

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

REVISION 0

August 27, 2015

***Prepared for:***

Department of the Army  
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*

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<b>16. SECURITY CLASSIFICATION OF:</b>			<b>17. LIMITATION OF ABSTRACT</b>	<b>18. NUMBER OF PAGES</b>	<b>19a. NAME OF RESPONSIBLE PERSON</b>
<b>a. REPORT</b>	<b>b. ABSTRACT</b>	<b>c. THIS PAGE</b>			<b>19b. TELEPHONE NUMBER (Include area code)</b>

**STATEMENT OF INDEPENDENT TECHNICAL REVIEW**

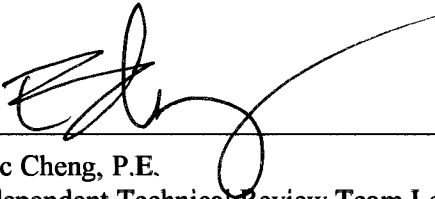
U.S. Army Corps of Engineers (USACE) has completed the preparation of this Remedial Design for RVAAP-05 Winklepeck Burning Grounds for former RVAAP/Camp Ravenna. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent 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, Ph.D., P.E.  
Study/Design Team Leader

8/26/15

Date



Eric Cheng, P.E.  
Independent Technical Review Team Leader

8/26/15

Date



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

September 25, 2015

Re: **US Army Ravenna Ammunition Plt RVAAP  
DFFO  
Correspondence  
Remedial Response  
Portage County  
267000859138**

Mr. Mark Leeper  
Army Nation Guard Directorate  
ARNGD-ILE Clean Up  
111 South George Mason  
Arlington, VA 22203

**Subject: Ohio EPA Approval of the Final Remedial Design for the Post-ROD Changes to the Remedy at RVAAP-05 (267-000-859-138) Winklepeck Burning Grounds Former Ravenna Army Ammunition Plant/Camp, Dated August 27, 2015.**

Dear Mr. Leeper:

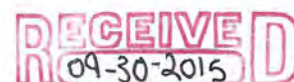
The Ohio Environmental Protection Agency (Ohio EPA) approves the August 27, 2015 Final Remedial Design for the Post-ROD Changes to the Remedy at RVAAP-05 Winklepeck Burning Grounds. Since the July 2015 conditional approval letter was issued to you, Ohio EPA worked with U.S. Army Corp of Engineers Louisville District on final edits to the document. Comments and edits were provided to the US Army Corp, Louisville District via e-mail.

The e-mails that discuss and show these comments and edits are attached to this letter.

**Background:**

Ohio EPA, Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR) received and reviewed the draft Remedial Design for the Post-ROD Changes to the Remedy at RVAAP-05 Winklepeck Burning Grounds Former Ravenna Army Ammunition Plant/Camp, dated November 2014. This document was received by Ohio EPA, NEDO on November 19, 2014. The document was prepared by the U.S. Army Corps of Engineers (USACE) Louisville District.

Our review of this document was delayed, because Ohio EPA had to first review and approve the March 2015 Final Explanation of Significant Differences (ESD) for the Post ROD Changes to the Remedy at RVAAP-05 Winklepeck Burning Grounds before proceeding forward with completing the review on this Remedial Design document for

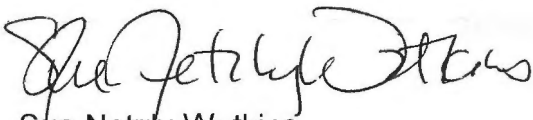


MR. MARK LEEPER  
ARMY NATION GUARD DIRECTORATE  
SEPTEMBER 25, 2015  
PAGE 2

the Winklepeck Burning Grounds. We had some comments on the Remedial Design document that we provided you in our July 2015 letter. We worked through these comments in e-mail correspondences provided to the U.S. Army Corp of Engineers, Louisville District.

Ohio EPA has no further comments regarding the Final Remedial Design for the Post-ROD Changes to the Remedy at Winklepeck Burning Grounds document. If you have any questions or concerns, please feel free to contact me at (330) 963-1201 or at [susan.netzly-watkins@epa.ohio.gov](mailto:susan.netzly-watkins@epa.ohio.gov).

Sincerely,



Sue Netzly-Watkins  
Environmental Specialist  
Ohio EPA - Division of Environmental Response and Revitalization

SN-W/nvr

Enclosure

cc: Kevin Sedlak, ARNG-ILE, Camp Ravenna  
Katie Tate, OHARNG, Camp Ravenna  
Gregory F. Moore, USACE, Louisville District

Nat Peters, USACE Louisville  
Gail Harris, Vista Sciences Corp

ec: Rod Beals, NEDO, DERR  
Brian Tucker, CO-DERR  
Frank Zingales, NEDO-DMWM

Justin Burke, CO-DERR  
Bob Princic, NEDO, DERR

## Netzly-Watkins, Susan

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**From:** Peters, Nathaniel II LRL <Nathaniel.Peters.II@usace.army.mil>  
**Sent:** Monday, September 14, 2015 1:36 PM  
**To:** Netzly-Watkins, Susan  
**Subject:** RE: Final Remedial Design for Post-ROD Changes at RVAAP-05 Winklepeck Burning Grounds (UNCLASSIFIED)

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Classification: UNCLASSIFIED

Caveats: FOUO

Thanks for the quick review!

-----Original Message-----

**From:** Susan Netzly-Watkins@epa.ohio.gov [mailto:[Susan.Netzly-Watkins@epa.ohio.gov](mailto:Susan.Netzly-Watkins@epa.ohio.gov)]  
**Sent:** Monday, September 14, 2015 1:22 PM  
**To:** Peters, Nathaniel II LRL  
**Subject:** [EXTERNAL] RE: Final Remedial Design for Post-ROD Changes at RVAAP-05 Winklepeck Burning Grounds (UNCLASSIFIED)

I am fine with the proposed changes you have noted.

-----Original Message-----

**From:** Peters, Nathaniel II LRL [mailto:[Nathaniel.Peters.II@usace.army.mil](mailto:Nathaniel.Peters.II@usace.army.mil)]  
**Sent:** Wednesday, September 09, 2015 11:21 AM  
**To:** Netzly-Watkins, Susan  
**Subject:** Final Remedial Design for Post-ROD Changes at RVAAP-05 Winklepeck Burning Grounds (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

Sue,

I really appreciate your help in getting the subject document finalized. I wonder if I could ask a big favor?

My PM, Greg Moore, has to set internal milestones, much like the DFFO milestones. One that we set for our program nearly a year ago was to get approval of the final Winklepeck RD by Sept 17, 2015. You have been very helpful in getting us almost to that goal.

I wonder if you could take a look at the revised section 4.12.2 and let me know if it will be acceptable based on the last set of comments from you and Frank. I accepted just about all of your comments nearly verbatim. There were two small edits that either add information or slightly change the meaning:

1) In the next to last paragraph, the Army added a phrase at the beginning of the paragraph. (As requested by the Ohio EPA in an email dated August 19, 2015, specifically for WBG RA). This could be taken negatively, but it was not intended to be. The ARNG wanted me to add that, because we had just recently gotten approval to stop sending characterization results for IDW to Ohio EPA for review and approval. We now send the IDW off for disposal based on Army review of the

results. But we understand that this project involves disposal of a large amount of material, and we don't have any problem providing the characterization results for Ohio EPA review. The Army just wanted to clarify that the process described in 4.12.2 is specific to the WBG Remedial Action.

2) at the end of the last sentence, I changed "sitewide cleanup goals" to "WBG cleanup goals." The reason I did that is because we have sitewide goals for Resident and National Guard Trainee, but we are using Industrial RSLs at WBG. So I was thinking that using the "WBG cleanup goals" would be more specific and less ambiguous.

If these changes are acceptable, could you send me an email letting me know that you will approve the Final RD (before Sept 17, even if approval letter comes later)?

If these changes are not acceptable, I would like to provide a revised document in an effort to get approval by Sept 17.

Thanks again for your help.

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

Attachment Classification: UNCLASSIFIED  
Attachment Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

## Netzly-Watkins, Susan

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**From:** Peters, Nathaniel II LRL <Nathaniel.Peters.II@usace.army.mil>  
**Sent:** Thursday, August 20, 2015 7:31 AM  
**To:** Netzly-Watkins, Susan  
**Cc:** Zingales, Frank; Moore, Gregory F  
**Subject:** RE: Army Response to Comments on Winklepeck Burning Grounds RD (UNCLASSIFIED)

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Classification: UNCLASSIFIED  
Caveats: FOUO

Sue,

Thanks! I don't think I have any questions, but I will certainly let you know if I do. Thanks again for your help and review. It is very much appreciated.

Clarification: when I said screening levels - I meant the "regulatory" level for haz waste toxicity characterization. I will change the language to be more clear. Thanks again.

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

-----Original Message-----

**From:** Susan Netzly-Watkins@epa.ohio.gov [mailto:Susan.Netzly-Watkins@epa.ohio.gov]  
**Sent:** Wednesday, August 19, 2015 11:39 AM  
**To:** Peters, Nathaniel II LRL  
**Cc:** Frank.Zingales@epa.ohio.gov; Moore, Gregory F  
**Subject:** [EXTERNAL] RE: Army Response to Comments on Winklepeck Burning Grounds RD (UNCLASSIFIED)

Nat,

Frank Zingales and I inserted our "redline" comments to the info you provided us. It is attached to this e-mail. Call or e-mail us if you have questions.

Sue:

-----Original Message-----

**From:** Peters, Nathaniel II LRL [mailto:Nathaniel.Peters.II@usace.army.mil]  
**Sent:** Saturday, August 15, 2015 1:23 PM  
**To:** Netzly-Watkins, Susan  
**Cc:** Zingales, Frank; Moore, Gregory F  
**Subject:** RE: Army Response to Comments on Winklepeck Burning Grounds RD (UNCLASSIFIED)



## Netzly-Watkins, Susan

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**From:** Netzly-Watkins, Susan  
**Sent:** Wednesday, August 19, 2015 11:39 AM  
**To:** 'Peters, Nathaniel II LRL'  
**Cc:** Zingales, Frank; Moore, Gregory F  
**Subject:** RE: Army Response to Comments on Winklepeck Burning Grounds RD (UNCLASSIFIED)  
**Attachments:** Winklepeck Stockpile waste characterization for additional soil removal.docx

Nat,

Frank Zingales and I inserted our "redline" comments to the info you provided us. It is attached to this e-mail. Call or e-mail us if you have questions.

Sue

-----Original Message-----

**From:** Peters, Nathaniel II LRL [mailto:Nathaniel.Peters.II@usace.army.mil]  
**Sent:** Saturday, August 15, 2015 1:23 PM  
**To:** Netzly-Watkins, Susan  
**Cc:** Zingales, Frank; Moore, Gregory F  
**Subject:** RE: Army Response to Comments on Winklepeck Burning Grounds RD (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

Sue and Frank,

Thanks again for your willingness to discuss the suggested revisions to Section 4.12.2.

The following language is proposed as revised text for that whole section (I'll try to call you on Tuesday to discuss):

As indicated in the preceding sections of this RD, excavated soils from the excavation areas will be processed for removal of MEC, stockpiled, and then sampled for subsequent off-site disposal. Approximately 1400 cubic yards is to be excavated from areas around Pads 38, 66, and 67. The COCs are TNT (in all three areas) and RDX (Pads 66/67). The soil from these pads will be stockpiled separately from the soil from Pads 61 and 61A, which had PAHs as the COC. The processed and stockpiled soil from Pads 38, 66, and 67 will be tested for hazardous waste characteristics at a rate of, approximately one sample per each 70 cubic yards of stockpiled material. Each sample collected to represent a 70 cubic yard portion will be an ISM sample composed of at least 30 soil aliquots. The soil will be stockpiled, sampled, and analyzed in such a way that parent material represented by each ISM characterization sample can be identified for proper disposal after analysis. This approach will allow for distinguishing between 70-yd lots that are hazardous and non-hazardous, so that each can be properly disposed of. If a 70-yd lot is characterized as hazardous waste, the Army may direct the contractor to divide the pile and collect additional characterization samples in order to potentially reduce the amount of soil that would be disposed of as hazardous waste. The Army may also direct the contractor to increase the sampling frequency, if the analyses consistently approach or exceed screening levels for toxicity.

Approximately 3900 cubic yards of soil is to be excavated from around Pads 61 and 61A, where the COCs are PAHs. The processed and stockpiled soil from Pads 61 and 61A will be tested for hazardous waste characteristics at a rate of approximately one sample per each 150 cubic yards of stockpiled material. Each sample collected to represent a 150 cubic yard portion will be an ISM sample composed of at least 60 soil aliquots. The soil will be stockpiled, sampled, and

analyzed in such a way that parent material represented by each ISM characterization sample can be identified for proper disposal after analysis. This approach will allow for distinguishing between 150-yd lots that are hazardous and non-hazardous, so that each can be properly disposed of. If a 150-yd lot is characterized as hazardous waste, the Army may direct the contractor to divide the pile and collect additional characterization samples in order to potentially reduce the amount of soil that would be disposed of as hazardous waste. The Army may also direct the contractor to increase the sampling frequency, if the analyses consistently approach or exceed screening levels for toxicity.

The soil to be disposed of is not a listed hazardous waste on the F, K, P, or U lists of specific waste streams from industrial or manufacturing processes or discarded commercial chemical products. Therefore it will be disposed of as non-hazardous solid waste if it does not exhibit any of the following four characteristics: ignitability, corrosivity, reactivity, or toxicity.

The soil to be disposed of will be tested for toxicity using methods consistent with the Toxicity Characteristic Leaching Procedure (TCLP) (Method 1311). Typically after the leaching procedure is performed the resulting extract is analyzed for specific metals, specific volatile organic compounds (VOCs), specific semi-volatile organic compounds (SVOCs), and specific herbicides and pesticides. Since neither VOCs nor pesticides/herbicides were identified as Chemicals of Concern at Winklepeck Burning Grounds, the TCLP extract will be analyzed only for the TCLP metals and SVOCs, based on generator knowledge of the waste. If the land disposal facility requires additional testing of the TCLP extract, that required testing will be performed.

The soil to be disposed of is not a liquid, a compressed gas, or an oxidizer. The in situ soil to be disposed of contains a maximum of 0.5% by weight of TNT and 0.2% by weight of RDX, based on data collected during the site characterization. The soil also contains no free liquid, such as petroleum-based fuel, that is ignitable. Therefore, there is no evidence that it is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes or, when ignited, it would burn so vigorously and persistently that it would create a hazard. Therefore, the soil to be disposed of will not be tested for ignitability, unless the land disposal facility requires that test. The soil is neither aqueous nor liquid; therefore, by definition it cannot be corrosive. The soil to be disposed of will not be tested for corrosivity, unless the land disposal facility requires that test. The soil to be disposed of does not exhibit any of the eight characteristics of reactivity listed in 40 CFR 261.23. While the soil may contain low levels of explosive compounds, the in situ soil to be disposed of contains a maximum of 0.5% by weight of TNT and 0.2% by weight of RDX, based on data collected during the site characterization. Typically a mixture of explosive compounds and soil is not considered to be an explosive mixture unless the concentration of explosive compounds is 10% or greater by weight. The in situ soil has a concentration of explosives much less than 10%; therefore, the soil to be disposed of will not be tested for reactivity, unless the land disposal facility requires that test.

The waste characterization samples will be taken directly from the accumulated stockpile. In addition to analyses listed above, the samples will be analyzed for any other analyses required by the disposal facility for proper disposal. After processing and sample collection, the soil stockpiles will be identified, labeled, and segregated until analytical laboratory results determine the stockpile disposition.

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

-----Original Message-----

From: Susan.Netzly-Watkins@epa.ohio.gov [mailto: Susan.Netzly-Watkins@epa.ohio.gov]  
Sent: Thursday, August 13, 2015 11:53 AM  
To: Peters, Nathaniel II LRL  
Cc: Frank.Zingales@epa.ohio.gov

**Subject: [EXTERNAL] RE: Army Response to Comments on Winklepeck Burning Grounds RD (UNCLASSIFIED)**

2PM it is.

Frank and I will give you a call at the 502 315-2624 number, unless you say otherwise.

-----Original Message-----

**From: Peters, Nathaniel II LRL [mailto:Nathaniel.Peters.II@usace.army.mil]**  
**Sent: Thursday, August 13, 2015 11:37 AM**  
**To: Netzly-Watkins, Susan**  
**Cc: Zingales, Frank**  
**Subject: RE: Army Response to Comments on Winklepeck Burning Grounds RD (UNCLASSIFIED)**

**Classification: UNCLASSIFIED**

**Caveats: FOUO**

Sue,

That would be great. How about 2:00 PM? Thanks.

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

-----Original Message-----

**From: Susan.Netzly-Watkins@epa.ohio.gov [mailto:Susan.Netzly-Watkins@epa.ohio.gov]**  
**Sent: Thursday, August 13, 2015 11:15 AM**  
**To: Peters, Nathaniel II LRL**  
**Cc: Frank.Zingales@epa.ohio.gov**  
**Subject: [EXTERNAL] RE: Army Response to Comments on Winklepeck Burning Grounds RD (UNCLASSIFIED)**

Nat,

Are you available sometime this afternoon to discuss the response?

Frank and I are available between 1 and 4 this afternoon today if that works for you.

We would like to better understand how you selected 750 cubic yards as the quantity of soil to sample. It would help to include some discussion on the in situ sampling and how the materials were tested and why they are being removed for site disposal.

-----Original Message-----

**From: Peters, Nathaniel II LRL [mailto:Nathaniel.Peters.II@usace.army.mil]**  
**Sent: Wednesday, August 12, 2015 5:10 PM**  
**To: Netzly-Watkins, Susan**  
**Cc: Zingales, Frank**  
**Subject: RE: Army Response to Comments on Winklepeck Burning Grounds RD (UNCLASSIFIED)**

Classification: UNCLASSIFIED

Caveats: FOUO

Sue,

Thanks for your response. We have received the official comment letter and are getting ready to produce the final document.

Would the following revision to Section 4.12.2 be acceptable to address your comment?

As indicated in the preceding sections of this RD, excavated soils from the excavation areas will be processed for removal of MEC, stockpiled, and then sampled for subsequent off-site disposal. The in situ results for total constituent concentrations, from the soil removal areas, will be screened against the "20 time rule" to see if these materials could be hazardous. If any in situ results fail the "20 time rule" screen, then one ISM soil sample will be collected for every 750 cubic yards of stockpiled soil and analyzed, using the Toxicity Characteristic Leaching Procedure, for each constituent that failed the screen. Each stockpile soil sample will be collected after the soil has been processed through the conveyor sifting operation and will be composed of approximately 30 soil aliquots. The samples will be taken directly from the accumulated stockpile. The samples will be also be analyzed for any other analyses required by the disposal facility for proper disposal. After processing and sample collection, the soil stockpiles will be identified, labeled, and segregated until analytical laboratory results determine the stockpile disposition.

Thanks for your review. Your comments are appreciated.

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

-----Original Message-----

From: Susan.Netzly-Watkins@epa.ohio.gov [mailto:Susan.Netzly-Watkins@epa.ohio.gov]  
Sent: Wednesday, July 29, 2015 10:10 AM  
To: Peters, Nathaniel II LRL  
Cc: Frank.Zingales@epa.ohio.gov  
Subject: [EXTERNAL] RE: Army Response to Comments on Winklepeck Burning Grounds RD (UNCLASSIFIED)

Nat,

Yes. We granted a conditional approval.

The letter was sent to you yesterday. I should be able to e-mail you a copy this afternoon.

Our main comment in the conditional approval letter asks that you clarify parameters you will test for waste characterization.

We noted you are proposing one ISM sample for every 3,000 cubic yds. of stockpiled soil for waste characterization. Please make sure to confirm with the lab that you have collected enough sample material for the lab to conduct the testing outlined in your response.

I am not familiar with using ISM sampling to characterize a waste pile. Ohio EPA Materials and Waste Management staff recommend a twofold evaluation if you plan to use ISM waste characterization. In addition to ISM please also look at in

situ total soil constituent analysis results from the areas where soil removal activities will be conducted. Screen this data against the "20 time rule" to see if these materials could be hazardous. You should follow US EPA's website guidance on Total Constituent Analysis Instead of TCLP Analysis.

More ISM samples may be warranted from stockpiles created from the removal areas where the in situ material did not pass the 20x's screening test. This may help you to better segregate what materials may need to be managed as a hazardous waste vs. a solid waste.

Our Division of Materials and Waste Management (DMWM) also recommends you include TCLP analysis for metals when you do your ISM sample analysis.

If you have questions please feel free to contact me. Frank Zingales with DMWM can also help us address the waste characterization matter.

Sincerely,

Sue Netzly-Watkins

-----Original Message-----

From: Peters, Nathaniel III LRL [mailto:Nathaniel.Peters.III@usace.army.mil]

Sent: Wednesday, July 29, 2015 9:43 AM

To: Netzly-Watkins, Susan

Subject: Army Response to Comments on Winklepeck Burning Grounds RD (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

Sue,

The Army is very close to awarding a contract for the additional Removal Action at Winklepeck. I am wondering if you have had a chance to read through our responses to your comments on the RD and if you can give me a general feel for whether I will need to make any big changes to the RD.

I really appreciate any feedback you could provide even if an official letter comes later.

Thanks,

Nat Peters, PhD, PE

Senior Environmental Engineer/SME

Environmental Branch

Louisville District, US Army Corps of Engineers

Phone: 502-315-2624

Classification: UNCLASSIFIED

Caveats: FOUO

As indicated in the preceding sections of this RD, excavated soils from the excavation areas will be processed for removal of MEC, stockpiled, and then sampled for subsequent off-site disposal. Approximately 1400 cubic yards is to be excavated from areas around Pads 38, 66, and 67. The COCs are TNT (in all three areas) and RDX (Pads 66/67). The soil from these pads will be stockpiled separately from the soil from Pads 61 and 61A, which had PAHs as the COC. The processed and stockpiled soil from Pads 38, 66, and 67 will be tested for hazardous waste characteristics at a rate of approximately one sample per each 70 cubic yards of stockpiled material. Each sample collected to represent a 70 cubic yard portion will be an ISM sample composed of at least 30 soil aliquots. (*\*Consider confirming with the lab that you have adequate material for the analysis.*)

The soil will be stockpiled, sampled, and analyzed in such a way that parent material represented by each ISM characterization sample can be identified for proper disposal after analysis. This approach will allow for distinguishing between 70-yd lots that are hazardous and non-hazardous, so that each can be properly disposed of. If a 70-yd lot is characterized as hazardous waste, the Army may direct the contractor to divide the pile and collect additional characterization samples in order to potentially reduce the amount of soil that would be disposed of as hazardous waste. The Army may also direct the contractor to increase the sampling frequency, if the analyses consistently approach or exceed screening levels for toxicity. (*For clarification: when you say screening levels – do you mean the “regulatory” level or were you considering screening to be the 20x’s rule?*)

Approximately 3900 cubic yards of soil is to be excavated from around Pads 61 and 61A, where the COCs are PAHs. The processed and stockpiled soil from Pads 61 and 61A will be tested for hazardous waste characteristics at a rate of approximately one sample per each 150 cubic yards of stockpiled material. Each sample collected to represent a 150 cubic yard portion will be an ISM sample composed of at least 60 soil aliquots. (*\*Consider confirming with the lab that you have adequate material for the analysis.*)

The soil will be stockpiled, sampled, and analyzed in such a way that parent material represented by each ISM characterization sample can be identified for proper disposal after analysis. This approach will allow for distinguishing between 150-yd lots that are hazardous and non-hazardous, so that each can be properly disposed of. If a 150-yd lot is characterized as hazardous waste, the Army may direct the contractor to divide the pile and collect additional characterization samples in order to potentially reduce the amount of soil that would be disposed of as hazardous waste. The Army may also direct the contractor to increase the sampling frequency, if the analyses consistently approach or exceed screening levels for toxicity. (*For clarification: when you say screening levels – do you mean the “regulatory” level or were you considering screening to be the 20x’s rule?*)

The soil to be disposed of is not a listed hazardous waste on the F, K, P, or U lists of specific waste streams from industrial or manufacturing processes or discarded commercial chemical products. Therefore it will be disposed of as non-hazardous solid waste if it does not exhibit any of the following four characteristics: ignitability, corrosivity, reactivity, or toxicity.

The soil to be disposed of will be tested for toxicity using methods consistent with the Toxicity Characteristic Leaching Procedure (TCLP) (Method 1311). Typically after the leaching procedure is performed the resulting extract is analyzed for specific metals, specific volatile organic compounds (VOCs), specific semi-volatile organic compounds (SVOCs), and specific herbicides and pesticides. Since neither VOCs nor pesticides/herbicides were identified as Chemicals of Concern at Winklepeck Burning Grounds, the TCLP extract will be analyzed only for the TCLP metals and SVOCs, based on generator

knowledge of the waste. If the land disposal facility requires additional testing of the TCLP extract, that required testing will be performed.

The soil to be disposed of is not a liquid, a compressed gas, or an oxidizer. The In situ soil to be disposed of contains a maximum of 0.5% by weight of TNT and 0.2% by weight of RDX, based on data collected during the site characterization. The soil also contains no free liquid, such as petroleum-based fuel, that is ignitable. Therefore, there is no evidence that it is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes or, when ignited, it would burn so vigorously and persistently that it would create a hazard. Therefore, the soil to be disposed of will not be tested for ignitability, unless the land disposal facility requires that test. The soil is neither aqueous nor liquid; therefore, by definition it cannot be corrosive. The soil to be disposed of will not be tested for corrosivity, unless the land disposal facility requires that test. The soil to be disposed of does not exhibit any of the eight characteristics of reactivity listed in 40 CFR 261.23. While the soil may contain low levels of explosive compounds, the In situ soil to be disposed of contains a maximum of 0.5% by weight of TNT and 0.2% by weight of RDX, based on data collected during the site characterization. Typically a mixture of explosive compounds and soil is not considered to be an explosive mixture unless the concentration of explosive compounds is 10% or greater by weight. The In situ soil has a concentration of explosives much less than 10%; therefore, the soil to be disposed of will not be tested for reactivity, unless the land disposal facility requires that test.

The waste characterization samples will be taken directly from the accumulated stockpile. In addition to analyses listed above, the samples will be analyzed for any other analyses required by the disposal facility for proper disposal. After processing and sample collection, the soil stockpiles will be identified, labeled, and segregated until analytical laboratory results determine the stockpile disposition.

Analytical results and associated QA/QC information should support an Ohio EPA Tier I data validation. More information concerning this is available in Ohio EPA's Tier I Data Validation Manual available at <http://epa.ohio.gov/portals/32/pdf/TierIDVManual.pdf> In particular, see Section 1.1, pages 8 and 9 (pages attached for reference purposes).

The hazardous waste characterization data will be submitted to Ohio EPA for our review and comment prior to disposal. Ohio EPA will review this information quickly to allow for timely determination on waste characterization and disposal options. The materials that are not deemed to be hazardous wastes or UXO will be disposed at a licensed and permitted solid waste landfill.

Following the removal of the stockpiled materials, confirmation soil samples will be collected from the area where the soils were stockpiled to ensure the area meets the site wide cleanup goals.

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

REVISION 0

***Prepared for:***

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August 27, 2015



**DOCUMENT DISTRIBUTION**  
**for the**  
**Final Remedial Design for Post-ROD Changes at RVAAP-05**  
**Winklepeck Burning Grounds**  
**Ravenna Army Ammunition Plant**  
**Portage and Trumbull Counties, Ohio**

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ARNG = Army National Guard

OHARNG = Ohio Army National Guard

Ohio EPA CO = Ohio Environmental Protection Agency, Central Office

Ohio EPA DERR = Ohio Environmental Protection Agency, Division of Environmental Response and Revitalization

REIMS = Ravenna Environmental Information Management System

USACE = United States Army Corps of Engineers

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## ACRONYMS AND ABBREVIATIONS

---

AOC	Area of Concern
ARNG	Army National Guard
ASTM	American Society for Testing Materials
bgs	below ground surface
BMP	Best Management Practice
Camp Ravenna	Camp Ravenna Joint Military Training Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CFR	Code of Federal Regulations
COC	Chemical of Concern
COR	Contracting Officer's Representative
CQAP	Construction Quality Assurance Plan
CUG	Cleanup Goal
ESS	Explosives Safety Submittal
FS	Feasibility Study
FSA	Field Staging Area
FWSAP	Facility-wide Sampling and Analysis Plan
FWSHP	Facility-wide Safety and Health Plan
HHRA	Human Health Risk Assessment
IDW	Investigation-derived Waste
IRP	Installation Restoration Program
LUC	Land Use Control
MC	Munitions Constituents
MEC	Munitions and Explosives of Concern
MPPEH	Materials Presenting a Potential Explosive Hazard
mph	miles per hour
NCR	Non-conformance Report
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OAC	Ohio Administrative Code
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
ORAM	Ohio Rapid Assessment Method
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
QAPP	Quality Assurance Project Plan
QA	Quality Assurance
QC	Quality Control
RD	Remedial Design
ROD	Record of Decision

RVAAP	Ravenna Army Ammunition Plant
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
USACE	United States Army Corps of Engineers
U.S. Army	United States Department of the Army
USEPA	United States Environmental Protection Agency
UXO	Unexploded Ordnance

## **1.0 INTRODUCTION**

---

This Remedial Design (RD) describes the implementation process for the selected modified remedy for soil and dry sediment at Winklepeck Burning Grounds (WBG) as stated in the Explanation of Significant Differences (ESD) (USACE, 2014a). The RD was prepared by the United States Army Corps of Engineers, Louisville District (USACE). The ESD presented 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 19, 2008. The Final ROD was signed by the regulatory agency, the Ohio Environmental Protection Agency (Ohio EPA), on August 15, 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, 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).

This RD will serve as the Work Plan for the Remedial Action (RA) to be conducted in accordance with the approved ESD. The Contractor who will perform the RA has not yet been selected. The selected Contractor will be required to provide a site-specific Construction Quality Control Plan, with names of key individuals, for Army approval.

### **1.1 PURPOSE**

This RD describes the implementation of proposed post-ROD changes to the remedy at the WBG AOC which are described in the ESD (USACE, 2014a). A Remedial Investigation/Feasibility Study (RI/FS), Record of Decision (ROD), Remedial Design (RD), and Remedial Action Completion Report (RAR) were previously 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 limited the 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 has 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, 2014b) 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 by full-time workers. This RD describes the implementation of the additional soil excavation required and the changes in Land Use Controls (LUCs) at the WBG AOC.

### **1.2 SCOPE**

The scope of this RD is to present a plan to 1) implement the needed additional soil removal and 2) define land use controls (LUCs) that will be implemented after completing the remedial action. Once these remedial action objectives are met, the selected modified remedy will be considered protective of full-time workers, thereby meeting the requirements for Commercial/Industrial Land Use.



### **1.3 REMEDIAL DESIGN ORGANIZATION**

This RD is the work plan for the RA. The work plan is organized as follows:

- Section 2 presents facility and site descriptions, previous remedial activities, and changes to the remedy;
- Section 3 presents project organization and coordination;
- Section 4 outlines activities to achieve the remedial action;
- Section 5 discusses the construction sequence and schedule;
- Section 6 describes storm water pollution prevention;
- Section 7 describes environmental protection;
- Section 8 discusses construction quality control; and
- Section 9 lists references used in this document.

## **2.0 FACILITY AND SITE DESCRIPTION**

---

### **2.1 FACILITY DESCRIPTION**

The former RVAAP is located in northeastern Ohio within Portage and Trumbull counties, approximately one (1) mile northwest of the city of Newton Falls and three (3) miles east-northeast of the city of Ravenna (Figure 2-1). The installation is a parcel of property approximately 11 miles long and 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 Officer 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 the 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 2-2). WBG is located in the center of Camp Ravenna and encompasses approximately 200 acres (Figure 2-3). Camp Ravenna is now being used as a military training site.

### **2.2 WINKLEPECK BURNING GROUNDS DESCRIPTION AND HISTORY**

The following sections present the site description and history, and discuss previous remedial activities at WBG.

#### **2.2.1 Site Description**

WBG is a rectangular area of approximately 200 acres near the center of the former RVAAP. The topography at WBG is gently undulating with a general elevation decrease from west to east. No perennial streams exist within the AOC and surface water flow within drainage ditches occurs only during storm events. 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. There are approximately 70 former burn pads 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).

#### **2.2.2 Site History**

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. 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

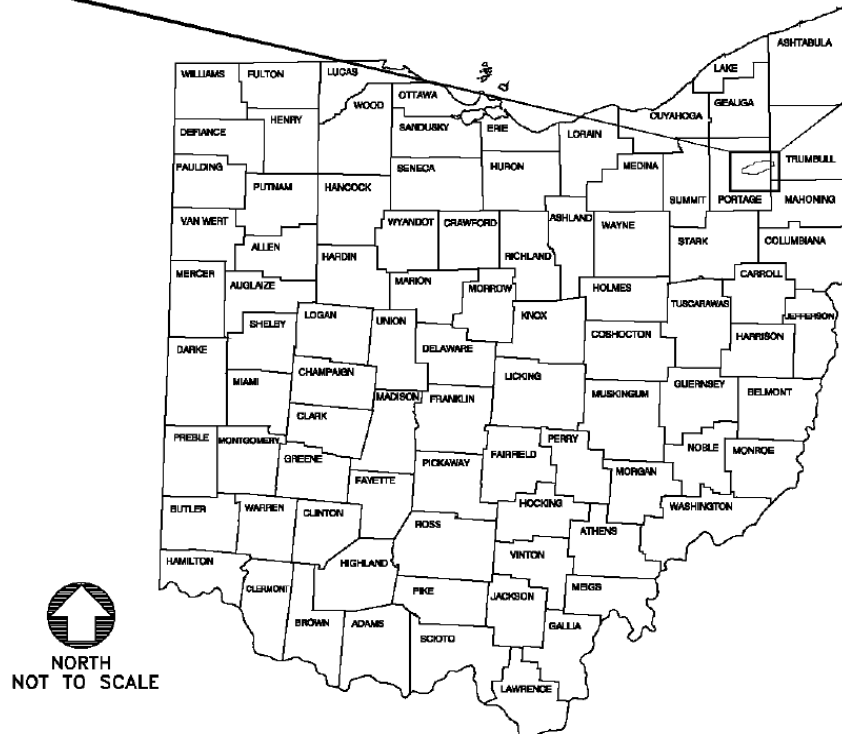
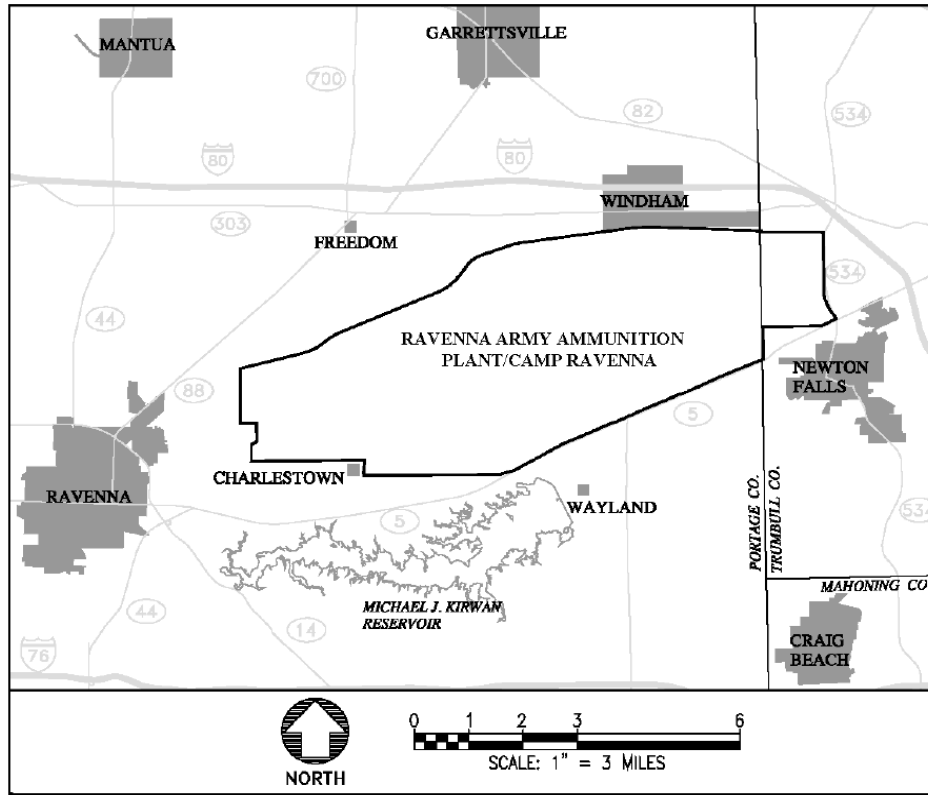


FIGURE 2-1. Location of Former RVAAP or Camp Ravenna, Portage and Trumbull Counties, Ohio.

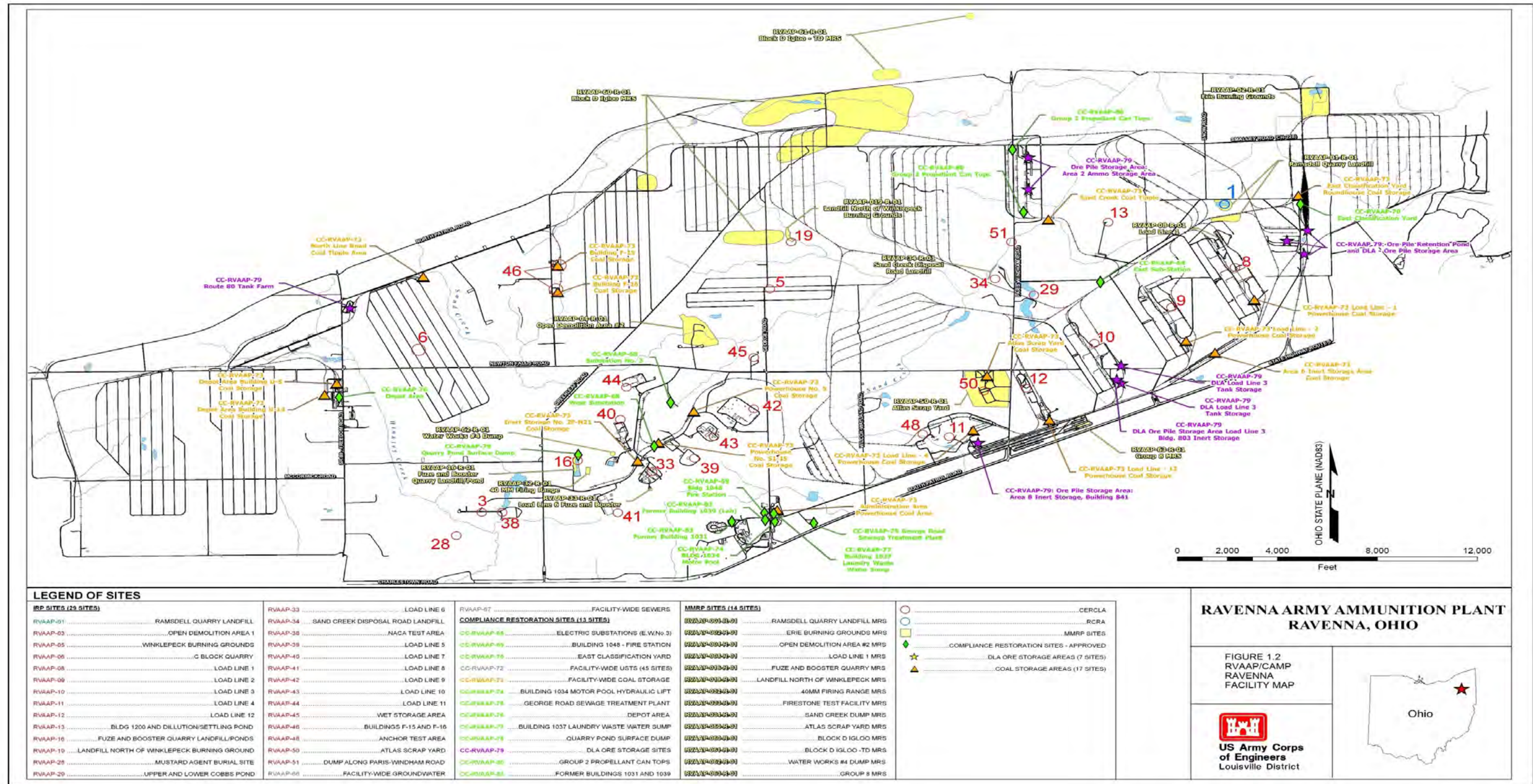


Figure 2-2. Map of the Former RVAAP or Camp Ravenna, Portage and Trumbull Counties, Ohio.

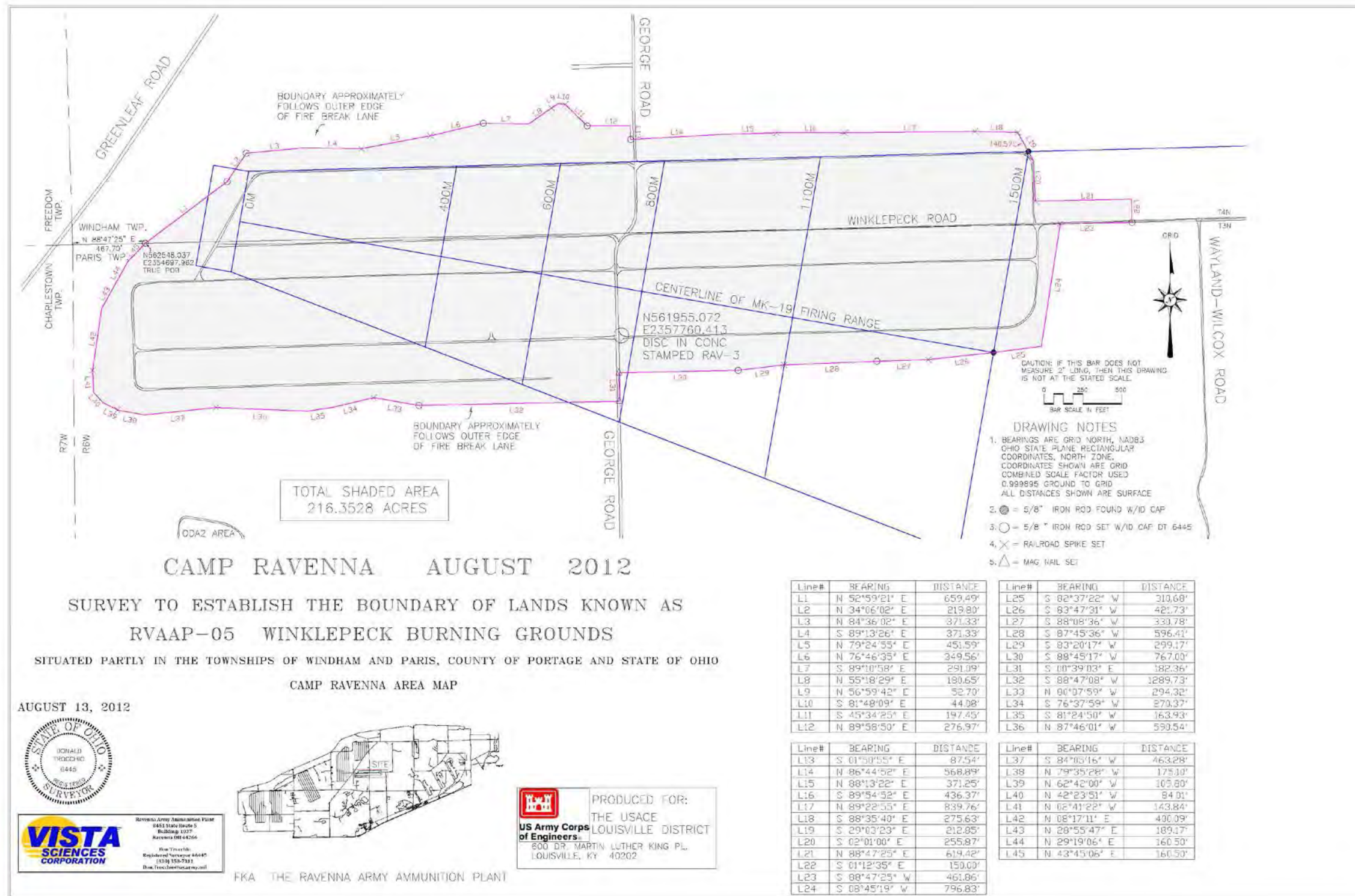


FIGURE 2-3. Map of Winklepeck Burning Grounds, Camp Ravenna, Portage and Trumbull, Counties, Ohio.

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 oil from machines and lubrication oil 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. The burn pads generally consisted of level areas without berms 20 feet (ft) 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 50 ft to 75 ft in width and length. The four burn pits are believed to correspond to Pads 58, 59, 60, and 61 (Figure 1-4). Ash from these areas was not collected. Unsalvageable scrap metal was taken to the Landfill North of Winklepeck Burning Grounds, which has been designated 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 1990s and this area was closed under the Resource Conservation and Recovery Act (RCRA) in 1999.

### **2.2.3 Previous Remedial Activities at WBG**

A removal action for Munitions and Explosives of Concern (MEC) was performed between March and August 2005 (MKM Engineers, Inc. (MKM), 2005a, 2005b, 2005c) in preparation for the then future land use as a MK19 Grenade Machine Gun Range, a target practice range for use in firing non-explosive 40mm practice rounds. The MEC removal action was based on the results of the historical environmental investigations (1996 to 2003) and a 2004 MEC density survey. The MEC removal action, completed in August 2005, included the removal of soil contaminated with MEC and chemical contaminants and soil containing transite. Soil containing transite was disposed of off-site as asbestos-containing material (MKM, 2008a). The areas of MEC removal are shown in the Data Quality Objective (DQO) Report (Shaw, 2011). The 2005 action included the following activities:

- Excavation, MEC removal, and approved backfill re-use in 10 ft by 10 ft areas centered on previous soil sampling stations WBG-243, located west of Pad 66, and WBGss-070, located west of Pad 67 to a depth of 1 ft bgs;
- Excavation in 10 ft by 10 ft area centered on previous soil sampling station WBG-217 located south of Pad 61 to a depth of 4 ft bgs (backfill of the excavation and removal of the soil berm associated with Pad 61 were halted pending further environmental investigation);
- Excavation and MEC removal in 13.5 ft by 13.5 ft area surrounding previous soil sampling stations WBGss-401 and WBGss-071, both located at Pad 67, to a depth of 1 ft bgs (excavated soil was staged on site and the excavation was not backfilled pending further environmental investigation);
- Excavation, MEC removal, and approved backfill re-use at Pads 7, 18, 26, 35, 48, and 70 to a depth of 1 ft bgs where a proposed target array overlapped the pad;
- Excavation, MEC removal, and approved backfill re-use at Pads 37, 38, 45, 58, 60, 61, 66, and 67 to a depth of 1 ft bgs;

- Removal of soil berms associated with Pad 58 to a depth of 1 ft bgs and with Pad 60 to ground level and off-site disposal of material;
- Excavation of test pits in the area of Pads 61 and 61A, which were backfilled with their respective excavated soil; and
- Surface clearance of MEC in removal action support areas, the Firing Point Area, select former burn pads, and target arrays as identified in the Phase I MEC density survey (MKM, 2005a).

At the conclusion of the 2005 MEC removal actions, which included remediation of contaminated soil and dry sediment from the target array construction areas, confirmation sampling indicated that additional soil contamination remained on-site. Portions of the soil at Pads 61/61A and 67 were contaminated with hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) or SVOCs at concentrations greater than levels that were considered safe for range maintenance soldiers. In addition, transite and friable asbestos were observed at Pad 70. These areas were all located in the planned firing lane 1 and subsequently were not transferred in 2005 due to this residual contamination. Administrative accountability for approximately 180 of the 200 acres of WBG was transferred to the ARNG/OHARNG for construction of three of the four planned firing lanes (Lanes 2, 3, and 4) of the MK19 Range, which was constructed in 2006.

Additional soil removal began in August 2008 in accordance with 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 (herein referred to as the ROD) (SAIC, 2008). No surface water or sediment are present on WBG, therefore the selected remedy in the ROD addressed chemical contaminants in soil and dry sediment as the exposure media at the AOC. The objective for remediation presented in the ROD was to prevent exposure of the National Guard Range Maintenance Soldier to contaminants in soil at concentrations greater than risk-based cleanup levels extending to a maximum depth of 4 ft bgs (SAIC, 2008). The COCs and WBG cleanup goals (CUGs) for this removal action were defined in the Final Remedial Action Work Plan, Winklepeck Burning Grounds, Ravenna Army Ammunition Plant, Ravenna, Ohio, Amendment 1 (MKM, 2008b). The scope of work included soil removal in the areas of Pads 61/61A, 67, and 70. At the completion of work, concentrations of COCs were less than WBG CUGs in confirmatory soil and dry sediment samples (MKM, 2009). The specific activities included the following:

- Excavation and grading of an area including Pads 61 and 61A to achieve design grades for Firing Lane 1 to varied depths of up to 6.5 ft bgs;
- Excavation and grading of soil berms associated with Pad 61 and the area of previous soil sampling station WBG-217 located south of Pad 61 to a depth of 4.5 ft bgs;
- Excavation of a limited area overlapping Pad 61A to a depth of 1 ft below design grade and backfilling with clean soil to design grade;
- Excavation and backfilling of limited area overlapping Pad 67 to a depth of 2 ft bgs; and
- Excavation and grading of soil stockpile overlapping Pad 70 to ground level.

Accountability for Firing Lane 1 was transferred to ARNG/OHARNG on 30 July 2010.

## **2.3 ANTICIPATED FUTURE LAND USE**

The planned future use of the WBG 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.

## **2.4 ADDITIONAL INVESTIGATION**

An RI/FS Supplement (USACE, 2014b) was prepared in general accordance with the Final Work Plan for Additional Evaluation of the RVAAP-05 Winklepeck Burning Grounds, RVAAP/Camp Ravenna (USACE, 2012a). The Work Plan described methods to implement a study to evaluate 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 make the WBG AOC available for full-time workers, risks were evaluated for the Industrial receptor considering the full extent of contamination. The goal of the additional evaluation of risks was to optimize access to soils by reducing limitations based on the presence of chemicals.

During work on the RI/FS Supplement (USACE, 2014b), an evaluation of previously collected data for the AOC was completed to identify additional sampling and analysis required, 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  $1 \times 10^{-5}$  and/or Hazard Index (HI) of 1.0).

The results of the additional evaluation and risk assessment, in the RI/FS Supplement, indicated that there are three Contaminants of Concern (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 for military training by full-time workers, with fewer restrictions or LUCs.

## **2.5 POST-ROD CHANGES TO THE REMEDY**

The Post-ROD changes to the remedy, which are documented in the ESD, consist of additional soil removal and changes to the LUCs. The following subsections provide additional details.

### **2.5.1 Additional Soil Removal**

The total additional soil excavation is estimated to be 5,250 cubic yards. Table 2-1 summarizes the five areas of removal, along with the applicable COCs, depth of removal, area of removal, and estimated volume of removal. Figure 2-2 shows the areas identified for additional soil removal.

### **2.5.2 Changes to the LUCs**

The ESD (USACE, 2014a) and the current facility Property Management Plan (PMP) (USACE, 2012b) documents the previous LUCs. The remedy described in the ESD replaces the previous LUCs with the following two, which are more applicable considering the planned soil removal to achieve commercial/industrial use:



- 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.

## 2.6 REMEDIAL ACTION OBJECTIVE (RAO)

The RAO is to prevent exposure to soils with contaminant concentrations greater than cleanup goals which are based on U.S. EPA Industrial RSLs. This project involves the removal and disposal of approximately 5,250 cubic yards of contaminated soil from Pads 38, 61/61A, and 66/67 at WBG. While MEC removal is not one of the RAOs of this additional soil removal, historical operations have shown that MEC items may still be present at WBG. Therefore, appropriate MEC safety measures will be incorporated into the remedial action, and MEC will be screened from any excavated soil before disposal of the soil. Also, any MEC or scrap metal recovered during the soil separation process will be properly disposed of. After the removal is complete, LUCs will be implemented to prevent unacceptable exposure to residual contamination or groundwater at WBG.

Table 2-1. 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 <sup>3</sup> )
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	3,872
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
			Totals:	1.6	5,250

Source: RI/FS Supplement (USACE, 2014b)

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## **3.0 PROJECT ORGANIZATION AND COORDINATION**

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This section presents the project organization and describes the project team coordination. Remedial activities will be overseen by USACE and implemented by the selected Contractor and remedial construction subcontractors. The selected Contractor will be responsible for implementing the RD. Ohio EPA is the regulatory authority for review of this RD and the RA conducted pursuant to the RD. The selected Contractor will be contractually bound by the Army to complete the work in accordance with the approved Final RD and to the satisfaction of the Army and the Ohio EPA. Key personnel responsibilities are summarized in the following sections. The selected Contractor will provide an organization chart with names of key individuals in their site-specific Construction Quality Control Plan (CQCP), which will be a requirement of the RA contract.

### **3.1 USACE Contracting Officer's Technical Representative**

The USACE Contracting Officer's Representative (COR) duties include overseeing the Contractor to ensure work is completed in accordance with this RD. The USACE COR also coordinates responses for any unexpected conditions encountered.

### **3.2 ARNG Project Manager and OHARNG Restoration Representative**

The ARNG Project Manager and the OHARNG Restoration Representative will coordinate and approve access to the site. The ARNG Project Manager also has the authority to review Contractor activities to ensure that activities are conducted safely. The OHARNG Restoration Representative oversees waste management activities for Camp Ravenna and will be responsible for signing waste profiles and manifests. The Camp Ravenna Compliance Manager may act as the alternate for signatures related to waste management.

### **3.3 Ohio Environmental Protection Agency**

The Ohio EPA is the regulatory agency for this project. The Ohio EPA will review project documents and ensure that the RA is completed in accordance with the final approved RD.

### **3.4 Contractor Project Manager**

The Contractor Project Manager will administer the management, implementation, and quality of this RD and RA. The Contractor Project Manager will provide oversight to ensure that all contractual requirements are properly satisfied. This individual will ensure that all project goals and objectives are met in a high-quality, timely manner. The Contractor Project Manager will be responsible for tracking the project schedule and informing the USACE COR of any deviations to the schedule. The Contractor Project Manager will provide the U.S. Army and USACE COR with notifications of project implementation and information regarding any quality assurance (QA) and non-conformance issues for this RA.

### **3.5 Contractor Field Superintendent**

The Contractor Field Superintendent will serve as the Field Operations Manager, as defined in Section 3.7 of the Facility-wide Sampling and Analysis Plan for Environmental Investigations (USACE, 2011a) (herein referred to as the FWSAP). The Contractor Field Superintendent will report to the Contractor Project Manager and will be responsible for project control, implementing remedial activities in accordance with this RD, and managing the technical performance and quality of the remedial action. The Field

Superintendent will be responsible for overseeing subcontractors, adhering to QA/quality control (QC) field procedures and the Site Safety and Health Plan (SSHP), coordinating field activities with Camp Ravenna personnel and the USACE COR, managing any investigation-derived wastes (IDW), documenting field work, and preparing field change orders, if required.

### **3.6 Contractor Quality Assurance/Quality Control (QA/QC) Officer**

The Contractor QA/QC Officer will coordinate with the Contractor Field Superintendent to ensure the requirements of the Construction Quality Control Plan (CQCP) and Facility-wide Quality Assurance Project Plan for Environmental Investigations (USACE, 2011b) (herein referred to as the FWQAPP) are met.

The Contractor QA/QC Officer will ensure that the required submittals are on time and are high quality. The Contractor QA/QC Officer will be responsible for reviewing and approving variances during field activities before work continues and designing and supervising the implementation of audit/surveillance plans. The Contractor QA/QC Officer will be responsible for completing a Non-conformance Report (NCR) that documents when activities do not comply with the approved procedures or specifications within this RD. The Contractor QA/QC Officer will report directly to the Contractor Project Manager and will inform the Contractor Project Manager and the Contractor Field Superintendent of all information and decisions reported.

### **3.7 Contractor Health and Safety Manager**

The Contractor Health and Safety Manager will establish health and safety policies and procedures supporting project and office activities and will conduct periodic site inspections to verify safe work practices and conditions. The Contractor Health and Safety Manager will ensure these policies are, at a minimum, in accordance with the Facility-wide Safety and Health Plan for Environmental Investigations (USACE, 2011c) (herein referred to as the FWSHP), as well as AOC-specific addenda, if applicable. The Contractor Health and Safety Manager will be responsible for assigning the onsite Site Safety and Health Officer (SSHO) and will inform the Contractor Project Manager and the Contractor Field Superintendent of all information and decisions reported. The Contractor Health and Safety Manager will also be responsible for coordinating the any required revisions to the Explosives Safety Submission (ESS) that covers all work on site related to MEC and Unexploded Ordnance (UXO) and achieves approval of the United States Department of Defense Explosives Safety Board (DDESB).

### **3.8 Site Safety and Health Officer (SSHO)**

The SSHO will be responsible for implementation of and adherence to the SSHP. The SSHO will verify and approve that specified health and safety procedures outlined in the SSHP adequately protect on-site personnel during field activities. The SSHO will ensure that health and safety procedures are modified to meet changing needs, if required. The SSHO will also ensure that all on-site personnel (including visitors) strictly adhere to the SSHP throughout field activities conducted for the duration of the project. The SSHO will report to the Contractor Project Manager and will inform the Field Superintendent of all information and decisions reported. If subcontractors are used for onsite work, each subcontractor shall have a designated SSHO.

### **3.9 Subcontractor Construction Supervisor**

The Subcontractor Construction Supervisor, if a subcontractor is used, will implement specific contracted components of this RD. The Subcontractor Construction Supervisor will be responsible for properly

performing specified remedial activities in accordance with this RD, adhering to QA/QC field procedures and the CQCP, implementing the SSHP, coordinating field personnel activities, and documenting field activities. Each Subcontractor Construction Supervisor will report directly to the Contractor Field Superintendent.

### **3.10 UXO/MEC Site Manager**

The UXO/MEC Site Manager will supervise UXO operations, including geophysical evaluations, UXO sweeps, demolition, and UXO/MEC-related data management. The UXO/MEC Site Manager will be thoroughly versed on the contents of the ESS. The UXO/MEC Site Manager will report to the Contractor Field Superintendent. The UXO/MEC Site Manager may be a Senior UXO Supervisor (SUXOS) or may have a SUXOS that reports to him/her.

## **4.0 DESCRIPTION OF ACTIVITIES**

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This section details construction tasks that will be performed during the remedial action at each of the specified areas at WBG. These tasks are grouped into the following items:

- Pre-mobilization,
- Mobilization and Site Preparation,
- Excavation,
- Soil and MEC Separation Process,
- Establishment of Munitions Demolition Area,
- Demolition Activities,
- Post-Demolition Operations,
- Inspection and Certification of Munitions Debris (MD) and Scrap Metal,
- Disposition of MD and Scrap Metal,
- Explosives Management Plan,
- Explosives Sifting Plan,
- Confirmation and Soil Stockpile Sampling,
- Material Handling and Transport,
- Decontamination,
- Site Restoration,
- Weekly/Monthly Reports, and
- Final Report.

The activities will be performed in accordance with the previously referenced documents, such as the FWSAP, FWQAPP, FWSHP, and the CQCP, and the WBG ESD (USACE, 2014) to ensure specific environmental protection requirements are met during construction activities.

### **4.1 Pre-mobilization**

Before mobilizing to the site, the Contractor will acquire the required permits, plan and coordinate traffic routes, perform a preconstruction survey, identify any remaining utilities, and conduct a preconstruction meeting with the Camp Ravenna and other Army team members.

#### **4.1.1 Required Permits/Clearances**

The Contractor's Field Superintendent or designee will verify that all applicable permits, notifications, and approvals have been obtained before mobilization. The Contractor will communicate with the OHARNG range control to coordinate construction activities and access to the MK19 range gate after verifying the proper communications protocol and points of contact with the ARNG Restoration Project Manager and OHARNG Restoration Representative. At that time, site-specific clearances or coordination may be required.

Since the work is being conducted in accordance with CERCLA, no environmental permits are required. At a minimum, the selected Contractor must comply with the substantive requirements of the Ohio EPA Authorization for Storm Water Discharges Associated with Construction Activity under the National Pollution Discharge Elimination System (NPDES) per the Ohio Administrative Code (OAC) Rule 3745-38-06. These requirements are discussed in Section 6 of this RD. The selected Contractor must also comply with the Ohio EPA MEC Demolition Notification requirements if demolition of MEC or MEC-related items occurs during the remedial action activities.

#### **4.1.2 Traffic Coordination and Routing**

Prior to mobilization, the selected Contractor will prepare a traffic plan for review and approval by Camp Ravenna. This plan will identify proposed haul routes both within and outside WBG. The Contractor will establish transportation routes for incoming and outgoing vehicles and heavy equipment to minimize the impact on Camp Ravenna and the surrounding community. The proposed truck routes will reflect the shortest egress from the WBG to the primary roadway (State Route 5) wherever possible. Haul routes will be positioned to avoid removal of mature vegetation or encroachment on wetland areas. The active usage of haul routes will be coordinated with the ARNG Restoration Project Manager, OHARNG Restoration Representative, and the Camp Ravenna Range Control to ensure that 40mm practice grenades are cleared from the roads on the MK19 range before use. Additional waste load-out activities are discussed in further detail in Section 4.13.

#### **4.1.3 Preconstruction Survey**

A preconstruction visual survey will be performed to document initial conditions at the WBG. A preconstruction land survey of the existing ground elevation will be conducted at the five locations to be excavated to establish existing grade for site restoration. Photographs of the preconstruction site conditions will be collected as part of the preconstruction survey. The preconstruction survey will include a site walk accompanied by representatives of OHARNG to discuss sensitive areas, equipment staging areas, traffic patterns, coordination with the Mark 19 Range, and any other issues of concern to the OHARNG. This site walk may be conducted in conjunction with the project preconstruction meeting, if OHARNG personnel are available. Prior to mobilization, the selected Contractor will prepare a site layout plan for review and approval by Camp Ravenna. This plan will identify equipment staging areas, stockpile areas, MEC screening areas, and any other areas the Contractor needs to access in order to accomplish the work described in this RD. The plan will also identify any temporary facilities the Contractor intends to install or erect, such as storage units, office trailers, MEC screening equipment, and toilet facilities.

#### **4.1.4 Utility Clearances**

Before undertaking intrusive subsurface activities, the Contractor will contact the Camp Ravenna Department of Public Works (DPW) to perform a utility clearance. Additionally, the Contractor will use geophysics instruments to check for the electronic signature of any utilities in the vicinity of the planned

excavations. If any evidence of utilities is observed, hand tools will be used to clear the area to ensure that no utilities are being contacted.

In the event an unmarked utility is discovered during the remedial action, all work will stop immediately and the Camp Ravenna Range Control, USACE COR, and Contractor Project Manager will be notified immediately. Camp Ravenna personnel will determine the disposition of the discovered utility.

Camp Ravenna personnel and the Contractor will collaborate on any necessary actions in order to continue remedial activities. If the discovery of an unmarked utility results in a change to the scope, objectives, or schedule of the remedial action, the Contractor will notify the ARNG and USACE COR for concurrence on proposed revisions and/or corrective actions.

#### **4.1.5 Emergency Response General Notifications**

Prior to preparing the SSHP, the Contractor shall obtain a Contractor Packet from Camp Ravenna which contains emergency procedures for contractors. At least one week prior to the initiation of the remedial action operations at WBG, the Contractor will contact all local emergency services to verify the availability of requisite services and to confirm the means used to summon the services, including verification of the following telephone numbers. General notifications will be made to key project personnel at this time as well. This includes the following contacts:

- Camp Ravenna Range Control
- Hospital (Robinson Memorial, Ravenna – (330) 297-0811/ (330) 297-2850
- WorkCare Clinic (Robinson Health Center, Streetsboro) – (330) 626-3455
- Ravenna City Fire Department – (330) 297-5783
- Police - Ravenna Police Department – (330) 296-6486
- Police – Portage County Sheriff Office (North, Windham, OH) – (330) 326-2460
- Police - Ohio State Highway Patrol (Ravenna Patrol Post) – (330) 297-1441
- Ohio Army National Guard Range Control – (614) 336-6041
- Camp Ravenna Garrison Commander – (614) 336-6560
- Army National Guard Project Manager (Kevin Sedlak) – (614) 336-6000 ext. 2053
- OHARNG Restoration Representative (Katie Tait) - 614-336-6136
- Vista Sciences (Becky Haney) - for submission of site access requests – (330) 872-8010
- Ohio EPA – Nancy Zikmanis – (330) 963-1160

#### **4.1.6 Preconstruction Meeting**

Before beginning activities at WBG, the Contractor will conduct a preconstruction meeting that will include members of USACE, Ohio EPA, ARNG, OHARNG, and the Contractor project team. The preconstruction meeting will communicate client and contractual expectations to the project team, establish internal expectations, define and communicate all project requirements, and ensure that the project/team members understand their individual roles and responsibilities. The preconstruction meeting will be coordinated and conducted by the Contractor Project Manager, and a preconstruction meeting agenda will be provided to the applicable parties in advance of the scheduled meeting. In addition, the Contractor will coordinate all construction activities and maintain constant communication with OHARNG representatives.

#### **4.2 Mobilization and Site Preparation**

After pre-mobilization requirements are completed, equipment and personnel will be mobilized to the work site in accordance with the approved site layout plan. During mobilization, communication protocols will be established to insure effective communication between the on-site personnel.

All personnel will be trained and have all necessary certifications in accordance with the Facility Wide Safety and Health Plan (USACE, 2011c). The tasks for mobilization and site preparation include, but are not limited to, the following:

- Prepare and approve site-specific training.
- Verify utility layout as established during the pre-mobilization phase.
- Review the Activity Hazard Analysis (AHA) for the activities to be conducted for that day with site personnel in accordance with the Facility Wide Safety and Health Plan (SAIC, 2001b).
- Inspect and transport construction equipment to the site.
- Prepare parking areas to receive field trailers, heavy equipment, personal vehicles, and miscellaneous materials and supplies.
- Install temporary facilities.
- Establish traffic control and post construction signs.
- Coordinate site security with OHARNG.
- Install erosion and sediment control measures.
- Clear and grub in and around the excavation limits, if necessary. No tree clearing is anticipated. If tree clearing is necessary, this activity must be closely coordinated with the OHARNG Restoration Representative.
- Set up soil screening and soil stockpile staging area.
- Establish air, industrial hygiene, personnel, and environmental monitoring operations in accordance with the Facility Wide Safety and Health Plan (USACE, 2011c).



The following paragraphs provide further discussion on several of these items.

#### **4.2.1 Site-Specific Training**

As part of the mobilization process, the Contractor shall perform site-specific training for all onsite personnel assigned to this project. The purpose of this training is to ensure that all onsite personnel fully understand the operational procedures and methods to be used by the Contractor at Camp Ravenna. Individual responsibilities, safety, and environmental concerns associated with operations will also be covered in the training. The PM, Field Superintendent, SSHO, and/or UXO/MEC Site Manager will conduct the training sessions which will include the topics identified below:

- Field equipment operation, including the safety and health precautions, field inspection, and maintenance procedures that will be used;
- Review of tasks necessary to accomplish the RA;
- Personnel awareness of potential site and operational hazards associated with site-specific tasks and operations, including review of each Activity Hazard Analysis.
- Public relations to ensure that personnel will not make any public statements to the media without prior coordination with and approval of the Contracting Officer's Representative (COR) and/or OHARNG/ARNG.
- Environmental concerns and sensitivity including endangered/threatened species and historic, archeological, and cultural issues.
- Additional Occupational Safety and Health Administration (OSHA) or ARNG required training as required by the SSHP.
- Ordnance awareness including identification of features and hazards and reporting procedures in the event ordnance is encountered.
- Onsite speed limits and awareness of potential driving hazards, especially troops using roads and grounds, both on foot and in a variety of motor vehicles.

Documentation of pre-mobilization training will be provided to the USACE COR.

#### **4.2.2 Equipment**

All equipment will be inspected as it arrives to ensure it is in proper working condition. Heavy equipment will be inspected for any fluid leaks, including hydraulic fluid, oil, and fuel. Any equipment found damaged or defective will be repaired or returned to the point of origin. A spill kit must be maintained during on-site activities for potential spills. Any equipment and hazardous materials that are brought on site will be removed from the site at the end of the RA. Any hazardous materials will be properly stored on secondary containment and properly labeled. The selected Contractor will maintain an inventory and Safety Data Sheets for any hazardous materials brought on site.

All instruments and equipment that require routine maintenance and/or calibration will be checked initially upon their arrival and then checked again before each use. This system of checks ensures that the equipment is functioning properly. If an equipment check indicates that any piece of equipment is not operating

correctly, and field repair cannot be made, the equipment will be tagged and removed from service. A request for replacement equipment will be placed immediately. Replacement equipment will meet the same specifications for accuracy and precision as the equipment removed from service.

As part of the initial equipment setup and testing, Contractor will also install and test its communication equipment, which will include, as a minimum, the following:

- Hand-held portable radios used to maintain communications between the office trailer and the field teams; and
- Cellular telephones, to be used as backup communications between the office trailer and the field teams and for communication with personnel off-site.

#### **4.2.3 Temporary Facilities**

To satisfy the requirements of this RD and the Facility Wide Safety and Health Plan (USACE, 2011c), temporary facilities will include, but are not limited to, office trailers, portable control access and dress out sheds, male and female sanitary facilities, hand wash stations, sufficient lighting equipment, traffic control barriers and devices, and water storage facilities. These temporary facilities will be placed at locations to shown in the approved site layout plan. Temporary power will also be provided to those facilities requiring power to operate. Communications will consist of hand-held radios and cell phones.

#### **4.2.4 Sign and Barricade Placement**

The Contractor will post signs and erect barricades to effectively communicate safety requirements, identify hazardous areas, and provide traffic directions to key locations at Camp Ravenna. The Contractor will place these signs and barricades in visible locations and will update and maintain the sign and barricade placement as necessary.

##### **4.2.4.1 Safety Signs**

Safety signage is important to keep constant visual reminders of the work conditions in front of personnel. Safety signs will be placed at the entrances to the hazardous work areas and will identify the physical hazards of concern and the required personal protective equipment (PPE) and training needed to enter each area.

##### **4.2.4.2 Traffic Control Signs**

A traffic control plan for pedestrian and vehicle access to each of the WBG work areas will be developed and will be understood by all responsible parties before the site is occupied. The site-specific traffic control plan will be developed to assure that adequate consideration is given to the safety of motorists, pedestrians, and workers during construction. The selected Contractor will provide the site-specific traffic control plan to USACE and ARNG/OHARNG prior to mobilization to the site. All traffic control devices used on the project will conform to Department of Transportation (DOT) applicable standards. Signs will be placed along the proposed traffic routes and at each WBG work area for vehicles and heavy equipment entering and exiting to ensure that traffic flows with minimal interference.

##### **4.2.4.3 Barricading**

Before beginning any work that may present potential hazards to individuals, the areas will be inspected to determine the extent of barricading and or type of barricade required. The Contractor SSHO must be

notified if barricades on roadways may impede the passage of emergency vehicles, and the SSHO must notify Camp Ravenna range operations. Any barricades which impede roads must be preapproved by Camp Ravenna staff. A barricade must be placed guarding all access routes to a hazard where a person could:

- Inadvertently enter a hazardous area;
- Be unaware of required safety equipment or permission for entry;
- Be uncertain of the safe distance of observation; or
- Be working on an activity and accidentally enter into the actual hazard.

Barricades will be placed around the perimeter of the hazard. Tags that identify the nature of the hazard will be attached to the barricade. The tag will have the name and phone number of the person who erected the barricade along with date. Rigid wood, metal, or plastic barricades must be used whenever there are openings in excess of 18 inches. Battery-powered flashers will be placed in roadways on all sides subject to vehicular traffic. Barricades in dark areas must have visible warning lights. When the hazard no longer exists, the barricading material must be removed and disposed of or stored properly.

#### **4.2.5 Site Security**

Once mobilization begins, site security will be established and coordinated with the Camp Ravenna security and operations personnel. Site security is intended for the protection of the general public and site workers, as well as for the security of site equipment and materials.

The Contractor will mark all work zones with any of the following: high-visibility fence, roping, caution tape, signage, or temporary construction fencing. Appropriate warning signs will be posted throughout the site to enhance pedestrian and driver safety in the work area and to help establish both controlled zones and site hazards.

#### **4.2.6 Erosion and Sediment Control**

Erosion and sediment controls will be installed before beginning activities that have the potential to disturb soils and cause erosion and will be maintained for the duration of the excavation and restoration activities. These control features will be removed only after vegetation is established and disturbed areas are stabilized. Storm water will be collected or diverted away from excavations by using grading, berming, silt fence, hay bales, or pumping. Erosion and sediment controls will be installed in accordance with the Storm Water Pollution Prevention Plan described in Section 6.0 of this RD.

#### **4.2.7 Designation of Work Zone Boundaries**

Prior to initiating excavation activities, the Contractor will establish the work zone boundaries by the placement of barrier fences and the appropriate signage. Temporary facilities, including vehicle and equipment decontamination and personnel wash stations, will be set up at the exit to each work zone to ensure that contaminated soils are not tracked outside of the established work areas.

The work zones are living boundaries and will be regulated to mitigate the potential for impact on non-contaminated areas, but they will allow authorized personnel the necessary area to conduct remediation activities. The size and configuration of these work zone areas may increase or decrease based upon conditions encountered in the field.

#### **4.2.8 Site Control During MEC Operations**

For the purpose of this RD, a MEC operation is defined as any activity that involves investigation, inspection, demolition, or handling any MEC or explosive materials. Once a MEC operation commences in an area, only essential personnel involved in the onsite activities will be permitted into the area defined by the minimum separation distance (MSD). MSD restrictions from MEC areas to non-essential personnel will be applied. Access gates to the WBG will remain closed but unlocked during MEC operations. Gates will not be locked in the event emergency evacuation must be undertaken. Personnel requiring access to the area will coordinate their activities and access procedures with the Contractor UXO/MEC Site Manager or Field Superintendent.

Based on MEC removal actions conducted previously (MKM, 2005b, 2005c), the munition with the greatest fragmentation distance (MGFD) for the RD/RA operations conducted under this RD will be the 40-mm M406 grenade. At this time, the MSD for the 40-mm grenade is expected to be the maximum fragment range–horizontal distance of 345 feet, as stated in the DDESB Fragmentation Database. The team separation distance for the site will be 19 feet, which is the K40 distance for the MGFD listed.

#### **4.2.9 MEC Surface Clearance**

Prior to the Contractor mobilizing heavy equipment, setup of equipment at the processing area, and beginning mechanical excavation at Pad 38, Pad 61/61A, and Pad 66/67, OHARNG Range Control personnel will conduct a visual sweep of the surface to identify and remove any 40mm practice grenades associated with the Mk19 Range. Then UXO qualified contractor personnel will conduct a Schonstedt-assisted visual surface sweep to remove any other MEC items that may be visible on the surface. Since the areas involved in this RA have had previous removal actions, few MEC items, if any, are expected to remain on the surface. In the event that MEC items that are fuzed and unsafe to move are encountered, they will be handled according to the procedures detailed in the ESS that will be prepared for this work. The ESS will be prepared in accordance with applicable DoD/Army safety regulations and must be approved by the DDESB.

All recovered MEC and suspect items, which are deemed safe to move, will be documented and stored for subsequent demolition and disposal. Storage will occur either in a temporary magazine on WBG or in an earth-covered magazine designated by the OHARNG, if allowed by the approved ESS. The subsequent demolition will be part of this RA and will occur on site at WBG or at Open Demolition Area #2 (ODA2). Onsite storage and demolition must be in accordance with an approved ESS prepared by the USACE Baltimore District. The contractor shall provide a schedule for disposal activities once MEC items are recovered. UXO items cannot be moved from the AOC without approval of the applicable Explosive Ordnance Disposal (EOD) agency or the Baltimore District MMRP Design Center. Procedures for using ODA2 are described in the DFFO and the Camp Ravenna Integrated Contingency Plan (ICP) (OHARNG, 2014). See Section 4.6 of this RD for details.

For information on procedures likely to be contained in the ESS, refer to the Work Plan for the Phase II MEC Clearance and Munitions Response at Winklepeck Burning Grounds (MKM, 2005a) and the Munitions and Explosives of Concern Survey and Munitions Response at Winklepeck Burning Grounds, Revision 3, Amendment 2 (MKM, 2008a). The Ohio EPA Notification for MEC Demolition and Disposal Operations will be completed prior to initiating site activities.

#### **4.2.10 Processing Area Selection and Setup**

The Army has determined that a centralized processing area to screen and sift soils from Pads 38, 61/61A, and 66/67 will provide the most cost-effective operation and will work best with site activities and logistics. The most likely area will be the same location that was used for the 2008 removal action (MKM, 2008). Before initiating site activities, the Contractor will work with OHARNG personnel to identify a single processing area. The soil processing location(s) will be selected based on the following criteria:

- Easy access to the three sites;
- Proximity to paved roads;
- Minimal impact to activities on the Mark 19 Range.

After the processing area surface is cleared, the surface soil will be sampled by ISM for the parameters listed in Section 4.12.3, in accordance with procedures in the FWSAP, to establish baseline conditions. The processing area will include the space for soil stockpiling and soil sifting (i.e., MEC separation). After the surface soil is sampled, the equipment will be set up. Each piece of equipment will be inspected upon arrival on the site in accordance with Section 4.2.2.

#### **4.2.11 Clearing and Grubbing**

The Contractor will clear and grub only vegetation that impedes or interferes with the safe and effective implementation of the design and requirements of the site work. Disposition of removed vegetation will be coordinated with the Camp Ravenna Environmental Office.

#### **4.2.12 Water Source**

Water to be used for onsite construction and decontamination will be brought to the site. Water for onsite construction use may be brought on a daily basis or stored in designated temporary onsite storage tanks. The tanks will be appropriately labeled as “WATER FOR CONSTRUCTION USE ONLY” to prevent mixing with any other liquids that may be generated or stored on site. Water to be used for construction will meet the standards for potable use. Water to be used for decontamination purposes will be separated from the water for construction use and must be an approved water source in accordance with the requirements of the FWSAP. The FWSAP describes the sampling and analysis protocol and the process for obtaining approval for a water source.

#### **4.2.13 Dust Management**

Control measures are required to prevent airborne releases of dust during earth moving activities. Of particular concern is contaminated dust that may expose workers and the public. As excavated soils dry, they are prone to wind erosion and dispersion of fine particles. Dust generation activities may occur during clearing and grubbing, excavation, soil loading, soil stockpiling, and transportation. The primary dust control measure is the application of a water spray to exposed soils. Water will only be applied in the amount needed to control dust. No runoff or water ponding will be produced during dust suppression activities. Additionally, vehicle traffic will be kept on improved roads to the extent possible; vehicle traffic will maintain the posted speed limit; and vehicle access within the project boundaries will be, to the extent practicable, kept away from soil that could cause a hazard or nuisance.

A water wagon or truck will be utilized for dust suppression unless the Contractor proposes a more efficient process. Water will be sprayed as needed on temporary soil piles, excavations, and re-vegetation areas. Only potable water obtained from a public water supply will be used for dust control. A non-toxic surfactant approved for use by the Ohio EPA, USACE, and Camp Ravenna may be applied to control dust as a secondary measure. Dry soils that are to be excavated will be preconditioned with water to keep them moist to a depth of at least six inches. Backfilled areas will be wetted with the water immediately after backfilling. Re-vegetation of landscape will be completed as soon as practical to retain moisture and to minimize wind erosion. All soils, including contaminated and uncontaminated soil and clean backfill, will be covered during storage, wetted as required, and covered during transport to prevent windblown conditions.

Monitoring for dust will also be performed visually. It will be the responsibility of each worker to observe his or her work area for the potential and actual generation of dust. Areas that show potential release of dust will be reported to the Contractor Field Superintendent, who will ensure that water will be sprayed on the area to eliminate the potential for dust problems. The area may also be covered to stop dispersal of dust. If necessary, the work area will be reduced or work stopped until the dust can be controlled.

### **4.3 Excavation**

A shielded excavator will be used to excavate debris and soil under the direction of a UXO technician at pads 38, 61/61A, and 66/67 as described below in the subsections that follow. The excavator will be armored with appropriate blast shielding over all exposed windows in accordance with the ESS that will be prepared for the site work. Previous studies on site have indicated that the 40-mm M406 high-explosive (HE) grenade is the potential MEC item of greatest concern. The Plexiglas shielding will be sized to exceed requirements for protecting the excavator operator from any fragments, 40-mm grenades, or similar small items, which may be encountered during excavation. These details may vary when the final approved ESS is prepared for this work.

Prior to initiating excavation operations at each pad location, a UXO technician will visually inspect for and remove any MEC, which will provide the first line of quality assurance/quality control (QA/QC) in the flow of material through the remediation process. The excavator will load the excavated materials into an off-road dump truck and the dump truck will transport and dump the materials at the soil processing area.

Safe excavation methods such as sloping will be employed in any excavations that exceed a depth greater than 4 feet bgs.

#### **4.3.1 Excavation at Pad 38**

A detected level of TNT in the 0 to 1 ft interval must be removed to reduce the Exposure Point Concentration (EPC) of the Potential Exposure Area (PEA) at Pad 38 to below the Industrial Soil RSL remediation level. A removal action was previously completed at Pad 38 involving excavation, MEC removal, and backfill re-use of surface soils to a depth of one (1) ft bgs. This process changed the distribution of surface soils at the pad. Consequently, the exact locations of soils associated with previous discrete surface samples are unknown, but they are still onsite within the footprint of the previous removal action. Therefore, surface soils within the previous removal action area of approximately 0.2 acres in size, which encompasses Pad 38, will be removed. Excavation will be completed to a depth of two (2) ft bgs to capture all surface soil samples located at this pad. The estimated surface area of this removal is 0.2 acres, resulting in an estimated volume of 645.3 cubic yards. The coordinates of the area to be removed are shown in Table 4-1. Upon excavation, all material will be processed as described in Section 4.4 to remove potential MEC items.

One ISM closure sample will be taken at a depth of 0 to 1 ft at the bottom of the excavation to verify that the remediation level has been achieved. The ISM sample will be analyzed for TNT using USEPA SW-846 Method 8330B. The procedures for ISM sampling are described in the FWSAP. The Industrial RSL for TNT (420 mg/kg) is a level considered safe for full-time workers. Upon receipt of analytical results that are less than the Industrial RSL for TNT, the completed excavation will be backfilled with approved clean soil from an approved source outside of Camp Ravenna. Backfill source soil must be sampled and approved in accordance with the FWSAP. The site will then be regraded, and seeded using Camp Ravenna approved seed mixtures. The storm water runoff controls will be implemented to protect excavated soils, excavation areas/trenches, and storm water ditches from silt accumulation and erosion until the site has been restored to match local surroundings.

#### **4.3.2 Excavation at Pads 61/61A**

Removal actions were previously conducted at the Pad 61/61A PEA including:

- excavation and grading of an area including Pads 61 and 61A to achieve range design grades to varied depths of up to approximately 6.5 ft bgs,
- excavation and grading of soil berms associated with Pad 61 and the area of previous soil sampling station WBG-217 located south of Pad 61 to a depth of 4.5 ft bgs, and
- excavation of limited area overlapping Pad 61A to a depth of 1 ft below design grade, backfilled with clean soil to design grade.

Confirmation sampling was completed at the conclusion of these removal actions by collecting ISM samples from the base and side walls of the excavations. While detected levels of benzo(a)pyrene in confirmation samples from the excavation bottoms of Pads 61 and 61A did not exceed the established cleanup criteria at that time, they exceed the Industrial Soil RSL remediation level. Also, when the sum of ratios is applied, other detected PAHs contribute more than 10% to the sum which exceeds 1.0 for these samples. Therefore, surface soils within the previous removal action area of approximately 1.2 acres in size, which encompasses Pads 61 and 61A, are proposed for remediation. Excavation will be completed to a depth of two (2) ft bgs to capture all confirmation sample exceedances at these pads. The coordinates of the area to be removed are shown in Table 4-1. The estimated volume of this removal is 3,872 cubic yards. Upon excavation, all material will be processed as described in Section 4.4 to remove potential MEC items.

Four ISM closure samples will be taken at a depth of 0 to 1 ft at the bottom of the excavation to verify that the remedial level for benzo(a)pyrene and other PAHs has been achieved. The ISM samples will be analyzed for PAHs using USEPA SW-846 Method 8270C. The procedures for ISM sampling are described in the FWSAP. The Industrial RSLs for PAHs are at levels considered safe for full-time workers. See Table 4-2. Upon receipt of analytical results that are less than the Industrial RSLs for PAHs, the completed excavation will be backfilled with approved clean soil from an approved source outside of Camp Ravenna. The site will then be regraded, and seeded using Camp Ravenna approved seed mixtures. The storm water runoff controls will be implemented to protect excavated soils, excavation areas/trenches, and storm water ditches from silt accumulation and erosion until the site has been restored to match local surroundings.

**Table 4-1 Coordinates of Removal Areas**

<b>Pad 38</b>	<b>Northing</b>	<b>Easting</b>
1	562403.06	2359075.70
2	562405.26	2359173.38
3	562316.05	2359173.37
4	562315.66	2359075.66
<b>Pads 61 &amp; 61A</b>	<b>Northing</b>	<b>Easting</b>
1	563035.10	2356833.23
2	562984.95	2356833.63
3	562958.63	2356828.76
4	562927.88	2356810.86
5	562913.46	2356665.84
6	562806.66	2356662.73
7	562790.90	2356634.95
8	562788.15	2356600.06
9	562820.42	2356569.39
10	562904.29	2356496.69
11	562959.11	2356498.81
12	563033.08	2356513.55
<b>Pad 66</b>	<b>Northing</b>	<b>Easting</b>
1	563075.85	2358700.73
2	563077.27	2358784.19
3	562979.86	2358785.87
4	562979.78	2358700.26
<b>Pad 67</b>	<b>Northing</b>	<b>Easting</b>
1	563051.02	2359028.45
2	563049.87	2359021.32
3	563063.90	2359020.78
4	563064.98	2359036.64
5	563052.21	2359035.82
<b>West of Pad 67</b>	<b>Northing</b>	<b>Easting</b>
1	563054.90	2358975.80
2	563064.90	2358975.80
3	563064.90	2358985.80
4	563054.90	2358985.80

**Coordinate System: NAD 83 State Plane Ohio North (Feet)**



### 4.3.3 Excavation at Pads 66/67

Detected levels of TNT and RDX require removal to reduce the Pad 66/67 PEA EPC below the Industrial Soil RSL remediation levels. Levels within the 0 to 2 ft interval at Pad 66 and west of Pad 67, and in the 2 to 10 ft interval at Pad 67 require removal to achieve this. Removal actions were previously completed within the Pads 66/67 PEA including:

- excavation, MEC removal, and backfill re-use of surface soils to a depth of 1 ft bgs at Pads 66 and 67,
- excavation of a limited area within Pad 67 (approximately 30 ft by 30 ft area) to a depth of 2 ft bgs and backfilling with clean soil, and
- excavation, MEC removal, and backfill re-use in a 10 ft by 10 ft area centered on sample station WBG-070 to a depth of 1 ft bgs.

The excavation, MEC removal, and backfill re-use of surface soils changed the distribution of surface soils at the pads, rendering the exact locations of soils associated with previous discrete surface samples as unknowns. However, this means the contaminated soils associated with the discrete samples are still onsite within their respective areas. Therefore, for Pad 66, surface soils within the previous removal action area of approximately 0.2 acres in size are proposed for remediation. Excavation will be completed to a depth of 2 ft bgs to capture all surface soil samples located at this pad, resulting in an estimated volume of 645.3 cubic yards. The coordinates of the area to be removed are shown in Table 4-1. Upon excavation, all material will be processed as described in Section 4.4 to remove potential MEC items.

One ISM closure sample will be taken at a depth of 0 to 1 ft at the bottom of the excavation to verify that the remediation level has been achieved. The ISM sample will be analyzed for TNT and RDX using USEPA SW-846 Method 8330B. The procedures for ISM sampling are described in the FWSAP. The Industrial RSLs for TNT (420 mg/kg) and RDX (240 mg/kg) are considered safe levels for full-time workers.

At Pad 67, the 2 to 10 ft depth interval associated with sample station WBG-252 (see Table 4-1 for coordinates) will be removed in order to reduce detected levels of TNT and RDX. At its base, this excavation may be no wider than a trackhoe bucket, but the Contractor must shore, slope or bench the excavation so that a confirmation sample may be taken at the base of the excavation. The confirmation sample for this location will be an ISM sample and it will be collected from a relatively small area or volume of soil, such as one or two track hoe buckets. Care must be taken to ensure that the material is representative of the base of the excavation. For estimating purposes, the surface area is expected to be about 15 ft by 15 ft, resulting in an excavated volume of less than 80 cubic yards. Upon excavation, all material will be processed as described in Section 4.4 to remove potential MEC items.

At a location west of Pad 67, surface soils within the 10 ft by 10 ft area centered on sample WBG-070 will be removed. See Table 4-1 for coordinates. Excavation will be completed to a depth of 2 ft bgs to capture the depth of the surface soil sample exceedance. Upon excavation, all material will be processed as described in Section 4.4 to remove potential MEC items. One ISM closure sample will be taken at a depth of 0 to 1 ft at the bottom of the excavation to verify that the remediation level has been achieved. The ISM sample will be analyzed for TNT and RDX using USEPA SW-846 Method 8330B.

Upon receipt of analytical results that are less than the Industrial RSLs, the completed excavation will be backfilled with approved clean soil from an approved source outside of Camp Ravenna. The site will then be regraded, and seeded using Camp Ravenna approved seed mixtures. The storm water runoff controls

will be implemented to protect excavated soils, excavation areas/trenches, and storm water ditches from silt accumulation and erosion until the site has been restored to match local surroundings.

#### **4.4 Soil and MEC Separation Process**

The soil and MEC separation process will follow the procedures described in this section unless the Contractor obtains Army approval to use a different process. The soil and MEC separation process must be described in detail in the ESS for this RA. The ESS must be approved by the DDESB before the selected Contractor mobilizes to the site.

The Contractor will use a magnetic separation process similar to that used during the 2008 removal action (MKM, 2009) to remove MEC and MD from excavated soils. The primary goal of the conveyor separator process is to safely and effectively remove all MEC and MD from the excavated soils so that the final piles of soil and other material can be certified as free of explosive hazards and MEC. To enhance safety, personnel manning the conveyor lines will have an emergency cut-off switch located at the conveyor work area. This switch will be used to immediately shut down all conveyors and metal separators in the event that the conveyor lines need to be evacuated when MEC are found. All conveyor personnel will be made aware of the switch's location. A generalized overview of each element of the process is presented below.

- After the initial sizing and dewatering (using the trammel screen) has been conducted, excavated soils will be fed to a conveyor that will transport the material to a ferrous metal separator. Ferrous items will be magnetically removed from the conveyor using an overhead drum magnet and conveyed off the side of the main conveyor at a 90-degree angle to another conveyor that will then pass through a blast shield and transport the ferrous objects past a series of UXO personnel. These personnel will inspect the ferrous objects on the conveyor and remove those MEC items that contain explosive hazards.
- Material that passes the ferrous magnet will then be transported on the conveyor to a non-ferrous metal separator that will remove non-ferrous material from the remaining material. Non-ferrous metal will be conveyed away at a 90-degree angle from the primary conveyor to a stockpile location at the end of the belt. This material will be periodically removed and stockpiled for later inspection and subsequent disposal.
- Materials that pass through the non-ferrous separator will pass through a blast wall and under the metal detector where UXO personnel will remove any metal objects that were not previously captured by the ferrous and non-ferrous separators.
- Effluent materials leaving the metal detector line will be collected by a hardened front-end loader or dozer and moved to a final location where the final steps in this process will be QC checks and inspection for off-site disposal of the sifted soils and off-site recycling of all MD and non-MD scrap separated from the soil.

Prior to transport for off-site disposal, the final resultant stockpile of processed soil will be sampled using ISM sampling methodology for waste characterization. ISM sampling will be performed following the procedures described in the FWSAP. Additionally, ISM soil aliquots should be collected throughout the process of placing the soil stockpile to ensure the representative distribution of aliquots from the pile. The final number of ISM samples required for characterization of the stockpile will be determined by consultation with Ohio EPA and the disposal facility.

#### **4.5 Establishment of Munitions Demolition Area**

ODA2 is the established demolition site which will be used for MEC requiring disposal. Demolition on site at WBG may occur, if procedures are established by in an approved ESS. Based on previous removal actions, the maximum fragment range–horizontal for the MGF4 (40 mm grenade) during clearance of the operational area is 345 feet. However, to enhance safety and minimize the effects of fragmentation, demolition operations will be conducted using sandbag mitigation. According to the DDESB Fragmentation Database, the required wall/roof sandbag thickness is 1 foot with the vertical height being 6 inches above the MEC item, which will result in a MSD of 200 feet for the sandbag throw distance of 25 feet. These details may vary when the final approved ESS is prepared for this work.

#### **4.6 Demolition Activities**

During disposal of MEC, safety is the primary concern. This section describes the planned approach for the safe demolition of explosives. Some of the specific details may be changed in accordance with the approved ESS to be prepared for this site. An ESS, which is approved by the DDESB will ensure that procedures being employed are in accordance with the current explosives safety regulations. The Ohio EPA Notification for MEC Demolition and Disposal Operations will be completed prior to initiating site activities.

Planned detonation of explosives requires more stringent safety distance requirements than those for ordnance in storage. The most obvious requirements are to protect personnel, the general public, and the environment from fire, blast, noise, and fragmentation. Physical control of the onsite disposal operations will be accomplished by blocking access roads to the site at the point of the MSD. Control of the disposal operations must be maintained to ensure no unauthorized access to the site by nonessential personnel. During disposal preparation, all nonessential personnel will be evacuated to locations outside the MSD, and all essential personnel will be evacuated outside the MSD prior to initiation of demolition charges.

The Senior UXO Supervisor (SUXOS) will ensure that all pertinent parties have been notified of an impending demolition shot. Notification contact numbers are contained in Section 4.1.5 of this RD. An established demolition site will be located within ODA2 at RVAAP. Procedures for using ODA2 are described in the DFFO and the Camp Ravenna ICP and are provided at the end of this section.

The maximum fragment range for the MGF4 40 mm M406 HE grenade is 345 feet; however, in order to minimize noise and prevent possible recontamination of ODA2 with munitions fragments, all demolition shots at will be conducted using sandbag mitigation as described below:

- The ODA2 range limit of 25 pounds net explosive weight (NEW) will not be exceeded for each demolition shot. The NEW includes the explosive weight of the item being destroyed plus the explosive weight of the donor charge.
- All demolition shots will be conducted using sandbag mitigation and will be performed in accordance with "Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions. HNC-ED-CS-S-98-7, August 1998 and HNC-ED-CS-S-98-7, Amendment 1, February 2011." According to the DDESB Fragmentation Data Base, 12-inch thickness of sandbags is required for the 40 mm M406 with the resulting MSD being 200 feet.
- For established demolition ranges, a minimum area of 200 feet in diameter around the demolition pit will be cleared of dry grass, leaves, and other combustible materials.

While preparing MEC for detonation, the UXO/MEC Site Manager will ensure that the number of personnel on site is kept to the minimum required to accomplish the disposal mission safely. Authority to initiate demolition operations will rest solely with the SUXOS.

The SUXOS will be responsible for ensuring all personnel have been accounted for and that the area is secure prior to authorizing the detonation of explosive charges. Following the demolition shot, the area will be inspected for kick-out items and to ensure complete disposal of the MEC.

Procedures for using ODA2 are described in the DFFO and the Camp Ravenna ICP and are provided below:

1. Notify the Ohio EPA before and after demolition.
2. Notify other outside agencies such as emergency contacts, FAA, etc.
3. Conduct pre- and post-sampling of the area (soil and surface water).
4. Report the net explosives weight of munitions that are blown in place or blown at ODA2 to the Camp Ravenna Environmental Office as these totals count as part of the monthly hazardous waste total for Camp Ravenna (donor charges do not count).
5. Perform weekly inspection of the conditionally-exempt storage areas if waste present (there are specific requirements for these inspections).
6. Provide inventory of all munitions that are treated and/or stored.
7. Provide a written SOP that describes specifics of the operation that is to be reviewed and approved by Camp Ravenna Environmental.
8. Keep logs of each demolition shot.

#### **4.7 Post-Demolition Operations**

After successful initiation of the explosive charge, the SUXOS and a second UXO Specialist will conduct an inspection of the disposal site and surrounding area to ensure complete destruction of the MEC. After verifying no more detonations will be required, an “all clear” notification will be issued. The UXO Team will collect for disposal all large MEC fragments and other debris, and generally clean and restore the area. The Contractor will also notify the Ohio EPA and conduct post-demolition sampling in accordance with the Camp Ravenna ICP and the DFFO.

#### **4.8 Inspection/Certification of Materials Presenting a Potential Explosive Hazard (MPPEH)**

This section provides the general procedures to be followed for the Army to certify and dispose of MPPEH, Munitions Debris (MD), and scrap metal. The final approved ESS will govern the work. All ferrous and non-ferrous metals removed will be inspected prior to being declared as either MD or scrap metal. All metals will undergo a multi-step inspection/certification process described below.

**Step 1.** Each item on the ferrous metal conveyor will be inspected by at least one of the UXO specialists, and the SUXOS will verify the inspection before each item is initially declared as MD/scrap metal.

**Step 2.** Each item on the non-ferrous stockpile will be inspected by at least one of the UXO specialists, and the SUXOS will verify the inspection before each item is initially declared as MD/scrap metal.

**Step 3.** After the MD and scrap metal are stockpiled, a UXO specialist will sample and inspect at least 10% of all MD/scrap metal items for the presence of explosive hazards. If any of the material inspected is found to contain explosives hazards, the load will be rejected, MEC items will be removed for storage and subsequent demolition and disposal, and 100% of the load will be re-inspected. Upon completion of the inspection by the UXO specialist, the SUXOS will perform random checks of the MD and scrap metal, containerize it, seal it and certify it free of explosive hazards.

**Step 4.** The UXOSO will ensure that MPPEH items are inspected/certified in accordance with the provisions outlined in DoDM 6055.9M and DoDI 4140.62, and that all procedures are being performed safely.

**Step 5.** The SUXOS will perform random checks to satisfy that the munitions debris is free from explosive hazards necessary to complete Form DD1348-1A. The SUXOS will ensure that the inspected MD/scrap metal is secured in a closed, labeled, and sealed container. Before offering scrap metal for pickup by the recycling contractor, the SUXOS will certify and the USACE OE Safety Specialist will verify that the MD and scrap metal is free of explosive hazards. To do this, the SUXOS and USACE OE Safety Specialist will sign a DD 1348-1A certificate stating: "This certifies and verifies that the material listed has been 100% inspected and to the best of our knowledge and belief, are inert and/or free of explosives or related materials." The Camp Ravenna Garrison Commander will then be provided with copies of the DD 1348-1A along with the chain-of-custody and final disposition forms.

#### **4.9 Disposition of Munitions Debris and Scrap Metal**

MD and scrap metal will be disposed of by recycling. The Contractor will document the transport and transfer of the MD and scrap metal using proper chain-of-custody procedures.

#### **4.10 Explosives Management Plan**

The contractor shall prepare a work plan for explosives management. The work plan will be reviewed and approved by the Baltimore District MMRP Design Center.

#### **4.11 Explosives Sifting Plan**

The procedures for explosives sifting will be contained in the contractor's work plan.

#### **4.12 Confirmation and Soil Stockpile Sampling**

The WBG RD/RA actions include removal of soils containing MEC and concentrations of contaminants of concern (COCs) that exceed USEPA Industrial RSLs. As described in Section 4.3, soil will be excavated from Pads 38, 61/61A, and 66/67. Confirmation soil samples will be collected from each excavation location, as described in Section 4.3, to confirm that soils remaining at WBG RD/RA excavation areas have concentrations of COCs below Industrial RSLs and do not present a risk to a full-time worker at WBG.

Waste characterization soil samples will be collected from excavated soil stockpiles to facilitate off-site disposal, as described in the following sections. After removal of soil stockpiles, the area will be visually inspected by the Contractor's Field Superintendent, and total of four ISM soil samples will be collected within the former stockpile footprint to ensure all contaminated material has been removed from the site. ISM soil samples will also be collected from the processing area (MEC screening area) after the equipment is removed and the surface is cleared of any residual soil resulting from the soil processing.

#### **4.12.1 Confirmation Sampling**

The numbers and locations of the confirmation samples are described in Section 4.3. All confirmatory soil samples will be collected using the ISM soil sampling technique. This sampling technique consists of taking at least 30 random soil aliquots for each represented sample. The samples will be collected from sample locations spatially distributed in a stratified random manner to provide lateral coverage over the entire excavated surface. The random samples will be collected from the excavation, using a soil probe, at a depth of 0 to 12 inches below the base of the excavation. A minimum of 30 random samples will be collected and composited. These samples will be air dried, sieved, and ground following proper health and safety measures and the procedures listed in the FWSAP.

#### **4.12.2 Excavated Soil Stockpile Sampling**

As indicated in the preceding sections of this RD, excavated soils from the excavation areas will be processed for removal of MEC, stockpiled, and then sampled for subsequent off-site disposal. Approximately 1400 cubic yards is to be excavated from areas around Pads 38, 66, and 67. The COCs are TNT (in all three areas) and RDX (Pads 66/67). The soil from these pads will be stockpiled separately from the soil from Pads 61 and 61A, which had PAHs as the COC. The processed and stockpiled soil from Pads 38, 66, and 67 will be tested for hazardous waste characteristics at a rate of approximately one sample per each 70 cubic yards of stockpiled material. Each sample collected to represent a 70 cubic yard portion will be an ISM sample composed of at least 30 soil aliquots. Before collecting characterization samples, the contractor will verify with the laboratory the quantity of soil needed for the required analyses and size each aliquot accordingly.

The soil will be stockpiled, sampled, and analyzed in such a way that parent material represented by each ISM characterization sample can be identified for proper disposal after analysis. This approach will allow for distinguishing between 70-yd lots that are hazardous and non-hazardous, so that each can be properly disposed of. If a 70-yd lot is characterized as hazardous waste, the Army may direct the contractor to divide the pile and collect additional characterization samples in order to potentially reduce the amount of soil that would be disposed of as hazardous waste. The Army may also direct the contractor to increase the sampling frequency, if the analyses consistently approach or exceed regulatory levels for toxicity.

Approximately 3900 cubic yards of soil is to be excavated from around Pads 61 and 61A, where the COCs are PAHs. The processed and stockpiled soil from Pads 61 and 61A will be tested for hazardous waste characteristics at a rate of approximately one sample per each 150 cubic yards of stockpiled material. Each sample collected to represent a 150 cubic yard portion will be an ISM sample composed of at least 60 soil aliquots. Before collecting characterization samples, the contractor will verify with the laboratory the quantity of soil needed for the required analyses and size each aliquot accordingly.

The soil will be stockpiled, sampled, and analyzed in such a way that parent material represented by each ISM characterization sample can be identified for proper disposal after analysis. This approach will allow for distinguishing between 150-yd lots that are hazardous and non-hazardous, so that each can be properly disposed of. If a 150-yd lot is characterized as hazardous waste, the Army may direct the contractor to divide the pile and collect additional characterization samples in order to potentially reduce the amount of soil that would be disposed of as hazardous waste. The Army may also direct the contractor to increase the sampling frequency, if the analyses consistently approach or exceed regulatory levels for toxicity.

The soil to be disposed of is not a listed hazardous waste on the F, K, P, or U lists of specific waste streams from industrial or manufacturing processes or discarded commercial chemical products.

Therefore it will be disposed of as non-hazardous solid waste if it does not exhibit any of the following four characteristics: ignitability, corrosivity, reactivity, or toxicity.

The soil to be disposed of will be tested for toxicity using methods consistent with the Toxicity Characteristic Leaching Procedure (TCLP) (Method 1311). Typically after the leaching procedure is performed the resulting extract is analyzed for specific metals, specific volatile organic compounds (VOCs), specific semi-volatile organic compounds (SVOCs), and specific herbicides and pesticides. Since neither VOCs nor pesticides/herbicides were identified as Chemicals of Concern at Winklepeck Burning Grounds, the TCLP extract will be analyzed only for the TCLP metals and SVOCs, based on generator knowledge of the waste. If the land disposal facility requires additional testing of the TCLP extract, that required testing will be performed.

The soil to be disposed of is not a liquid, a compressed gas, or an oxidizer. The in situ soil to be disposed of contains a maximum of 0.5% by weight of TNT and 0.2% by weight of RDX, based on data collected during the site characterization. The soil also contains no free liquid, such as petroleum-based fuel, that is ignitable. Therefore, there is no evidence that it is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes or, when ignited, it would burn so vigorously and persistently that it would create a hazard. Therefore, the soil to be disposed of will not be tested for ignitability, unless the land disposal facility requires that test. The soil is neither aqueous nor liquid; therefore, by definition it cannot be corrosive. The soil to be disposed of will not be tested for corrosivity, unless the land disposal facility requires that test. The soil to be disposed of does not exhibit any of the eight characteristics of reactivity listed in 40 CFR 261.23. While the soil may contain low levels of explosive compounds, the in situ soil to be disposed of contains a maximum of 0.5% by weight of TNT and 0.2% by weight of RDX, based on data collected during the site characterization. Typically a mixture of explosive compounds and soil is not considered to be an explosive mixture unless the concentration of explosive compounds is 10% or greater by weight. The in situ soil has a concentration of explosives much less than 10%; therefore, the soil to be disposed of will not be tested for reactivity, unless the land disposal facility requires that test.

The waste characterization samples will be taken directly from the accumulated stockpile. In addition to analyses listed above, the samples will be analyzed for any other analyses required by the disposal facility for proper disposal. After processing and sample collection, the soil stockpiles will be identified, labeled, and segregated until analytical laboratory results determine the stockpile disposition.

Analytical results and associated QA/QC information will support an Ohio EPA Tier I data validation. More information concerning this is available in Ohio EPA's Tier I Data Validation Manual available at <http://epa.ohio.gov/portals/32/pdf/TierIDVManual.pdf>. The contractor will ensure that the laboratory produces a data package that supports the Tier I Data Validation, specifically focusing on requirements in Section 1.1 of the referenced manual.

As requested by the Ohio EPA in an email dated August 19, 2015, specifically for WBG RA, the hazardous waste characterization data and associated QA/QC data will be submitted to Ohio EPA for review and comment prior to disposal. It is anticipated that Ohio EPA will review this information quickly to allow for timely determination of waste characterization and disposal options. The soil materials that are not deemed to be hazardous wastes or UXO will be disposed of at a licensed and permitted solid waste landfill.

Following the removal of the stockpiled materials, confirmation soil samples will be collected from the area where the soils were stockpiled to ensure the area meets the WBG cleanup goals.

#### **4.12.3 Sample Handling and Laboratory Analysis**

Following the sample preparation activities, all sample containers will be labeled, sealed with a custody seal, and managed under a chain of custody. All samples will be shipped same day via laboratory courier service to the selected laboratory. Confirmation samples will be analyzed for the following parameters:

- TNT and RDX by EPA SW-846 Method 8330B; and
- Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene (hereafter polynuclear aromatic hydrocarbons [PAHs]) by EPA SW-846 Method 8270C.

Other samples will be analyzed as described in the applicable sections.

#### **4.13 Material Handling and Transport**

Two primary waste streams will be generated during excavation activities; solid and liquid wastes. Waste characterization will determine whether a waste is hazardous or non-hazardous and will dictate the disposal option and facility where the waste will be disposed.

##### **4.13.1 Solid Waste (Hazardous and Nonhazardous)**

Solid wastes to be generated as part of this removal action will at a minimum consist of contaminated soils and dry sediments. Additionally some munitions may be encountered that will be either blown-in-place or transported to ODA2 for treatment. All waste will be appropriately accounted for as soon as possible and prior to conclusion of the project. All waste will be properly managed in accordance with Section 8.0 of the FWSAP, federal and state of Ohio Large-Quantity Hazardous Waste Generator Requirements, Camp Ravenna Waste Management Guidelines, and any other applicable rules, laws, and regulations. Scrap metal will be disposed of offsite using a licensed disposal facility or recycler. Recycling will be used whenever feasible.

The management, transportation, and disposal of all waste streams will be coordinated with the OHARNG Restoration Representative. Any munitions or munitions-related items transported from WBG to ODA2 must be handled as hazardous waste. All transportation paperwork (manifests or shipping papers) and on-road haul truck placards will be prepared by the Contractor Project Manager or Field Superintendent in accordance with federal, state, and local regulatory requirements, and disposal facility requirements. A draft of the transportation paperwork containing "base" information (without quantities and shipping date) will be submitted to the OHARNG Restoration Representative for review and approval a minimum of one week prior to shipment of any material. The Camp Ravenna Compliance Manager is the alternate. The approved transportation paperwork will then be completed as appropriate by the Contractor Field Superintendent in the field during remedial activities. The OHARNG Restoration Representative will sign all waste profiles and waste manifests for the disposal of project wastes, with the Camp Ravenna Compliance Manager as the alternate. The OHARNG Restoration Representative will retain copies of manifests and be responsible for submittal to Ohio EPA and United States Environmental Protection Agency (USEPA) as part of the annual reporting for Camp Ravenna hazardous waste generation and management. Copies of all manifests, shipping documents, and disposal facility approval letters will be incorporated into the RA Completion Report.

Hazardous and nonhazardous solid waste, which is stored on site, awaiting treatment or shipment, will be managed in accordance with the DFFO and applicable waste management regulations. Materials will be



properly stored and labeled. Storage containers and temporary storage areas will be inspected at required intervals in accordance with Camp Ravenna Waste Management Guidelines.

Waste will be transported by licensed waste haulers to ARNG/OHARNG-approved, licensed, off-site disposal facilities. All transportation requirements, including proper labeling, placarding, and weight limits will be followed.

Proper waste minimization procedures will be employed to limit the volume of waste generated. These procedures will include:

- Re-using materials that do not require decontamination, to the extent practicable;
- Minimizing the volume of decontamination fluids;
- Minimizing contact with potentially contaminated materials;
- Minimizing foot and vehicle traffic through potentially contaminated areas; and
- Utilizing good housekeeping practices.

#### **4.13.1.1 Stockpiling at the Site**

Excavated soils to be stockpiled will be stored within the WBG AOC temporarily before being transported to an approved disposal facility. It is anticipated that excavated soils to be stockpiled will be dry and will not require management of discharge water following placement in stockpiles. The stockpile(s) will be located at the end of the conveyor separator system in the same area as the approved central processing area, also within the WBG AOC. At the end of each day, the stockpile(s) will be covered with a minimum 6-mil polyethylene liner and secured to prevent wind damage to the cover and stockpile.

Storm water controls for the protection of the stockpile areas will be performed in accordance with Section 6.0 of this RD. Silt fence or hay bales will be placed around the perimeter of the stockpiles to control storm water run-off or run-on. Any storm water collected in the stockpile areas will be contained and disposed in accordance with local, state, and federal rules, laws, and regulations.

The polyethylene liner on each stockpile will be inspected daily to ensure that it is properly secured and repaired or replaced, if damaged, to maintain integrity of the cover. Erosion and sediment control measures found to be deficient will be corrected immediately to prevent potential release of stockpiled soil.

#### **4.13.1.2 Load-Out to the Disposal Facility**

The processed contaminated soil stockpile will be loaded out for off-site disposal as soon as practical following the RD/RA excavation and sampling operations. The stockpile will be loaded out using a track-mounted excavator and/or wheel loader. The heavy equipment will be equipped with closed cabs to minimize potential for exposure to contaminated media. Soil will be loaded into trucks in designated areas only with adequate spill control measures, including equipment to catch and contain spillage, and equipment necessary to recover spillage and clean the area. Disposable sheeting will be placed on the ground around trucks to catch any incidental spillage during loading. The Contractor will keep a log (waste tracking sheet) of all waste generated as part of the project. Waste tracking sheets will be turned in to OHARNG/ARNG and included in the RA Completion Report. Personnel monitoring and area monitoring

will be performed during load-out operations to verify emissions are maintained within acceptable health and safety limits.

Before loading, trucks will be inspected and surveyed for damage and residual contamination by Contractor personnel. Decontamination will be conducted if required. Daily vehicle inspections will be performed prior to loading. Inspections will be conducted from the ground only.

During load-out operations, materials will be loaded into the transport vehicle in a uniform manner and distributed over the full length of the vehicle. Once loading is complete, trucks will be inspected from the ground for loose or escaping soil or leaching water before leaving the load-out area. The load will then be covered with a tarp or other suitable covering using an automated pull-over mechanism from within the truck cab or a manual hand-crank. Only authorized personnel will perform the inspection and all truck drivers will be directed to remain in their vehicle until the vehicle has been properly decontaminated and has left the load-out area.

Transport vehicles will have all required labeling and licensing and will be lined in accordance with applicable federal, state, and local rules, laws, and regulations. Before transport off-site, haul vehicles will be manifested and inspected for proper marking and labeling information. A returned signed copy of each manifest provided by the disposal facility will be retained by the generator and the Contractor for record keeping purposes.

Federal DOT regulations will be followed during transport activities. The soil will be DOT-classified based on direct sample results or on previously collected data. The DOT labeling requirements will be followed; and all appropriate placards, bill of lading, and letter of approval requirements to transport contaminated soil from Camp Ravenna will be in place.

#### **4.13.2 Liquid Waste**

Liquid wastes will be generated and handled in accordance with local, state, and federal regulations. Liquid waste, at a minimum, will consist of decontamination fluids. The liquid waste will be collected and pumped directly into labeled, DOT-approved 55-gallon drums or polyethylene tanks. Drummed liquid waste will be stored on secondary containment. Liquid wastes will be disposed of off-site based on the disposal facility waste characterization analytical requirements.

Precipitation accumulated in secondary containment areas may be discharged to the ground surface only after a Camp Ravenna rain water release form is obtained. Precipitation accumulated in excavation and stockpile areas may be discharged to ground surface only after analytical results are obtained and approval is received from Ohio EPA, USACE, and Camp Ravenna. Any ground surface discharges are subject to strict state and federal discharge conditions as well as RVAAP specific guidelines. If accumulated precipitation does not meet the requirements for ground surface discharge, it will be handled and disposed of as liquid waste.

#### **4.13.3 Waste Disposal**

Off-site disposal facilities will be selected based on waste characterization data collected from the applicable waste stream. It is anticipated that the soils will not exceed toxicity characteristic leaching procedures (TCLP) limits and will not require stabilization prior to off-site shipment. If waste characterization results determine soil to be non-hazardous, it may be disposed at a local Subtitle D landfill.

Hazardous waste will be transported off-site to an approved hazardous waste treatment, storage, or disposal facility within 90 days of the accumulation start date on each container or stockpile. Shipments of

waste will be coordinated through the OHARNG Restoration Representative. All hazardous wastes, except for munitions related items treated onsite, will be shipped off-site; and records will be maintained in accordance with local, state, and federal regulations.

#### **4.14 Decontamination**

Upon completion of the excavation and before beginning restoration activities, decontamination of tools and equipment will be performed at each controlled area. Decontamination methods to be implemented may range from dry decontamination procedures, which include removal of all loose soil from buckets, tracks, and undercarriages to a wet brush washing and/or steam cleaning, depending on the extent of residual soils on the equipment. Temporary decontamination pads capable of collecting wash water, including overspray, and loose soil will be constructed, as needed, to avoid cross-contamination of clean areas during decontamination procedures.

#### **4.15 Site Restoration**

Backfill and restoration will take place at each excavation area following the receipt of laboratory confirmation soil sample results indicating that material with concentrations of COCs exceeding the applicable cleanup criteria has been removed. Restoration will consist of backfilling with clean soil from onsite or offsite sources that has passed the chemical and physical requirements outlined in the RVAAP facility-wide plans. Site restoration will be performed to return the disturbed areas to prior conditions. There are no anticipated changes to site elevation or drainage features associated with this remedial action. Site restoration will include repair of damaged roadways in accordance with contractual requirements.

Revegetation of disturbed areas, including soil stockpile areas and equipment staging areas, will be conducted in accordance with the requirements of the Camp Ravenna Integrated Natural Resources Management Plan (INRMP). Only native species, as identified in the INRMP, will be used. At a minimum, annual rye will be placed to provide a quick temporary cover. The annual rye may be mixed with other more permanent species to provide long-term cover once the annual rye dies off. No non-native species will be introduced. The Contractor will coordinate the required seed mixes with the OHARNG Restoration Representative prior to mobilizing.

Site restoration will include removal of sediment and erosion controls and any excess sediment that has been collected. The controls will remain in place until the grass is established with a density of at least 70 percent coverage in all disturbed construction areas, in accordance with Ohio Rainwater and Land Development guidance (Ohio Department of Natural Resources (ODNR), 2006). The site will be inspected weekly until the construction areas achieve at least 70 percent vegetation coverage. Once the construction areas achieve the 70 percent coverage, the erosion and sediment control measures will be removed and disposed of.

#### **4.16 Weekly/Monthly Progress Reports**

The Contractor will prepare and submit electronic copies of the weekly and monthly reports to OHARNG (Camp Ravenna), ARNG, USACE, and Ohio EPA. These progress reports will document the project activities conducted by the Contractor in its performance of the project tasks. These reports shall include all inspection activities, including those required for storm water in Section 6.5 of this RD, and spill/release reports and response actions. The monthly reports will be submitted for receipt by the addressee by the fifth of each month.

#### **4.17 Final Report**

At the conclusion of all field activities, the Contractor will submit a Remedial Action Completion Report (RACR). This report will include a summary of the daily activities and disposal records. The report will document in narrative form all soil removal activities and will include copies of all pertinent documents generated, including manifests, weekly reports, monthly reports, sample collection forms, photographs, and confirmation sampling reports.

The RACR will be prepared as a preliminary draft, draft, and final with 45-day comment period by Ohio EPA for the draft and final reports. The selected Contractor will also prepare responses to Ohio EPA comments on the Draft RACR and facilitate a conference call to discuss the comment responses. If the Ohio EPA has comments on the Final RACR, the selected Contractor will also prepare responses to those comments and a revised Final RACR.

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## 5.0 CONSTRUCTION SEQUENCE AND SCHEDULE

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### 5.1 Construction Sequence

The proposed sequence of construction activities is presented below. Erosion and sediment controls will be constructed, stabilized, and determined to be functional before general site disturbance. The construction sequence for this project will generally commence as follows:

- If required, repair and maintain the WBG site access roads to support off-road dump truck traffic during transport of excavated soils to the soil screening and staging areas.
- Provide erosion and sediment control measures as required, such as silt fencing, to prevent soil erosion on roadway edges, roadside ditches, around excavation areas, and the soil screening and staging areas.
- Once control structures are deemed functional, clear and grub pad excavation areas and soil screening and staging areas as needed.
- Mobilize and install the magnetic separator and soil screening plant at the designated process area(s) within WBG.
- Excavate soil at Pad 38, Pads 61/61A, and Pads 66/67.
- Transport excavated soils to soil screening and staging area.
- Remove water that accumulates in open excavation(s) by pumping and storage in 55-gallon drums or a temporary water-tight storage tank.
- Maintain dewatering processes and erosion and sediment control practices throughout work period.
- Process excavated soil through MEC screening/soil sifting equipment.
- Transport any MEC item that is found and safe to move to the designated Igloo for storage.
- If a MEC item is encountered that cannot be positively identified, or must be destroyed in place, the OHARNG Restoration Representative, ARNG Project Manager and the Garrison Commander will be contacted for summoning appropriate EOD Detachment personnel for assistance, as needed. Additionally, Ohio EPA notification procedures will be followed.
- Conduct confirmation sampling and analysis.
- Transport and dispose of contaminated stockpile.
- Perform demolition and disposal of recovered MEC items and follow Ohio EPA notification procedures.
- Once activity has ceased within WBG and ODA2, disturbed areas will be seeded or stabilized by applying an appropriate seed mix, and mulch.

- After final stabilization has been achieved, remaining temporary erosion and sediment control facilities will be removed.
- Prepare and deliver construction completion report

## **5.2 Schedule**

The selected Contractor will be required to prepare a detailed schedule. The current anticipated project schedule is based on the completion of all field activities within 120 days of completion of site mobilization. The Contractor must mobilize experienced UXO and operator personnel and conduct all field activities in a safe and efficient manner.

The project schedule is based on an excavation volume of 5250 cubic yards. The current anticipated project schedule takes into account potential hazards, impedances, and current COCs. Changes in any of these conditions have the potential to affect the project schedule.

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## **6.0 STORM WATER POLLUTION PREVENTION**

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This section specifies the erosion and sediment control requirements for the Contractor to prevent the erosion of soil and sediments and to prevent the pollution storm water runoff during the remediation activities to be performed at the WBG. This section has been prepared in general accordance with the requirements for a Storm Water Pollution Prevention Plan (SWPPP) per Ohio EPA Permit No. OHC000004 and implements best management practices (BMPs) that are the minimum criteria for the overall control of soil and sediment erosion and storm water runoff during construction activities. In addition to the narrative contained in this section, the selected Contractor will prepare plan drawings and details showing specific types and locations of erosion and sediment control measures that will be used during the work. Those drawings will be reviewed and approved by the Army prior to work commencing on site. Those drawings together with this section will constitute the SWPPP for this remedial action.

### **6.1 Surface Features and Topography**

The WBG is situated in the center of the former RVAAP (Figure 1-2) and is surrounded by woodland. The topography at WBG is characterized by gently undulating contours that decrease in elevation from west to east. Elevations vary from 993 to 1085 feet, with the highest elevations located at the extreme western end of the WBG near Pads 28 and 43. 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.

### **6.2 Soil Characteristics and Potential Effects**

The WBG site consists of glacial materials and well-developed soils. The glacially deposited parent material for soil profiles developed at WBG contains a high percentage of clay minerals. The presence of these clay-rich soils presents challenges to a mechanical separation operation for MEC issues. The clay soils will adhere to MEC items and potentially require multiple passes through the process to ensure proper separation. The clay-rich soils will also cause process equipment screen fouling when the soil moisture content occurs at levels conducive to soil adhesion.

Drainage ways at WBG may provide pathways for off-site migration of COCs contained in soil particles disturbed or eroded as a result of the remedial activities. These pathways will be identified in advance of any intrusive activities, and preventative measures will be instituted to prevent migration. After the contract for the RA is awarded, the Contractor will provide a detailed plan drawing to supplement this RD, showing specific preventative measures and their locations.

### **6.3 Environmentally Sensitive Areas**

Most of the work pursuant to this RD will be confined to within the boundaries of the WBG AOC or to existing installation roads outside of the boundaries of the WBG AOC. Limited activities may occur within ODA2 and the C Block Igloos, which may be used for temporary storage. As such, this work will not impact any known environmentally sensitive areas.

### **6.4 Control Methods**

In general, erosion and sediment control will be accomplished by controlling runoff and then stabilizing soil. There are three basic methods that will be used to control soil movement at the site: runoff control, soil stabilization, and sediment control. Controlling erosion will be the first line of defense and will be implemented using runoff controls and soil stabilization. Sediment control may be necessary for larger

disturbed areas at the WBG where it is harder or impractical to control erosion or where sediment particles are relatively large.

#### **6.4.1 Runoff Control**

Runoff controls will be used to prevent storm water or other overland flow sources at disturbed areas from entering or leaving a work area and to control the occurrence of gully, channel, and stream erosion. To mitigate runoff, at each work location the Contractor will identify potential overland drainage routes. Runoff controls will primarily consist of diversion structures and interception to enclose disturbed drainage areas. Secondary controls may include conveyance to existing waterways and construction of stabilized outlets. The implementation of these methods will depend on the location of the work and the potential for the release of contaminants. The Contractor will select appropriate runoff control measures based on their construction sequence. The selected runoff control measures must be included on the detailed plan drawing that the Contractor will prepare showing erosion and sediment controls.

Runoff that occurs in work areas will be collected by diversion structures that are directed to enclosed drainage systems and pumped into 55-gallon drums or temporary storage tanks. The collected runoff will be analyzed for disposal options. If analytical results are acceptable, the Contractor will discharge the collected runoff to the ground surface following approval by Ohio EPA, USACE, and OHARNG in accordance with local, state, and federal regulations and RVAAP-specific discharge parameters.

Diversion structures consisting of temporary earthen dikes and/or drainage swales will be formed upgradient of construction areas where the volume of overland flow is such that it is necessary to divert flow around excavation areas. As a general BMP, earthwork and other construction operations will be conducted in a manner to prevent muddy water, eroded materials, and other undesirable constituents of project construction waters from being discharged through storm water runoff.

#### **6.4.2 Soil Stabilization**

Soil stabilization will be performed at disturbed areas to prevent or minimize erosion of soils caused by rain, sheet flow, and rills. Soil stabilization methods will primarily consist of vegetative soil cover, non-vegetative cover, and structural cover. The preferred method of soil stabilization is the placement of vegetative cover; however, non-vegetative and/or structural erosion control practices may be necessary when disturbed areas cannot be promptly stabilized with vegetation.

Vegetative soil cover will include the placement of temporary or permanent seed or the protection of existing vegetation from construction activities. The type of seeding required for the various areas will be coordinated with the OHARNG Restoration Representative and ARNG Project Manager. For non-vegetative cover, the Contractor will place mulch in unprotected areas. Structural soil stabilization options will include land grading to provide erosion and runoff control.

Disturbed portions of each work area, where the remediation activities have temporarily ceased, will be stabilized with temporary seed or mulch no later than 14 days after the last construction activity in the area, unless activities are to recommence within 21 days. Permanent stabilization will be conducted at all remaining disturbed areas within 14 days of cessation of construction activities. All permanent vegetative cover will be placed with consideration of establishment requirements, adaptability to site conditions, aesthetics, natural resource values, maintenance requirements, and in accordance with the Camp Ravenna Restoration Project Manager.



### **6.4.3 Sediment Control**

Sediment control, consisting primarily of sediment barriers, will be implemented to protect areas down-gradient of construction areas and off-site locations. The purpose of sediment control is to retain sediments, which are generated as a result of soil erosion, on site. The typical types of sediment barriers will be silt fence and straw bale barriers for upland areas and sediment traps for small storm water conveyances.

To the greatest extent practicable, all soil-disturbing activities at WBG will be minimized and will proceed in a manner to prevent erosion and control sedimentation. All earthwork, grading, movement of equipment, and other operations likely to cause siltation and tracking of sediments will be planned and performed in a sequence as to avoid or reduce pollution in adjacent waters. Clearing and grubbing activities will be performed in a way that minimizes erosion and controls sedimentation.

To protect nearby waterways, silt fencing and/or straw bale barriers will be installed along the down-gradient perimeter at all work areas. Where appropriate, straw bale barriers or rock check dams will be used as sediment traps in small storm water conveyances. When used, silt fences will be constructed using filter fabric that will be staked to provide a barrier to silts, fines, and debris, yet provides passage of runoff. Selection and type of grade of fabric will be made to allow adequate passage of water. Filter fabric must be installed at least 6 inches deep at the bottom of the fence to ensure water cannot flow under the barrier. Stakes used to construct silt fences will be of wood with squared, butt ends and tapered driving points. Filter fabric will be stapled or tied with jute twine to stakes. Straw bale barriers, if used, will be keyed in at least six inches below grade to ensure water cannot flow under the barrier. All sediment barriers will be removed after their function has been fulfilled and the area will be stabilized.

### **6.5 Operation and Maintenance of Control Methods**

Erosion prevention and sediment control measures will be monitored on a daily basis during all phases of construction to prevent soil migration. Corrective action will be taken if the operability of a control device is in question.

Daily inspections will be performed in active work areas to ensure proper performance of run-on and runoff controls. A minimum of weekly and as-needed inspections will be made of inactive, non-vegetated, disturbed areas to ensure that the berms and sediment fences are functioning properly. Inspections will be made after each rainfall of 0.5 inches or more within 24 hours and on a daily basis during extensive periods of rainfall.

Corrective measures will be required if inspections reveal excessive silt accumulation in storm water conveyances or along silt fences. Silt accumulation in erosion and sediment control structures will be removed. Silt fences will be inspected, and any damaged silt fence will be repaired or replaced.

Sediment that is collected in the systems and removed will be transported to soil stockpile areas and disposed of as necessary. Paved streets along the WBG haul route will be maintained, as needed, by removing any mud, dirt, rock, or other materials originating from the work areas.

### **6.6 Erosion and Sediment Control Management**

The Contractor will manage onsite erosion and sediment control activities in an effort to reduce the need for maintenance of structural controls, regrading of severely eroded areas, and reconstruction of failed controls. In conjunction with the implementation of the aforementioned erosion prevention and sediment control methods, the Contractor's management activities will include, at a minimum, the following:

- Physically mark the limits of land disturbance at the site with tape, signs, or orange construction fence so that workers can see areas to be protected.
- Divert offsite runoff from highly erodible soils and steep slopes to stable areas.
- Clear only what is required for immediate construction activity.
- Initiate stabilization measures no later than 14 days after construction activity in a particular area has temporarily or permanently ceased, unless activity will resume less than 21 days after activity has ceased.
- Provide and maintain stabilized entrances for construction vehicles to reduce dust emissions and soil and sediment tracking.
- Plant permanent seeding at optimal times of year (March through May and September through October). Type of seeding and seeding requirements will be coordinated with the Camp Ravenna Restoration Project Manager.
- Remove temporary sediment trapping devices only after permanent stabilization has been established on all contributory drainage areas.
- Make sure that all contractors and subcontractors understand these erosion and sediment control requirements.
- Designate responsibility of the erosion and sediment control requirements to one individual (to be named prior to onsite mobilization).
- Establish and maintain an erosion and sediment control inspection schedule that documents the completion of identified repairs and maintenance items.

### **6.7 Preventative Maintenance and Good Housekeeping**

Preventative maintenance will be performed on equipment to ensure proper operation and to detect potential leaks before they occur. Good housekeeping practices will be maintained at all times during construction activities. All employees will practice due diligence to prevent any damage to the storm water control measures. Containers will be provided at all necessary locations for collecting trash and general construction debris. Fueling activities will be conducted at the staging area away from storm water conveyances.

- Good housekeeping practices are designed to maintain a clean and orderly work environment. Good housekeeping measures will include a minimum of:
- Disposing of and picking up garbage and waste material regularly;
- Inspecting equipment daily and performing material inspections for leaks and/or conditions that could potentially lead to a discharge of a petroleum product, chemical or waste;
- Performing preventative maintenance on equipment to ensure it operates properly and to help detect potential leaks before they occur; and

- Ensuring that spill cleanup procedures outlined in the FWSHP are understood by employees, contractors, and/or subcontractors, and established storage areas are away from streams and water bodies. The storage area will also be away from direct traffic routes to prevent accidental spills.

## **6.8 Dust Management**

Dust management is addressed in Section 4.2.13 of this RD.

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## **7.0 ENVIRONMENTAL PROTECTION**

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The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract will be protected during the entire period of this remedial action. The Contractor will confine its activities to areas defined by this RD. Environmental protection will be as stated in the following subsections.

The Contractor will be directly responsible for the implementation of this plan. Inspections will be made to assure that field personnel comply with this plan. Following are several specific areas of concern that fall under environmental protection.

### **7.1 Preservation and Recovery of Historical, Archaeological, and Cultural Resources**

There are no known existing historical, archaeological, or cultural resources within the Contractor's work area. If, during soil excavation or stockpile removal activities, the Contractor observes unusual items that might have historical, archaeological, or cultural value, such items will be protected in place and reported immediately to the OHARNG Restoration Representative and OHARNG Cultural Resources Manager. The Contractor also will follow the Camp Ravenna procedure for inadvertent cultural discoveries.

### **7.2 Protection of Natural Resources**

Before beginning any soil excavation or stockpile removal activities, the Contractor will identify all land resources to be preserved within the work area. The Contractor will not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and landforms without permission from the OHARNG Restoration Representative and ARNG Project Manager.

#### **7.2.1 Work Area Limits**

Before beginning any excavation activities, the Contractor will indicate areas where no work is to be performed under this remedial action. Any monuments and markers will be protected before site operations commence. The Contractor will convey to its personnel and all subcontractors the purpose of marking and protection of all necessary objects.

#### **7.2.2 Protection of Landscape**

Trees, shrubs, vines, grasses, landforms, and other landscape features to be preserved will be clearly identified. Except in work areas, trees or shrubs will not be removed, cut, defaced, injured, or destroyed without the permission of the OHARNG Restoration Representative and ARNG Project Manager. Any areas accessed for the purpose of transporting or transferring materials will be protected.

### **7.3 Protection of Air Resources**

The Contractor will keep soil excavation and stockpile removal activities under surveillance, management, and control to minimize pollution of air resources. All activities, equipment processes, and work operated or performed by the Contractor will be in strict accordance with all federal emission and performance laws and standards. Ambient Air Quality Standards set by the United States Environmental Protection Agency (USEPA) will be maintained for all site operations specified in this RD. Special management techniques, as set out below, will be implemented to control air pollution caused by construction activities, conducted under this RD.

### **7.3.1 Particulate Control**

Dust particles and particulates from stockpile removal activities will be controlled by wetting the stockpile with clean potable water, as needed, during the removal effort and replacing the liner cover at the end of each day until the stockpile is completely removed. Water will only be applied, as needed, without producing runoff or ponded water.

### **7.3.2 Odors, Hydrocarbons, Carbon Monoxide, and Oxides of Nitrogen and Sulfur**

Hydrocarbons, carbon monoxide, oxides of nitrogen, and sulfur emissions are associated with heavy equipment to be used at the site. These emissions will be controlled through proper vehicle maintenance, use of emissions reduction devices and other measures in accordance with federal, state, and local rules, laws and regulations.

### **7.3.3 Monitoring of Air Quality**

Monitoring of air quality for soil excavation and stockpile removal activities will be the responsibility of the Contractor in accordance with 29 CFR 1910 as detailed in the Site-specific Health and Safety Plan to be prepared for this project.

### **7.4 Protection from Sound Intrusions**

The Contractor will keep soil excavation and stockpile removal activities under surveillance and control to minimize damage to the environment by noise.

### **7.5 Storm Water Pollution Prevention**

Storm water pollution prevention is discussed in Section 6.0 of this RD.

## **8.0 CONSTRUCTION QUALITY CONTROL**

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The Contractor will prepare a project-specific Construction Quality Control Plan (CQCP) which will describe the specific QC processes and procedures to be implemented for this work. The CQCP will describe how construction QC will be implemented for all activities described in this plan. The CQCP will describe how the construction QC program inspection and testing processes will monitor the overall quality of work, and how project controls will be instituted to assure correction of deficiencies identified during the inspections and testing. Project scheduling will be developed to assure proper sequence and performance of work activities.

The Contractor CQCP shall address any monitoring, surveillance, and inspection activities described in Section 6, Storm Water Pollution Prevention, and Section 7, Environmental Protection, of this RD. The CQA shall describe the activity, the documentation of the activity, the responsible party, the frequency of the activity, the criteria being checked, the criteria that will trigger corrective action, and the process for implementing corrective action.

The CQCP will be provided for approval by the Army before any construction activities commence. Changes to the CQCP must be approved by the Army prior to implementation, and USACE will require the Contractor to obtain contractual approval from USACE before implementing any changes to the CQCP.

## 9.0 REFERENCES

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- MKM, 2005a. Work Plan for Phase II MEC Clearance and Munitions Response at Winklepeck Burning Grounds. Final. March.
- MKM, 2005b. MEC Clearance and Munitions Response for Winklepeck Burning Grounds at the RVAAP. Addendum. March.
- MKM, 2005c. Report for the Phase II MEC Clearance and Munitions Response at Winklepeck Burning Grounds at the Ravenna Army Ammunition Plant. Final. December.
- MKM, 2008a. Munitions and Explosives of Concern Survey and Munitions Response at Winklepeck Burning Grounds, Ravenna Army Ammunition Plant, Ravenna, Ohio. Revision 3, Amendment 2. Draft Final. April.
- MKM, 2008b. Final Remedial Action Work Plan, Winklepeck Burning Grounds, Ravenna Army Ammunition Plant, Ravenna, Ohio, Amendment 1.
- MKM, 2009. Final Remedial Action Completion Report for RVAAP-05 Winklepeck Burning Grounds Pads 61/61A, 67, and 70. November.
- ODNR, 2006. Rainwater and Land Development, Ohio's Standards for Stormwater Management, Land Development, and Urban Stream Protection. 2006.
- OHARNG, 2014. Camp Ravenna Joint Military Training Center, Integrated Contingency Plan. January.
- Ohio EPA, 2004. Director's Final Findings and Orders. Ravenna Army Ammunition Plant. June.
- SAIC, 2001b. Facility Wide Safety and Health Plan for Environmental Investigations at the Ravenna Army Ammunition Plant. Final. March.
- SAIC, 2001c. Facility Wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant. Final. March.
- SAIC, 2008. Final Record of Decision for Soil and Dry Sediment at the Winklepeck Burning Grounds. October.
- Shaw, 2011. Final Data Quality Objectives Report for RVAAP-05 Winklepeck Burning Grounds. June.
- USACE 2011a. Final Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio. February 2011.
- USACE 2011b. Facility-Wide Quality Assurance Project Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio. February 2011.
- USACE 2011c. Final Facility-Wide Safety and Health Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio. February 2011.
- USACE, 2012a. Final Work Plan for Additional Evaluation of the RVAAP-05 Winklepeck Burning Grounds, RVAAP/Camp Ravenna.

USACE, 2012b. Final Property Management Plan for the Designated Areas of Concern and Munitions Response Sites Volume One – Version 1, Ravenna Army Ammunition Plant, Ravenna, Ohio. August.

USACE, 2014a. Draft 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. Revision 0. August.

USACE, 2014b. Final Remedial Investigation/Feasibility Study Supplement for RVAAP-05 Winklepeck Burning Grounds, Former RVAAP/Camp Ravenna, Portage and Trumbull Counties, Ohio. Revision 0. September.



## **APPENDIX A: SAMPLE CONSTRUCTION QUALITY CONTROL PLAN (CQCP)**

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This appendix presents a sample CQCP, showing an example of the typical contents and format. The Contractor will develop their own site-specific and company-specific CQCP. The Contractor's site-specific CQCP must be approved by the Army before work on this RA commences.

The CQCP describes the inspection procedures and documentation required to ensure excavation and restoration activities occur according to the requirements of the RD. Protocols for reporting test results, certifying compliance with construction requirements, correcting construction deficiencies, and documenting such corrections are provided. The CQCP also addresses the review and documentation requirements necessary to comply with the site restoration details contained herein.

### **A.1 RESPONSIBILITY AND AUTHORITY**

#### **A.1.1 Responsibility**

The organizational chart presented in Figure A-1 outlines the management structure that will be used to implement remedial activities in accordance with this RD. The functional responsibilities of key personnel were described in Section 3.1. The assignment of personnel to each position was based on the following:

- Qualifications;
- Experience; and
- Training.

The Contractor QA/QC Officer and Contractor Field Superintendent, in coordination with the USACE COR, will ensure the completed remedial activities conform to the RD and any necessary permit conditions. The Contractor Project Manager will verify completion of these activities.

The Contractor Field Superintendent will oversee remediation and site restoration activities. The Contractor Construction Manager or designee will be on site during work activities to ensure that all components of this RD are fulfilled.

#### **A.1.2 Administration and Operation**

The QA/QC organization is administered by the Contractor QA/QC Officer in concert with the Contractor Field Superintendent. The Filed Superintendent will be supported by technical staff (engineers, scientists, and technicians) and Subcontractor Construction Manager(s), as necessary.

All vendors supplying materials used for site restoration and storm water control will supply materials from manufacturing facilities with established QC programs.

Results of the manufacturer QC procedures will be submitted to the QA/QC Officer for review, evaluation, and documentation prior to beginning field activities.

### **A.2 PERSONNEL QUALIFICATIONS**

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All QA/QC personnel will be properly trained for their job function. The Contractor Field Superintendent is key to the inspection and certification program. The Contractor Field Superintendent will have demonstrated knowledge of specific construction practices relating to earthwork, regulations, observation and testing procedures, and documentation procedures. The Contractor Field Superintendent will also be experienced in performing similar duties on previous jobs in which comparable construction activities took place.

### A.3 ACCESS PROTOCOL

#### A.3.1 Facility Access Protocol

Facility access requests will be made through Vista Sciences Corporation. Vista Sciences Corporation will coordinate facility access approval through OHARNG. All personnel approved to enter Camp Ravenna must provide government-issued identification (e.g., driver's license, passport) at the entrance. Upon entry and exit to Camp Ravenna, each person is required to sign a roster annotating the time of day and the area where they are working or visiting.

All personnel and vehicles must enter Camp Ravenna through the Camp Ravenna Main Gate (8451 State Route 5, Ravenna, OH 44266) and are subject to search and inspection. Weapons, lighters (or similar fire starters), and alcoholic beverages are prohibited within Camp Ravenna; prohibited items may be placed with security personnel while onsite. Security personnel will confiscate prohibited items discovered during inspections.

#### A.3.2 Construction Area Access Protocol

All supervisors, workers, and site visitors entering the construction area must provide training records specified in the SSHP prior to entering the construction area and/or exclusion zones. Site visitors arriving throughout the day must: 1) undergo a briefing by the Contractor Field Superintendent or SSHO; and 2) provide necessary training records and documentation prior to approaching or entering the exclusion zone. All site visitors must be approved by the Contractor Field Superintendent and SSHO to enter the construction area and/or exclusion zones.

#### A.3.3 Traffic Rules and Protocol

The Contractor and all subcontractors will comply with all Ohio and Camp Ravenna traffic rules. Speed limits will be maintained as posted around the main entrance area of the facility. The Subcontractor will not exceed the posted speed limits of 35 miles per hour (mph) during daylight hours and 25 mph at night while on all other Camp Ravenna main roads. A speed limit of 10 mph around the project area will be maintained. At no time will the Camp Ravenna main roads be blocked by the Subcontractor during remediation activities. Traffic flow must be maintained on at least half of the roadway width at all times. Prior to starting any activity that will obstruct traffic flow, approval will be obtained from the OHARNG Restoration Representative, Range Control, and the Contractor Field Superintendent.

### A.4 DAILY PLANNING BRIEFINGS

At the start of the project, the Contractor and subcontractor field crews will participate in a pre-work briefing on objectives, health and safety, proposed deviations, and project schedule with the Contractor Field Superintendent.

In addition to daily tailgate briefings conducted in accordance with the SSHP, the Contractor and subcontractor field crews will participate in daily planning briefings to determine the plan of action for the work day. This briefing will include, at a minimum, the following:

- A discussion of the planned activities for the work day;
- Planned area of earthwork or excavation;
- MEC awareness;
- Weather considerations;
- Deliveries;
- Transportation schedule;
- Scheduled forecast; and
- Issues which would result in an impact to the project.

#### A.5 INSPECTION ACTIVITIES

Inspections will be completed to verify acceptability of materials, prevent spills, and assess effectiveness of storm water and dust generation controls. The scope and frequency of each type of inspection is described below.

##### A.5.1 Spill Control

The Contractor Field Superintendent will conduct daily inspections to verify spill equipment is maintained and no spills have occurred. During execution of the RA, if any visual or olfactory indicators suggest the presence of potentially contaminated soil, the employee will report to the Contractor Field Superintendent. The Contractor will provide all necessary on-site spill equipment (e.g., granulated clay, absorbent blankets, PPE, shovels, containers). All on-site workers will maintain good housekeeping practices (as discussed in Section 6.7 of the RD).

##### A.5.2 Dust Control

Dust generation activities may occur during remedial activities, material handling, and equipment movement on paved and unpaved roads. The Contractor will minimize dust generation by keeping vehicles on improved roads, limiting speeds to a 10 mph maximum on the access roads, and applying water for dust suppression purposes as required. Water used for dust control will be clean (e.g., obtained from sources with approval of the Contractor Field Superintendent or potable water obtained from an off-site source). The use of additives will not be permitted. Engineering controls will be implemented to minimize the potential for dust generation. The SSHO will conduct daily inspections during representatively normal operating conditions.

##### A.5.3 Storm Water Pollution Prevention and Environmental Protection

The Contractor CQCP shall address any monitoring, surveillance, and inspection activities described in Sections 6 and 7 of the RD. The CQA shall describe the activity, the documentation of the activity, the

responsible party, the frequency of the activity, the criteria being checked, the criteria that will trigger corrective action, and the process for implementing corrective action.

## A.6 SPILL RESPONSE

Spills will be responded to as presented in the FWSHP and Camp Ravenna Integrated Contingency Plan (Spill Plan). In the event of a spill or leak, the employee making the discovery will immediately notify the SSHO and the Contractor Field Superintendent. These spills can include, but are not limited to, releases of fuels, lubricants, and hydraulic fluids.

The Contractor Field Superintendent will ensure the spill is reported to Camp Ravenna Range Control and documented on a Camp Ravenna First Responder Reporting Form (Attachment 1). OHARNG will be responsible to contact the Ohio EPA if the spill exceeds the reportable quantity or if it reaches a surface water body.

## A.7 DOCUMENTATION

### A.7.1 Field Documentation

This project will include daily inspection and quality summary reports, which will be signed and dated by the Contractor Field Superintendent. These reports will be submitted to the Contractor Project Manager.

The daily reports may include:

- Summary of activities performed at the project site;
- Weather information;
- Inspection activities (e.g., storm water controls, spill-control barriers, equipment staging/fueling areas);
- Departures from the approved RD;
- Problems encountered during field activities;
- Subcontractor submittals; and/or
- Subcontractor certifications (e.g., health and safety records).

Attachment 1 provides spill/release response actions.

### A.7.2 Remedial Action Completion Report

Upon completion of remedial activities, a Remedial Action Completion Report will be prepared by the Contractor. The Remedial Action completion Report will document:

- The project was performed in accordance with this RD (i.e., complied with requirements, technical specifications, and other relevant contract documents) and all applicable regulations, including surface water and air regulations;

- Documentation of any approved field variances from this RD (e.g., unforeseen site condition, change in material); and
- Corrective actions and achievement of remedial goals.

ATTACHMENT 1

SPILL/RELEASE RESPONSE ACTIONS (Current version)

## FIRST RESPONDER SPILL/RELEASE RESPONSE ACTIONS

Units or contractors performing training or other operations at Camp Ravenna shall be responsible for adhering to the provisions identified in the Camp Ravenna Integrated Contingency Plans (ICP). A copy of the ICP may be obtained from the Camp Ravenna Environmental Supervisor. Following discovery of a spill (any size), the procedures outlined below shall be executed where applicable:

1. **If necessary, initiate evacuation of the immediate area.**
  2. **Notify Camp Ravenna Range Control via two-way radio or by calling (614) 336-6041, and report information contained on the “First Responder Reporting Form” if it is known or can reasonably be determined. This form has been copied on the opposite side of this page. If Range Control cannot be reached, contact a Camp Ravenna OSC (listed below).**
  3. **Stop spill flow when possible without undue risk of personal injury.**
  4. **If trained, contain the spill using available spill response equipment or techniques.**
  5. **Make spill scene OFF LIMITS to unauthorized personnel.**
  6. **Restrict all sources of ignition when flammable substances are involved.**
  7. **Report to the OSC upon his/her arrival to the scene.**
  8. **Turn in a completed copy of the Camp Ravenna First Responder Form to Camp Ravenna Range Control for ALL releases, even ones cleaned up by the reporter.**
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### TELEPHONE NUMBER

When Camp Ravenna Range Control is not available, the Camp Ravenna OSC must to be contacted by the discoverer/first responder following a release if it is in water, at or above a reportable quantity (25 gallons or more of POL), a hazardous or extremely hazardous substance, a hazardous waste, or involves fire, explosion, or is otherwise a major incident.

NAME	JOB TITLE	OFFICE	24 HOUR
Camp Ravenna Range Control	Operations and Training	(614)336-6041	(614) 202-5783
Tim Morgan (Primary OSC)	Environmental Supervisor	(614)336-6568	(330)322-7098
Katie Tait	Environmental Specialist	(614)336-6136	Contact Alternate
CPT Mike Yates	Range Operations	(614)336-6193	(330) 819-5038
MAJ Richard Saphore	Logistics Officer	(614)336-6790	(614) 593-1654
LTC Ed Meade	Garrison Commander	(614)336-6560	(614)307-0493
Joint Forces Command (Alternate POC)	OHARNG Emergency Center	(888)637-9053	(888)637-9053

Off-site (from Camp Ravenna area code 614 phones)

Windham Fire Department .....9-1-330-326-2222  
 Portage County Sheriff ..... 9-1-330-296-5100  
 Trumbull County Police, Fire Department and Hazmat..... 911

**SEE REVERSE FOR FIRST RESPONDER REPORTING FORM**

**FIRST RESPONDER REPORTING FORM**  
**(Print all information)**

*Collect as much of the information on the top half of this form as possible before making initial notification. Complete the top and bottom of the form before turning in to Camp Ravenna.*

Name of individual reporting spill: \_\_\_\_\_

When did the spill occur (Date and Time)? \_\_\_\_\_

Spill Location (Building or area name / number, indoors or out; if vehicle involved, type and bumper number):  
\_\_\_\_\_

What was spilled? \_\_\_\_\_ How much was spilled? \_\_\_\_\_

Rate at which material is currently spilling. \_\_\_\_\_

Extent of spill travel? \_\_\_\_\_

Did the spill reach water (ditch, creek, stream, pond, well head) \_\_\_\_\_

Number of injured personnel and type injuries, if applicable. \_\_\_\_\_

Do you need the Fire Department to respond to protect life, property, and environment? \_\_\_\_\_

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Unit: \_\_\_\_\_ State: \_\_\_\_\_ Report Date & Time: \_\_\_\_\_

On Scene Coordinator Name and Grade: \_\_\_\_\_ Phone: \_\_\_\_\_

How did the spill occur (be specific). \_\_\_\_\_

What remedial action was taken? \_\_\_\_\_

Was soil and absorbent material generated? \_\_\_\_\_ How much? \_\_\_\_\_

What is the location of the soil and absorbents? \_\_\_\_\_

Was the Environmental Office contacted (yes or No, date and time)? \_\_\_\_\_

Who did you talk to in the Environmental Office? \_\_\_\_\_

Was the site cleared by the Env. Office (Yes or No, date and time)? \_\_\_\_\_

Who cleared the site (name and grade, date and time)? \_\_\_\_\_

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***Initial information is critical. Get as much information as you can, but don't hesitate to make the initial notification if a spill is moving or worsening rapidly!***

***This form must be completed for all releases and turned-in to Camp Ravenna Range Control within 24 hours.***