime cancer risk and the non-cancer hazards can meet an HI of 1; thereby meeting the requirements of Commercial/Industrial Land Use and allowing for safe use by full-time military workers.

In the proposed revision to the ESD, the last sentence of the first paragraph of 4.6 would be revised to say:

The Army considers this to be a reasonable approach given that, the chemical contamination in the soil will be remedied to meet the 1×10^{-5} cumulative excess lifetime cancer risk and the non-cancer HI of 1, and the AOC will continue to be used and controlled as an Operational Range.

In addition to the responses included in this letter, the Army is also providing an electronic version of the revised document for your review. Thank you for your review of our responses. If these proposed revisions are acceptable, the document will be finalized and appropriate copies provided.

Please contact the undersigned at (703) 607-7955 or mark.s.leeper.civ@mail.mil if there are issues or concerns with this submittal.

Sincerely,

Mark S. Leeper
RVAAP Restoration Program Manager
Army National Guard Directorate

Subject: Revised Response to Ohio EPA Comments for Draft Explanation of Significant Differences (ESD) for Post-ROD Changes to the Remedy at RVAAP-05, Winklepeck Burning Grounds, Former Ravenna Army Ammunition Plant/Camp Ravenna, Portage and Trumbull Counties, Ohio

No enclosures (revised document to be submitted via email)

cc: Rod Beals, Ohio EPA, DERR-NEDO
Kevin Sedlak, ARNG-ILE, Camp Ravenna
Katie Tait, OHARNG, Camp Ravenna
Greg Moore, USACE Louisville
Nat Peters, USACE Louisville
Gail Harris, Vista Sciences Corporation
REIMS - attn. Pat Ryan, Leidos

From: Netzly-Watkins, Susan [Susan.Netzly-Watkins@epa.ohio.gov]
Sent: Tuesday, February 10, 2015 1:31 PM
To: Peters, Nathaniel II LRL; Leeper, Mark S CIV (US); Sedlak, Kevin M CTR (US); Tait, Kathryn S NFG NG OHARNG (US); Moore, Gregory F; Bob Guthrie; Gail Harris; gail.a.harris8.ctr@mail.mil; 'Rebecca Haney'
Cc: Beals, Rodney; Tucker, Brian; Rasik, Carrie; Burke, Justin
Subject: [EXTERNAL] RE: Revised ESD for Winklepeck Burning Grounds - RVAAP 05 (UNCLASSIFIED) - Ground Water LUC comment

I spoke with Brian Tucker, Carrie Rasik and Justin Burke yesterday about the Final ESD Post ROD Changes to the Remedy at RVAAP-05 Winklepeck Burning Grounds Former Ravenna Army Ammunition Plant/Camp Ravenna, Portage and Trumbull Counties, Ohio" (Winklepeck ESD) dated February 2015.

We believe you've addressed Brian's risk comment and my map comment adequately in the Final ESD February 2015 document.

However, we do want to clarify something in the Winklepeck ESD -Section 4.4 "Revised Restrictions/Land Use Controls". It's noted that two new LUCs will be established once the Winklepeck ESD is effectively terminated.

In summary, the 2 new LUCs proposed in the Winklepeck Final ESD include the following:

*restricting the AOC from unrestricted (Residential) Land Use....
* use of ground water within the AOC is restricted to non-potable uses.

During my review of the Winklepeck ESD drafts, I have assumed that the second bullet in Section 4.4 was a "short hand summary" for the restricted use of ground water uses as they are outlined currently in the August 2012 Final Property Management Plan (PMP). Because the risk for non-potable use of ground water has not been fully assessed, it has been my assumption that the intended restricted use of ground water at the Winklepeck AOC is limited to and will continue to be limited to installation of new wells, development, purging and sampling, abandonment and replacement of monitoring wells. Any other use of ground water or extraction of ground water located at or underlying Winklepeck is prohibited at this time. (see the August 2012 PMP - Appendix A, specific LUCS)

I understand that the PMP will be revised, so I wanted to make sure everyone is in agreement on what the revised restrictions/land use controls will be when the Winklepeck ESD is implemented. The proposed LUCs in the Winklepeck ESD should be the same as the ones that will be in the revised PMP to limit any confusion.

Sincerely,

Sue Netzly-Watkins

From: Peters, Nathaniel II LRL
Sent: Tuesday, February 17, 2015 3:14 PM
To: 'Netzly-Watkins, Susan'; Leeper, Mark S CIV (US); Sedlak, Kevin M CTR (US); Tait, Kathryn S NFG NG OHARNG (US); Moore, Gregory F; Bob Guthrie; Gail Harris; gail.a.harris8.ctr@mail.mil; 'Rebecca Haney'
Cc: Beals, Rodney; Tucker, Brian; Rasik, Carrie; Burke, Justin
Subject: RE: Revised ESD for Winklepeck Burning Grounds - RVAAP 05 (UNCLASSIFIED)
Attachments: Revised Section 4.4 of ESD 2-17-2015.docx

Classification: UNCLASSIFIED
Caveats: FOUO

Sue,

Thank you for your quick review and feedback. The Army Team understands the need to be sure that the new LUCs are clear.

To address your concerns, I have provided a proposed revision to Section 4.4 of the ESD (see attached). Note that Section 4.3 (also provided) presents the LUCs as given in the existing RD and PMP. For the "new" LUC for groundwater in Section 4.4, we are proposing to use the language directly from the existing PMP section, with a few minor modifications. The modifications allow for installation and use of monitoring wells for a Facility-wide Groundwater RI (in case they are needed) and allows for replacement or modification of monitoring wells if necessary for construction.

The new LUCs, as provided in Section 4.4 of the ESD, would be copied directly into the new PMP Appendix for Winklepeck Burning Grounds and would be effective once the ESD remedy is implemented.

Please let us know if these proposed revisions are acceptable or if you have any questions.

Thanks again for your assistance in developing a workable document.

Nat Peters, PhD, PE
Senior Environmental Engineer/SME
Environmental Branch
Louisville District, US Army Corps of Engineers
Phone: 502-315-2624

4.3 Existing Restrictions/Land Use Controls

Attachment 1 to the original RD (MKM, 2008b) is the "Land Use Control RD", which provides LUC performance objectives, the LUCs to be used, and the LUC implementation actions relevant to WBG.

The LUC performance objectives listed in the LUC RD are as follows:

- Maintain the perimeter fence of the Ravenna Training and Logistics Site (now known as Camp Ravenna).
- Restrict future land use to small arms weapons ranges.
- Limit activities to target practice; maintenance of targetry and associated lifting mechanisms; range maintenance, compatible natural resource management activities, and other activities that are consistent with the Range Maintenance Soldier exposure scenario.
- Prohibit digging or excavation at the WBG AOC outside of any UXO/MEC/Discarded Military Munitions (DMM)-cleared areas.

The LUC RD then provides a description of the LUCs, the logic for their selection, and implementation actions to meet the LUC performance objectives. The LUCs were then formalized and documented in the Property Management Plan (PMP) (USACE, 2012). The LUCs for the WBG AOC provided in the PMP are as follows:

- Land use of the WBG AOC shall be limited by the maintenance of the existing Camp Ravenna perimeter fence.
- All activities executed within the WBG AOC must be in compliance with OHARNG range safety regulations, established digging restrictions, and established exposure limits.
- The range will be marked with signage that is in conformance with the requirements of the most current Department of Army Regulations.
- Groundwater use or extraction of groundwater located at or underlying the WBG AOC or any portion thereof is prohibited, except for the following:
  - The installation, development, purging, and sampling of new or existing monitoring wells in accordance with the most recent Facility-Wide Sampling and Analysis Plan (FWSAP) as part of the AOC-specific IRP or Facility-Wide Ground Water Monitoring Program Plan (FGWMPP).
  - The abandonment and replacement of monitoring wells damaged by activities conducted on the Installation, and wells no longer utilized as part of IRP or FGWMPP activities, in accordance with Ohio EPA guidance, the most recent FWSAP, and applicable Ohio Administrative Code requirements.
- All digging, intrusive activities, or excavation on the WBG AOC outside of the UXO/MEC-cleared areas within the Mark 19 Grenade Machinegun Range is prohibited with the following exceptions:
  - Routine maintenance of roads, ditches, culverts, and activities listed in A-1.4 above.
  - Ground surface repairs by authorized range personnel in support of authorized range activities.
  - Digging along target array areas by authorized range personnel to a depth of 1 foot below ground surface.

4.4 Revised Restrictions/Land Use Controls

Implementation of this ESD will effectively terminate the previously established LUCs and restrictions identified in the ROD, the original RD, and the PMP. Based on the results of the additional evaluation and risk assessment presented in the RI/FS Supplement, two new LUCs will be established:

- the AOC cannot be used for Unrestricted (Residential) Land Use unless or until additional evaluation shows that risk levels resulting from residual contamination have been reduced to levels acceptable for Residential Land Use and any residual MEC hazards have been removed and
- ~~the use of groundwater within the AOC is restricted to non-potable uses.~~
- Groundwater use or extraction of groundwater located at or underlying the WBG AOC or any portion thereof is prohibited, except for the following:
  - The installation, development, purging, and sampling of new or existing monitoring wells in accordance with the most recent Facility-Wide Sampling and Analysis Plan (FWSAP) as part of the AOC-specific IRP, ~~or~~ the Facility-Wide Ground Water Monitoring Program Plan (FGWMPP), or the Facility-Wide Groundwater Remedial Investigation.
  - The modification of existing monitoring wells, if necessary, to allow for construction on the range.
  - The abandonment and replacement of monitoring wells damaged by activities or removed for construction~~conducted on the Installation~~, and abandonment of wells no longer utilized as part of IRP or FGWMPP activities, in accordance with Ohio EPA guidance, the most recent FWSAP, and applicable Ohio Administrative Code requirements.

The cost of implementation, maintenance, and monitoring of the new LUCs will be offset by LUCs which are being eliminated.