Ohio Environmental Protection Agency (OEPA)

And

Ravenna Army Ammunition Plant (RVAAP)

2010 Correspondences

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487 0769
www.epa.state.oh..us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

January 15, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
RQL RD ESS

CERTIFIED MAIL
7009 1680 0000 6381 0827

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Explosives Safety Submission (ESS), Munitions and Explosives of Concern (MEC), Non-Time Critical Construction Support at the Ramsdell Quarry Landfill (RQL) of RVAAP-01." This document, dated November 30, 2009 and received at Ohio EPA on the same date, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by PIKA International Inc., under contract number W912QR-05-F-0033.

Although Ohio EPA does not have regulatory authority over ESSs, the enclosed comments are offered for your consideration.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

ETM/kss

enclosure

RECEIVED
21 Jan 2010

cc: Glen Beckham, UASCE Louisville
Katie Elgin, OHARNG
Brian Stockwell, PIKA
Kevin Jago, SAIC
Nat Peters, USACE Louisville
Mark Krivansky, AEC
Jed Thomas, SAIC

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Christy Esler, VISTA
Todd Fisher, Ohio EPA, NEDO, DERR
Sue Boles, PIKA

DOCUMENT: "Explosives Safety Submission (ESS), Munitions and Explosives of Concern (MEC) Non-Time Critical Construction Support at the Ramsdell Quarry Landfill (RQL) of RVAAP-01"
REVIEWER: Eileen T. Mohr, Ohio EPA, NEDO, DERR
DATE: January 15, 2010

CMT #	PAGE #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
1	General	The title is misleading in a couple of ways. First, it sounds like this is a non-time critical removal action vs. the remedial action for soil and dry sediments that is actually occurring at this AOC. Second, it sounds as if the response action is occurring in the landfill area, when it is actually occurring in the quarry bottom.	The title should be more representative of the action taking place.	
2	ii/6	Ohio EPA SWDO is listed.	Remove from the revised ESS.	
3	ii/20	Ohio EPA SWDO is listed.	Remove from the revised ESS.	
4	Table 1-1	The institutional controls section is misleading. It sounds as if the action that is occurring is taking place at the landfill itself, rather than in the quarry bottom. Additionally, it sounds as if the RQL is fenced, which it is not.	Revise to make it clear that: the action is taking place in the quarry bottom itself, and not at the landfill; and that the installation is fenced, not the RQL.	
5	3/29	The text in this section is contradictory, as early on, it is indicated that the area is closed to training; then on line 30, it indicates that after cleanup it will be licensed to the OHARNG for military training.	Revise the text on line 28-29 to read: "The future use of RQL is to transfer it to the National Guard Bureau (NGB) once remedial actions are completed."	
6	4/8-10	The sentence in this section is not needed, as the ESS clearly states in other sections that this is for the action at RQL.	Remove this section from the revised text.	

7	4/15-21	The text in this section lists previous investigations conducted at RQL. This list is incomplete and the documents listed do not follow any conventional form of citation.	Revise the list to be complete and follow conventional citation techniques.	
8	5/Table 1-2	The table lists the 2 rounds recovered: the 105 mm and the 155 mm.	Provide a footnote as to when recovered, by whom, and disposition. (Or provide a citation where this can be found.)	
9	7/Table 3-1	MOFB and OFB are undefined.	Provide a footnote for both MOFB and OFB.	
10	7/table 3-1	MOFB is not in the acronym list.	Add MOFB to the acronym list.	
11	8/Section 3.4	Nowhere in this section is the Ohio EPA MEC Notification procedure referenced. This procedure is applicable to materials taken to ODA2 or BIPed.	Add a reference to the revised text and add the document as an appendix; or document that the notification procedure appears in the workplan.	
12	11/8-10	The text references a check station and test plot that will be used for response checks.	I am unaware as to where this is located. The only GPO area that I am aware of is the one recently prepared by Shaw. Please clarify.	
13	12/Section 7.0	Nowhere in this section is the Ohio EPA MEC Notification procedure referenced. This procedure is applicable to materials taken to ODA2 or BIPed.	Add a reference to the revised text and add the document as an appendix; or document that the notification procedure appears in the workplan.	
14	13/25-26	Clarification requested.	Clarify where the MD will be stored and whether or not it will be removed under this contract.	
15	14/16	Spelling.	Change "material" to "materiel."	
16	15/Section 10	Clarification requested.	Why are LUCs discussed in the ESS? Better place is in the workplan. Recommend removal.	

17	15/Section 10	If the LUCs stay, I have the following questions that you will need to ask the prime. (Sorry I am not the primary EPA person on RQL.)	1. Are the LUCs already this specified for RQL? Most details should be in the PMP, which is still in draft format and does not contain language specific to RQL. 2. In line # 6....the text seems to imply that the landfill cap can be breached to a depth greater than 1 foot. Revise the text to make it clear that the cap cannot be breached at all.	
18	15/11-13	LTM will be required at RQL, if nothing else with respect to the landfill cap.	The text needs to be changed to accurately reflect what will be done at RQL. Or, remove it from the ESS, as it is unclear as to why it is in here.	
19	15/16-17	Text clarification requested.	Revise the text to reflect that the installation is fenced, not specifically RQL.	
20	App A/fig 5	Typo.	In the 220 ft MSD, change Sanbag to Sandbag.	

Ohio Environmental Protection Agency

[illegible], Governor
[illegible], Lt. Governor
[illegible], Director

August 9, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL RQL ESS FOR MEC SUPPORT

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2247

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Final Explosives Safety Submission (ESS), Munitions and Explosives of Concern (MEC), for Non-Time Critical Construction Support at the RVAAP-01 Ramsdell Quarry Landfill. This document, dated May 17, 2010 and received at Ohio EPA on June 22, 2010, was prepared for the U.S. Army Corps of Engineers (USACE), Engineering and Support Center, Huntington, Alabama by PIKA International, Inc. This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). Ohio EPA is providing the following comment based on its review:

Table 3-1: Minimum Separation Distances – The wrong acronym is being used under the column heading "MFD without Engineering Controls." Please change "MFD" to "MSD."

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

FOR

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
Todd.Fisher@epa.state.oh.us

RECEIVED
16 Aug 2010

TRF/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Brian Stockwell, PIKA
Glen Beckham, USACE, Louisville
Thomas Chanda, USACE, Louisville
Kevin Jago, SAIC, Oakridge
MAJ Ed Meade, Camp Ravenna
Katie Elgin, Camp Ravenna
Mark Krivansky, AEC
Mark Nichter, USACE, Louisville
Jed Thomas, SAIC, Twinsburg

ec: Mike Eberle, Ohio EPA, NEDO, DERR

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

January 22, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
RRA ESS

CERTIFIED MAIL
7009 1680 0000 6381 0773

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Explosives Safety Submission (ESS), Munitions and Explosives of Concern (MEC), Non-Time Critical Interim Removal Action(IRA) at the Rocket Ridge Area (RRA) of RVAAP-004-R-012 Open Demolition Area # 2 MRS." This document, dated January 12, 1010 and received at Ohio EPA on the same date, was prepared for the U.S. Army Corps of Engineers (USACE) Huntsville District by PIKA International Inc., under contract number W912QR-09-P-0213.

Although Ohio EPA does not have regulatory authority over ESSs, the enclosed comments are offered for your consideration.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

FOR

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

ETM/kss

enclosure

cc: Glen Beckham, USACE Louisville
Derek Kinder, USACE Louisville
Nick Stolte, USACE Louisville
Mark Krivansky, AEC
Nat Peters, USACE Louisville
Jay Trumble, USACE Louisville
Katie Elgin, OHARNG
Brian Stockwell, PIKA

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Christy Esler, VISTA
Sue Boles, PIKA

RECEIVED

DOCUMENT: "Explosives Safety Submission (ESS), Munitions and Explosives of Concern (MEC) Non-Time Critical Removal Action at the Rocket Ridge Area (RRA) of RVAAP-004-R-01 Open Demolition Area #2 MRS"
REVIEWER: Eileen T. Mohr, Ohio EPA, NEDO, DERR
DATE: January 22, 2010

CMT #	PAGE #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
1	GENERAL	At (an) appropriate point(s) in the text, make sure that Ohio EPA's MEC Notification procedure is referenced. Also add this as an appendix.	The MEC notification is applicable to the use of ODA2 and BIP. Please highlight the need to follow the procedure.	
2	ii/10	Ohio EPA SWDO is listed.	Remove from the revised ESS.	
3	iii/1	Ohio EPA DERR acronym should be changed to Ohio EPA NEDO DERR. This stands for Ohio EPA Northeast District Office Division of Emergency and Remedial Response.	Make change.	
4	iii/2	Ohio EPA SWDO is listed.	Remove from the revised ESS.	
5	vii/6	Acronym change.	Change to either BGS or bgs.	
6	vii-ix	Make sure all acronyms are listed. For example, MDAS is not in here.	Make needed changes.	
7	1/14-19	The text, as written, is confusing. It is unclear as to what is being discussed, Rocket Ridge, ODA2 or the installation as a whole. It is my understanding that the currently scoped project at RR is to remove all MEC/MD and MC.	Please clarify the text in the revised document.	
8	2/1-7	Clarification requested.	Why the changeover to the general terrain and vegetation description from the site-specific information that was in previous documents?	
9	2/5-7	The current sentence does not make sense. Perhaps a word or 2 are missing.	Please clarify in the revised text.	

10	2/11-13	The sentence in these lines is confusing. The first part talks about the fact that the steepness of the terrain could cause issues, and then the second part of the sentence indicates that an evaluation will be done, but it doesn't indicate that any action may be taken as a result of the evaluation... which would be the natural outcome if the terrain is indeed causing issues.	Conducting a slope stability (etc.) evaluation is prudent, but the sentence should indicate that any follow-on actions that would become apparent during the evaluation will be implemented.	
11	2/18-23	Clarification requested.	Why the changeover to the general soil condition descriptions from the site-specific information that was in previous documents?	
12	2/27	Text change requested.	Revise to read: "It is speculated that these munitions...." (point: do we have evidence that all the materials came from ODA2?	
13	3/6-7	Change the end parentheses.	Believe the end part of the parentheses should be after "fired" on line 6 and removed from after "projectile" on line 7.	
14	3/11-13	Clarification requested.	At this point in time, I think we are jumping the gun on the future use of the ODA2 area. Would recommend removing the future use statement.	
15	4/12-14	The RAR has gone final.	Please update draft to final and insert correct publication date.	
16	4/28-30	The RAR has gone final.	Please update draft to final and insert correct publication date.	
17	6/table 3-1	Change requested.	Any acronyms used on the table that have not been identified up to this point in time need to be added as a footnote.	
18	9/17	Definition requested.	Please define "low input."	
19	9/24	The text indicates that the anticipated start date is April 26, 2010.	Is that realistic, considering that the draft workplans have not yet been received?	

20	10/10	Text revision requested.	Revise sentence to read: "....results of the waste characterization sampling and analysis and upon approval from Ohio EPA, USACE and the RVAAP FM."	
21	11/19	The text indicates that the borings will be advanced to approximately 20-25 ft bgs. What is the basis for this depth? How will the termination point be determined in the field and by whom?	Please clarify.	
22	11/5-25	Clarification requested.	Are all the pertinent details like sampling methodologies, IDW disposition, etc., in the workplan? If so, it is okay that this section doesn't contain much detail, but cross reference the workplan. Also... the text on line 23 references groundwater. What is PIKA's plan of action if groundwater is encountered?	
23	11/27	The text references "clean bench soils." I don't believe that we have any data from this area, so we cannot declare them as being clean.	Make the revised text less definitive in terms of whether or not the soils are clean.	
24	11-12/26-8	Text addition requested.	At some point in this section, reference E+S controls. Or indicate that they are discussed in the wp.	
25	12/10-21	Text addition requested.	Either add additional details regarding how Sand Creek will be diverted and where the temporary right of way will be constructed or insert language in the revised text t that these details are in the wp.	
26	13/15	The text indicates that the driver will "ingress" the truck.	Please change.	

27	13/12-26	The section doesn't state what will happen with all of the excavated materials in terms of storage, E+S controls, covers, etc.	Either add details in here, or indicate that the details are in the workplan.	
28	13/25-26	Clarification requested.	The text indicates that the described process will continue until all excavation is complete before processing soils. Please clarify in the revised text that this excludes the wp contaminated materials.	
29	14/20	The text references a temporary authorized open storage area at the WSA.	At this point in time, there isn't an authorized area. It has been discussed, but not firmly agreed upon.	
30	14/21	The text in this section references the disposal of the WP contaminated material under a separate contract.	RCRA regulations need to be followed. It is our expectation that this contract will be negotiated ASAP, so that all wastes are disposed of within the 90 day rule.	
31	14/26	Text change requested.	Change to read: "... local rules, laws, and regulations."	
32	15/13	Text change requested.	Change "curtailed" to "tailored" (or another similar word.	
33	16/18-19	The section doesn't state what will happen with all of the excavated materials in terms of storage, E+S controls, covers, etc.	Either add details in here, or indicate that the details are in the workplan.	
34	17/26-27	Addition requested.	Define MDAS the first time used.	
35	18/20	Text change requested.	Change material to materiel.	
36	19/5-10	Clarification requested.	At this point in time, I think we are jumping the gun on the future use of the ODA2 area. Would recommend removing the future use/LUC statement. Also, ODA2 is currently under Army ownership.	

37	19/11-13	The text indicates that there will be no LTM required after the IRA. This cannot definitively be stated, as there may need to be some inspections, slope maintenance, repair issues, etc.	Revise text.	
38	19/16-17	The text indicates that the property addressed in this ESS (RRA) is in a controlled fenced area. This is not exactly accurate.	Revise the text to clearly state that there is a perimeter installation fence. ODA2 has a fence across the main access road, but is not fenced. RR is not fenced.	
40	19/20	Clarification requested.	It is not clear as to the purpose of the contingency section.	
41	App A/Fig 5	FYI.	Cross reference previous comment re: "clean" soil staging area.	
42	App	Addition requested.	Add MEC Notification procedure as an appendix to this document.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

February 04, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
RRA PHASE II DRAFT PIP

CERTIFIED MAIL
7009 1680 0000 6381 0698

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Draft Public Involvement Plan Addendum for the Phase II Time Critical Removal Action at the Rocket Ridge Area." This document, dated January 29, 2010 and received on the same date, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District by PIKA International, under contract number W912QR-09-P-0213.

Enclosed, please find Ohio EPA's comments on the above-referenced document.

If you have any questions, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

ETM/kss

enclosure

cc: Glen Beckham, USACE Louisville
Nat Peters, USACE Louisville
Nick Stolte, USACE Louisville
Mark Krivansky, AEC
Katie Elgin, AEC
Kate Anthony, PIKA
Brian Stockwell, PIKA

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Sue Boles, PIKA
Christy Esler, RVAAP

DOCUMENT: **"Draft Public Involvement Plan Addendum for the Phase II Time Critical Removal Action at the Rocket Ridge Area"**

REVIEWER: **Eileen T. Mohr, Ohio EPA, NEDO, DERR**

DATE: **February 4, 2010**

Cmt #	Page#/ Line #	Comment	Recommendation	Response
1	5/4-6	The text indicates that it appears that the munitions were transported from the ODA2 area to the RRA and dumped at the top of the slope. My question is – do we have any historical documentation that the materials in the RRA are from the ODA2 area? There may have been dumping of materials here from other AOCs. In addition, because we have documented instances of live rounds in the RRA, it is clear that not all materials went through a demo process before being dumped here.	Revise the text accordingly; i.e., that the munitions were not just necessarily transported from ODA2 treatment area.	
2	7/22-23	The text indicates that the subsequent disposal of excavated materials will take place under a separate contract.	This issue will be commented upon at length on the workplan. Suffice it to say that Ohio EPA's position is that the disposal contracts should be in place prior to the contractor starting excavation activities.	
3	App E	JJ Leet is listed as the Freedom Township member on the RAB.	Mr. Leet is no longer the Freedom Twp RAB representative. Please contact Freedom Twp to see who is taking his place.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487 0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

February 12, 2010

RE: ***RAVENNA ARMY AMMUNITION PLANT***
PORTAGE/TRUMBULL COUNTIES
RRA PHASE II DRAFT PMP

CERTIFIED MAIL

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
Building 1037
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Draft Project Management Plan Addendum for the Phase II Time Critical Removal Action (TCRA) at the Rocket Ridge Area (RRA) Within RVAAP-004-R-01, Open Demolition Area #2 MRS." This document, dated January 29, 2010 and received on the same date, was prepared for the US Army Corps of Engineers (USACE) - Louisville District by PIKA International under contract number W912QR-09-P-0213.

Attached please find Ohio EPA's comments on the above referenced document.

If you have any questions, please do not hesitate to contact me at 330-963-1221.

Sincerely,

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

EIT:dms

cc: Glen Beckham, USACE Louisville
Nat Peters, USACE Louisville
Nick Stolte, USACE Louisville
Mark Krivansky, AEC
Katie Elgin, AEC
Kate Anthony, PIKA
Brian Stockwell, PIKA

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Sue Boles, PIKA
Christy Esler, RVAAP

RECEIVED 16 Feb 2010

DOCUMENT: **"Draft Project Management Plan for the Phase II Time Critical Removal Action (TCRA) at the Rocket Ridge Area (RRA) Within RVAAP-004-R-01, Open Demolition Area #2 MRS."**

REVIEWER: **Eileen T. Mohr, Ohio EPA NEDO DERR**

DATE: **February 11, 2010**

Cmt #	Page#/ Line #	Comment	Recommendation	Response
1	General	Although the Ohio EPA MEC Notification procedure appears in the references section, there is no discussion of the procedure in the text.	Please add text to an appropriate section of the revision that references the requirement to utilize the Ohio EPA MEC Notification procedure.	
2	General	The text in various sections indicates that the subsequent disposal of excavated materials will take place under a separate contract.	This issue will be commented upon at length on the workplan. Suffice it to say that the Ohio EPA position is that the disposal contracts should be in place prior to the contractor starting excavation activities. In the event that the CE does not apply and RCRA rules must be followed, storage times could become an issue.	
3	2/8-10	Clarification requested.	The text in this section indicates that residual munitions constituents will be addressed as part of the PBA 09 MMRP program. This is counter to what was stated by the Army BEC during the 02/11/10 meeting, i.e. that hopefully no additional action would be required after this removal is completed. Is there any contingency in place to remove residual soils that may be <10% explosives, but > CUGs?	
4	5/15-17	The text in this section indicates that it appears that munitions were transported from the demolition site to the RRA and dumped at the top of the slope.	1. is there historical evidence that indicates that all the munitions came from the ODA2 site? 2. the assumption would be that if the materials came from the demo site that they would be demilitarized. We have found that this is not always the case.	

			Please adjust the text to be less definitive that the materials appeared to come from ODA2 and that not all munitions that were dumped were demilitarized.	
5	11/14-20	This section references a number of optional tasks	For task 11 on line #14, the Ohio EPA MEC Notification would need to be utilized. For optional tasks 12 (lines 15-16), 14 (line 18), and task 15 (lines 19-20): It would make sense to have these contracts all ready to award (i.e. no lag time), because (if RCRA rules are in play), we don't want to have issues with the 90 day clock, nor do we want excavations at either the slope or WP areas to be interrupted.	
6	14/1-5	The text in this section briefly discusses the restoration of excavated area, and refers the reader to a follow-on section for more information. In neither section is there a discussion of needing to do anything other than re-seeding the slope.	Please clarify whether or not there will need to be additional measures instituted to stabilize the remediated slope. Or are these the types of recommendations that will come from the geotechnical report?	
7	14/10-13	The text indicates that the soil excavated from the stream diversion line will be stockpiled and re-used during the installation of the stream diversion barriers and site restoration.	This is an acceptable approach provided that the soils are clean. Given the variety of activities that have occurred at ODA2 over the years, it would not be surprising to inadvertently excavate MEC/MD in the area where the stream will be diverted. In that case, the assumption cannot be made that the soil is "clean" because it may contain MC, and it would either need to be tested to demonstrate that it is clean, or clean fill from an approved source would need to be brought in.	
8	14/31	The text references "clean" soil.	How is "clean" defined, and how has this been determined? Given the history of the area, there is the potential for MC to be present.	
9	15/3-4	Optional task #14 is referenced.	Please refer to comment # 5.	
10	15/29	Text change requested.	Change text to: "... the driver can get into..."	
11	15/31	Text change requested.	Change text to read: "...can return to the excavation.."	

12	Section 3.4, pages 16-17	The text in this section cross-references a number of the contract's optional tasks.	See comments #1 and 5.	
13	17/12	Clarification requested.	The reference to gate repairs seems to be out of place. Please expand upon this, or delete reference, as needed.	
14	Section 3.5, pages 17-18	This section regarding the confirmation sampling is confusing. Both MI and composite are used (and in one case there is a discussion of 30 aliquots in a composite sample making it sound like a MI); the sample numbers don't seem to add up; there is no indication as to the disposition of the rest of the material (not shipped to the lab), etc..	I haven't yet reviewed the WP, and perhaps the sampling description in there has more detail, but this section is confusing. Please revise for clarity.	
15	18/9-10	The text references the stopping point for Task 8.	Is there any contingency in place to remove residual soils that may be <10% explosives, but > CUGs? How will residual contamination (if any) be dealt with? See comment #3.	
16	18/24	Clarification requested.	Are data levels still being utilized?	
17	19/2-4	The text references conducting a surface sweep of MEC in Sand Creek from the RRA downstream to the barrier.	During the Phase I TCRA (barrier construction) there were several geophysical anomalies present that were completed buried by sediment. Although not stated in the text, these will need to be dug to determine if they are MEC or not. Clarify that digging out the anomalies is part of the project. The only way we will be able to remove the barrier system near the George Road bridge is to demonstrate that all MEC/DMM/MD has been removed from the stream channel between the RRA and the barrier.	
18	19/15-16	The text references backfilling the stream diversion excavation using original soils.	This is an acceptable approach provided that the soils are clean. Given the variety of activities that have occurred at ODA2 over the years, it would not be surprising to inadvertently excavate MEC/MD in the area where the stream will be diverted. In that case, the assumption cannot be made that the soil is "clean" because it may contain	

			MC, and it would either need to be tested to demonstrate that it is clean, or clean fill from an approved source would need to be brought in. Additionally, will the soils be compacted?	
19	20/25-26	Text revision requested.	Revise text to read: "...any metals not previously captured." (The rest of the sentence seems superfluous.)	
20	21/1-3	The text indicates that PIKA is still awaiting analytical data from the test pits that were dug during the Phase 1.	Is this correct? Why the delay?	
21	21/6	The text references the 8000 cy of clean soil that were stockpiled while cutting the bench steps.	This is an acceptable approach provided that the soils are clean. Given the variety of activities that have occurred at ODA2 over the years, it would not be surprising to inadvertently excavate MEC/MD in the area. In that case, it would need to be demonstrated that the soils are indeed "clean", i.e. below applicable CUGs. Or else clean soil will need to be brought in.	
22	21/12	This text indicates that PIKA is not responsible for bringing in off-site soil.	FYI to the Army, if the removed soil cannot be re-used, then we need a mechanism to bring in clean soil.	
23	Section 3.11	Addition requested.	Cross-reference Ohio EPA MEC Notification procedure.	
24	22/ Sections 3.11, 3.12, 3.13, and 3.14	FYI.	Ohio EPA again notes the need to be able to obtain these optional tasks as rapidly as possible. Why no discussion of optional task #12?	
25	27/ 18	Text change requested.	Change text to read: " in the event cellular service is not available in the work areas (i.e. "dead" zones).	
26	34/19	The text references public relations training; however, this is not listed in the PIP.	Provide clarification.	
27	40/12-14	Text change requested.	Change text to read: "Support for these meetings includes making presentations on project activities." Specifically, RAB minutes and notifications are already handled.	

28	App A/ Schedule	Clarification requested.	For task 10, it appears that 45 days are not scheduled in for review. Provide an explanation. (If we can expedite the review, we will, as this is a priority project, but it should not be assumed.)	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963 1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

February 26, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
DRAFT TCRA PHASE II WP

CERTIFIED MAIL
7008 3230 0003 5419 9987

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Draft Project Work Plan for the Time Critical Removal Action (TCRA) at the Rocket Ridge Area (RRA) within RVAAP-004-R-01 Open Demolition Area # 2 MRS." This document, dated January 29, 2010 and received on the same date, was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District by PIKA International, under contract number W912QR-09-P-0213.

Enclosed, please find Ohio EPA's comments on the above-referenced document.

If you have any questions, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

ETM/kss

enclosure

cc: Kate Anthony, PIKA
Glen Beckham, USACE Louisville
Katie Elgin, OHARNG
Mark Krivansky, AEC
Nat Peters, USACE Louisville
Brian Stockwell, PIKA
Nick Stolte, USACE Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Sue Boles, PIKA
Christy Esler, VISTA/Army

RECEIVED
3 Mar 2010

DOCUMENT: Draft Project Work Plan for the Phase II Time Critical Removal Action (TCRA) at the Rocket Ridge Area (RRA) within RVAAP-004-R-01 Open Demolition Area # 2 MRS
REVIEWER: Eileen T. Mohr, Ohio EPA, NEDO, DERR
DATE: February 26, 2010

Cmt #	Page #/ Line #	Comment	Recommendation/ Requirement	Response
1	viii	Addition requested.	Add the Ohio EPA MEC Notification procedure to the list of appendices and as an appendix to the work plan.	
2	General and 35/1-3; 35/23-26; 40/13-15; 44/20	Addition/clarification requested.	At a key point in the revised document, please discuss the requirement to utilize the Ohio EPA MEC Notification procedure if MEC /MPPEH are either taken to ODA2 to be blown or if it is BIP.	
3	General and 2/8-17; 34/7-10; 35/1-3; 35/23-26; 36/5-7; 37/19-22; 40/9-10; 40/30; 41/1; 41/25-27; 41/33 to 42/1; 44/18; sections 2.27, 2.28, 2.29 and 2.30; App D/ Att 1/pg 10/lines 1-10	There are a number of optional contracts that are repeatedly referenced in this WP including: BIP of MEC; repair of ECM; perform ME/MD removal in excess of the contracted amount; removal and containerization of WP in excess of contracted amount; and, disposal of WP materials. There are also a number of "future" contracts referenced.	It is Ohio EPA's position that these optional contracts need to be in place and immediately exercised if/when needed. The activities that will be conducted under this TCRA are, by definition, time critical. For example, we do not want to have a disposal contract held up and then we have to deal with RCRA issues, or that additional WP needs to be removed above the initial scoped amount and: a) the work can't stop; and b) the contract isn't in place, etc. There is the potential for major disconnects that could have serious ramifications. It is understood that the contract had to be written this way due to budget constraints, but be advised that it is our expectation that optional contracts will	

			be issued immediately upon recognition of the need, so that there is no delay or potential for violation of State and Federal rules, laws, and regulations or increased safety hazards to human health or the environment. (More of a FYI for the Army rather than a needed change in text.)	
4	General and 2/1-3; 11/21; 44/6-8	Clarification of this text is needed.	During the sweep of Sand Creek from the George Road Bridge upstream to the RRRA prior to the barrier construction, there were a number of metallic anomalies that were completely covered by sediment, and several pieces of MEC/DMM/MD that were visible on the surface of the creek bed. One of the goals of this Phase II TCRA is to be able to remove MEC/DMM/MD from Sand Creek, in order that the two barriers located just upstream of George Road Bridge can be removed. This would require the removal of visible MEC/DMM/MD from the creek bed, as well as investigating and digging out the observed metallic anomalies that are covered by sediment. Throughout the text, it is not clear as to whether or not buried anomalies will be dug out, identified, and removed as needed. Add text to a pertinent portion of the revised document that discusses this issue. (The goal as currently stated is especially unclear in 44/6-8, as it	

			sounds like the TCRA will only deal with "surface" anomalies and not those potentially buried by sediment.) From my perspective, an underlying goal would be to investigate the creek thoroughly and ultimately remove the temporary barriers at the conclusion of the Phase II TCRA.	
5	General and 3/1-7; 10/28-31; 35/30 to 36/6; 41/20-25; 43/2-3; 54/27-28; App E/13/3-5	The text indicates that the objective of the project is to remove all MEC and MD contamination and soil that exhibits MC contamination >10%. The text further indicates that residual MC contamination will be addressed as part of the MMRP.	This is counter to the position stated by the RVAAP BEC during a meeting on 02/11/10 where he indicated that it is his hope to have this TCRA take care of the existing issues at the RRA. The BEC's position makes sense, in that at the end of the TCRA, the slope will be backfilled with "clean" soil. This would mean that if the confirmation samples taken prior to backfill are <10% explosives, but > than CUGs, there may need to be additional remediation done and re-excavation of "clean "soil to accomplish the MC portion of the clean-up. If the BEC's goal of having this TCRA be the endpoint for the RRA from both a MEC/DMM/MD and MC perspective can be achieved by the removal of additional soil (after the 10% goal is reached) to reach CUGs... is this a possibility? It seems to make most sense, and is the most time and cost effective approach. (Not applicable to WP discussions, as the WP will be removed to ND.)	

6	4/3-4	Addition requested.	Add Ohio EPA to the list of agencies required to give verbal approval.	
7	6/25-27; App F/6/11-13	Clarification of text requested.	The text indicates that it appears that the munitions were transported to the ODA2 demolition site and dumped at the top of the RRA slope. Do we have historical records that documents the assertion that the munitions came from ODA2? They may have actually come from a number of places on post.	
8	21/5-7	Clarification requested.	The text references a storm water permit dated 04/21/08 that will be completed prior to initiating the Phase II TCRA at the RRA. Does this mean that another permit needs to be applied for? If so, please make this section more clear.	
9	21/21-22; 80/16	Clarification requested.	For essential instruments/equipment, will back-up items be on site? (Not just spare parts.)	
10	30/9-10	Deletion requested.	This sentence is essentially a duplicate of the sentence found on lines 12-13. Suggest removing.	
11	General and 30/20; 30/22; 30/25-26; 30/31; 31/1; 31/31; 45/15-17	Clarification requested.	There are several references to "clean" soils in the area where the site equipment will be set up. This is an assumption that is being made which may or may not be the case. In the event that MEC/DMM/MD is discovered while conducting the excavation, it cannot be assumed that there is no MC present (i.e. "clean"). In this case, sifting and sampling of the soil would need to occur and a decision made as to whether or not the soil	

			could be re-used. Several contingency analytical soil samples and an alternate clean source of soil may be required.	
12	General and 33/12-15; 45/2-3		There are several references to "clean" soils from the area where the stream is proposed for diversion. This is an assumption that is being made which may or may not be the case. In the event that MEC/DMM/MD is discovered while conducting the excavation, it cannot be assumed that there is no MC present (i.e. "clean"). In this case, sifting and sampling of the soil would need to occur and a decision made as to whether or not the soil could be re-used. Several contingency samples and an alternate clean source of soil may be required.	
13	33/27	Clarification required.	Please define "low-input."	
14	36/30	Text change requested.	Change text to read: "....fed onto a conveyor..."	
15	38/lines 20, 22, 23and 27	These lines discuss composite samples, yet the description is that of a MI sample.	Please clarify.	
16	38/27-29	Clarification requested.	a. why isn't the total sample being submitted to the lab; and, b. will this sample be processed like a MI sample? Please explain why/why not.	

17	39/9	Text revision requested.	Revise text to read: "... will be lightly wetted using potable water for dust control (as needed).	
18	Pages 40-41/Section 2.22	Placeholder.	This entire section may need to be re-written, based upon the 02/11/2010 meeting where the use of a Conditional Exemption (CE) was discussed.	
19	42/32-33; App E/14/4-6	The text indicates that an aliquot of the WP confirmation sample will be sent to the lab. There is no discussion regarding the rest of the original sample.	Recommend adding text that indicates the rest of the sample will be placed in a WP containing drum already on site.	
20	43/26	Clarification requested.	Are data levels still used?	
21	45/24-26; App F/12/7-9	The text references the use of jute netting (or equivalent) on the sloped areas as part of the restoration activities.	Are we sure that jute netting alone will stabilize the slope or may other measures be needed? When will this actually be determined, during the upcoming slope stability analysis?	
22	60/lines 11, 13, 15	The text in this section references "undefined" types of igloos.	Please clarify what is meant by "undefined."	
23	69/19-20	Addition requested.	Add Ohio EPA to the list of those receiving weekly reports.	
24	89/section 11.2.1	Addition requested.	Add text that indicates that sand Creek contains the Mountain Brook Lamprey which is a state endangered species.	
25	90/24	Text change requested.	Revise text to read: "...rivers or lakes will not be permitted."	
26	90/31; 91/6; 91/11-12; 91/27-28	Text change requested.	Change text to read: "....Federal State, local and DoD/Army rules, laws, and regulations."	
27	93/6-7	Addition requested.	Ensure that the Ohio EPA spill response number is called in the event that there is a spill to Waters of the State or if it is a reportable quantity spilled.	

28	94/13-15	Clarification requested.	The text indicates that soil erosion is not expected to be a significant problem during site operations. During the period of time when materials are being excavated from the hill slope, depending upon the characteristics of the soil, the angle of the slope, the intrusive activities, precipitation, etc., there may be more of a issue than this text would suggest. Recommend toning this section down a bit, as well as drawing on the slope stability report, which will be forthcoming and being ready just in case erosion is a larger issue than anticipated.	
29	App A	Did not review SOW before it was finalized, as such, it will not be reviewed after the fact.	Just a FYI.	
30	App B, figure 9	Changes requested on figure.	a) add igloo to the legend; and, b) indicate via new symbol that several of the igloos in the WSA have been TD'ed, or remove them altogether.	
31	App B, figure 10	Changes requested on schedule.	a) ID3 - the schedule indicates that the geotech report should already be in, Is this correct? b) ID10 – explain compressed review time. c) IDs 23, 24, 25, 26 need to be moved up on the schedule. These directly reflect the comment that optional tasks need to be in place, so that they can be exercised as soon as they are needed.	

32	App D, 25/27	Right now the text sounds like employees can report to work if impaired by an authorized or controlled substance as long as a manager has provided prior approval.	May want to tweak the language a bit, as: 1) why would you want an impaired employee to drive to the site, and, 2) just because a substance is controlled... it doesn't mean that the person has it legally.	
33	App D/Att 1/11	Clarification requested.	Does the asterisk go with the Lead TCLP entry?	
34	App D/Att 1/13/6-15	The text indicates that an occupational exposure to explosives may be remote due to the factors that the items at the RRA were to be thermally treated and are encased in munitions.	Clearly, not all munitions have been thermally treated (examples: the functioning WP rifle grenade and the live 105 mm round), and not all explosives are encased in munitions (lots of rusted materials out here). Would recommend re-thinking exposure scenario.	
35	App D/Att 1/13/21-22	Text change requested.	Revise text to read: "...white phosphorous rifle grenades."	
36	App D/Att 1/14/30-31	Text clarification requested.	Will this project actually extend to the point where we need to contend with ice and snow issues?	
37	App D/Att 1/32/7	Text revision requested.	The section "Same as Level D..." should not be bulleted.	
38	App D/Att 1/32/13	Clarification requested.	Do the site workers individually carry along with them plugging material and drench buckets?	
39	App D/Att 1/34/19; App D/Att 1/63/9	Clarification requested.	What is included in a 16 unit first aid with burn protection kit?	
40	App D/Att 1/34,section 6.9	Clarification requested.	Will any litters/backboards be on-site? What about ropes, harnesses, etc..	

41	App D/Att 1/35/2-4	The text indicates that there will be no safety showers at the site, because there is no potential for personnel to be drenched with hazardous substances that can pose a threat to the skin.	What about WP?	
42	App D/Att 1/38/section 7.5.2	Recommendation.	Strongly recommend that you include in the revised text a list of local hospitals (Ravenna, Akron, Youngstown, and Cleveland), their trauma level, and an overall description of the various trauma levels.	
43	App D/Att 1/62/3-7	Clarification requested.	Make sure that it is clear that this discussion does not include non-dedicated sampling equipment that must be deconned between sampling locations.	
44	App D/Att 1/64/9	Text change requested.	Revise text to read: "Additionally, up to three (3) on-site 2,000 gallon..."	
45	App D/Att 1/67/16-17	Clarification requested.	In the event that the SUXOS is incapacitated, the UXOSO assumes the duties. Who takes over if the UXOSO also goes down?	
46	App D/Att 1/73/23-24	Text clarification requested.	It sounds like the SUXOS or UXOSO could authorize a single-person response action. Is this correct?	
47	App D/Att 1/78/28-30	Text clarifications requested.	a. It is not clear that there is an understanding of the difference between BLS and ALS. BLS does not just imply basic first aid, but is a person who has achieved their EMT-B. ALS would constitute services from an EMT-I or EMT-P (paramedic). b. Some BLS injuries would definitely	

			require transport via squad. c. One person can be designated to transport someone with a minor injury? Depends upon how you are defining minor. What would happen if an emergency came up during transport, and the victim only had the driver around? Recommend re-thinking this. Recommend re-thinking this section.	
48	App D/Att 1/79/27	Text change requested.	The text indicates that emergency documentation will be recorded as soon as possible after the time frame. Need to give an outside time frame (hours, days), so documentation doesn't get lost.	
49	App D/Att 1/80/19	Text clarification requested.	BLS providers can also transport to the hospital. See the comment 2 above this one.	
50	App D/Att 1/84/4-5	Text addition requested.	Add Ohio EPA to the list of agencies providing guidance on contaminant disposal.	
51	App D/Att 5/General	Clarification requested.	Does PIKA do qualitative FIT testing in addition to quantitative?	
52	App D/Att 5/General	Several workers do not have FIT test Information.	Please ensure all required workers are properly FIT tested before this project begins.	
53	App D/Att 5/General	Several workers will need their OSHA 8 hour refreshers before this project starts.	Ensure that all 8 hour refreshers are up to date. In addition, make sure they are on file with the Operating Contractor.	

54	App 1/1/3-5	Clarification requested.	Is the correct document cited? (Is this the WBG RD/RA HASP?)	
55	App E/2/section 1.4	Clarification requested.	Shouldn't this section also reference a sample from the stockpiled soil (after having gone through the sifting plant) for disposal purposes ,as well as a soil sample of the ground surface before the soils are stockpiled?	
56	App E/3/table 1-1	Clarification requested.	a) The stockpile soil sample should also be depicted here. b) The numbers do not add up correctly in the WP, duplicate, and trip blank columns. Please revise.	
57	App E/13/section 4.0	Addition requested.	At an appropriate section in the text, please discuss the stockpile soil sample that will be taken for disposal purposes.	
58	App F/1/17-20	Clarification requested.	Why is environmental pollution defined here and what is the source of this definition?	
59	App F/3/lines 3 and 6-7	Revision requested.	When the two documents referenced in here are finalized, please use the final version and correct date.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963 1200 FAX: (330) 487 0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

May 18, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
RRA TCRA FINAL PMP AND PIP

Mr. Mark Patterson, Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the following documents:

1. Final Project Management Plan for the Time Critical Removal Action (TCRA) at the Rocket Ridge Area (RRA) within RVAAP-004-R-01 Open Demolition Area # 2 MRS.

2. Final Public Involvement Plan Addendum for the Time Critical Removal Action at the Rocket Ridge Area.

Both of these documents, dated May 7, 2010 and received on the same date, were prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District by PIKA International, Inc., under contract number W912QR-09-P-0213. Both final documents were reviewed compared to the draft documents and the approved Response to Comments (RTC) table.

Both the final Public Involvement Plan and the final Project Management Plan are approved.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Eileen T. Mohr, Project Manager
Division of Emergency and Remedial Response

ETM/kss

cc: Glen Beckham, USACE Louisville
Katie Elgin, OHARNG
Brian Stockwell, PIKA
Nick Stolte, USACE Louisville
Mark Krivansky, AEC
Shahram Taherinia, PIKA

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Christy Esler, VISTA/US Army
Sue Boles, PIKA

RECEIVED
MAY 2010

DEPARTMENT OF THE ARMY
PITTSBURGH DISTRICT, CORPS OF ENGINEERS
WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE
PITTSBURGH, PA 15222-4186

May 21, 2010

REPLY TO

Operations Division
Regulatory Branch
2010-389

Ms. Eileen Mohr
Ohio Environmental Protection Agency
Division of Emergency and Remedial Response
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Ms. Mohr:

I refer to your request for consultation with this office regarding the US Department of the Army's (Army) remediation efforts at the Ravenna Army Ammunition Plant (RVAAP), Open Demolition Area 2 at Rocket Ridge, Portage County, Ohio. As part of the RVAAP remediation, the Army proposed to temporarily divert Sand Creek to remove hazardous and toxic materials from the stream bed.

Because all of the stream diversion work is proposed to occur entirely on-site at the RVAAP, in accordance with Section 121(e) of CERCLA, Section 300.400(e)(1) of the National Contingency Plan, the OEPA Director's Final Findings and Orders, and the exemption provided in Nationwide Permit 38, a permit from this office is not be required. While a permit for this remediation is not required, compliance with all Best Management Practices must be implemented and followed. The amount of sediment and pollutants running into Sand Creek must be restricted and the channel restored upon completion.

If you have any questions, or the scope of the proposed work changes, please contact Nicole Marisavljevic at (412)395-7592 or via e-mail at nicole.marisavljevic@usace.army.mil or Nancy Mullen at (412) 395-7170 or via e-mail at Nancy.J.Mullen@usace.army.mil .

Sincerely,

Scott A. Hans
Chief, Regulatory Branch

Copy Furnished:

Ed Wilk
OEPA

Portage Soil and Water

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

May 28, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL RRA TCRA WORK PLAN –
PHASE 3

CERTIFIED MAIL

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Final Project Work Plan for the Time Critical Removal Action (TCRA) at the Rocket Ridge Area (RRA) Within RVAAP-004-R-01 Open Demolition Area #2 MRS." This document dated May 7, 2010 and received on the same date, was prepared for the US Army Corps of Engineers (USACE) – Louisville District by PIKA International, Inc. under contract number W912QR-09-P-0213.

The final work plan for the RRA TCRA is conditionally approved subject to the following:

1. It is my understanding that there is the possibility that the excavation of the main RRA, initially considered to be a "low-input" operation may ultimately be designated as a "high-input" operation. If this designation change occurs, the Ohio EPA requests that there be a Technical Memorandum (TM) developed which will describe any changes in the operations and potential project impact in going from a low to high-input operation. This TM will then be appended to the final work plan.

2. Once agreed upon, the information provided by Independence Excavating, the "no permit required" letter from the Pittsburgh USACE, and any other requirements from Ohio EPA regarding the temporary stream diversion will be appended to the approved work plan.

This conditional approval does not preclude the contractor and the Army from commencing mobilization and initial set up operations (pending the results of the slope stability study) while we are awaiting the final approved Explosives Safety Submission (ESS) and the above documents (unless expressly prohibited by the ESS).

RECEIVED
2 Jun 2010

Once the above information is provided to all stakeholders and appended to the Ohio EPA copy of the final work plan, I will send additional correspondence granting approval of the work plan without conditions.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

ETM:ddw

cc: Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Nick Stolte, USACE Louisville
Mark Krivansky, AEC
Katie Elgin, OHARNG RTLS
Brian Stockwell, PIKA
Shahram Taherinia, PIKA

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Ed Wilk, Ohio EPA, NEDO, DSW
Greg Orr, Ohio EPA, NEDO, DSW
Kate Anthony, PIKA
Srini Neralla, PIKA
Sue Boles, PIKA
Christy Esler, VISTA/Army

DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD
2461 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22331-0600

DDESB-PE

JUN 14 2010

MEMORANDUM FOR DIRECTOR, U.S. ARMY DEFENSE AMMUNITION CENTER
ATTENTION: JMAC-ESM

SUBJECT: DDESB Approval of the Explosives Safety Submission Munition and Explosives of Concern Non-Time Critical Interim Removal Action at the Rocket Ridge Area of RVAAP-004-R-01, Open Demolition Area 2, Munitions Response Site, Ravenna Army Ammunition Plant, Portage and Trumbull Counties, OH

References: (a) DAC JMAC-ESM Memorandum of 3 June 2010, Subject: Request for DDESB Approval for the Explosives Safety Submission (ESS) Munition & Explosives of Concern (MEC) Non-Time Critical Interim Removal Action (IRA) at the Rocket Ridge Area (RRA) of RVAAP-004-R-01, Open Demolition Area 2, Munitions Response Site

(b) DoD 6055.09-STD, DoD Ammunition and Explosives Safety Standards, 29 February 2008, Incorporating Change 2, 21 August 2009

(c) DDESB TP-15, Approved Protective Construction, Revision 3, May 2010

(d) DDESB TP-16, Methodologies for Calculating Primary Fragment Characteristics, Revision 3, 1 April 2009

The Department of Defense Explosives Safety Board (DDESB) Staff has reviewed the subject non-time critical interim removal action explosives safety submission (ESS) forwarded by reference (a), against the requirements of reference (b). Based on the information provided, approval is granted for removal and treatment of material potentially presenting an explosive hazard (MPPEH) and munitions and explosives of concern (MEC) at Munitions Response Site (MRS) Rocket Ridge Area Open Demolition Area 2 (RVAAP-004-R-01), Ravenna Army Ammunition Plant, Portage and Trumbull Counties, OH. This approval is based on the following:

a. The efforts addressed in this ESS involve manual unintentional detonation operations, mechanized high input unintentional detonation operations, and intentional detonations within the MRS.

b. The property will remain under Army control for military use.

c. The munition with the greatest fragmentation distance (MGFD) is the 105 mm M1 Projectile; the minimum separation distance (MSD) for teams for manual operations is 78 feet (ft) and 341 ft for high input mechanized operations, based respectively on K40 and the hazardous fragment distance (HFD) of the MGFD; the MSD for nonessential personnel from manual operations is 341 ft based on the HFD of the MGFD; the MSD for nonessential personnel from high input mechanized operations is 1,939 ft based on the maximum fragmentation distance

(MFD) of the MGFD; and the MSD for nonessential personnel from single in-grid intentional detonations is 1,939 ft based on the MFD of the MGFD.

d. The use of sandbags are authorized as an engineering control for intentional detonations involving the MEC identified in reference (a) provided the Army ensures usage per reference (c), paragraph C6.2.7.5.

e. Operators of mechanized equipment will be shielded from hazardous fragments based on unintentional detonation from mechanized operations involving the MGFD. The use of barricades/shields are authorized as engineering controls to prevent fragment penetration provided the Army ensures usage per reference (d). Additionally, operators will be provided blast overpressure protection of 43 ft based on K24 of the MGFD.

f. The use of hearing protection is authorized as an engineering control for unintentional detonation operations to provide equivalent K24 blast overpressure protection for essential personnel at 33 ft based on K18 of the MGFD. The Army shall ensure hearing protection provides $\geq$ 9 decibel (dB) protection.

g. Material documented as an explosive hazard that is determined to be safe to move will be stored in DDESB approved facilities pending disposal under a separate contract.

h. Demolition materials, per reference (a), will be delivered as needed or stored in DDESB approved facilities.

i. Prior to initiation and through completion of on-site explosives operations, all nonessential personnel will be evacuated and prevented from entering any area/facility encumbered by the MSD required for the operation being conducted, or explosives operations will be suspended if nonessential personnel enter the MSD.

j. MPPEH will be inspected and classified as material documented as safe prior to release to the public.

If changes occur during or after completion of this effort that could increase explosive hazards to site workers or the public due to the presence of military munitions at the site, an amendment to this ESS must be submitted to DDESB for review and approval.

The point of contact for this action is Mr. Tony Dunay, (703) 325-3513, DSN 221-3513, E-mail address: tony.dunay@ddesb.osd.mil.

FOR
CURTIS M. BOWLING
Chairman
DDESB

DEPARTMENT OF THE ARMY
US ARMY DEFENSE AMMUNITION CENTER
1 C TREE ROAD
MCALESTER OK 74501-9053

REPLY TO
ATTENTION OF

JMAC-ESM

21 June 2010

MEMORANDUM FOR US Army Corps of Engineers, CEHNC-CX-MM, (CELRL-ED-E-C/Mr. Nick Stolte, Ravenna Army Ammunition Plant

SUBJECT: DDESB Approval of the Explosives Safety Submission Munition and Explosives of Concern Non-Time Critical Interim Removal Action at the Rocket Ridge Area of RVAAP-004-R-01, Open Demolition Area 2, Munitions Response Site, Ravenna Army Ammunition Plant, Portage and Trumbull Counties, OH

1. References:

a. a. Memorandum, CEHNC-CX-MM, (CELRL-ED-E-C/Mr. Nick Stolte), dated 02 June 2010, subject: Approval for the Explosives Safety Submission (ESS) Munitions & Explosives of Concern (MEC) Non-Time Critical Interim Removal Action (IRA) at the Rocket Ridge Area (RRA) of RVAAP-004-R-01, Open Demolition Area 2, Munition Response Site

b. DOD 6055.09-STD, Ammunition and Explosives Safety Standards, 29 Feb 08 with Change 2 dated 21 Aug 09.

c. Memorandum, Department of Defense Explosives Safety Board, DDESB-PE, dated 14 June 2010, Subject: DDESB Approval of the Explosives Safety Submission Munition and Explosives of Concern Non-Time Critical Interim Removal Action at the Rocket Ridge Area of RVAAP-004-R-01, Open Demolition Area 2, Munitions Response Site, Ravenna Army Ammunition Plant, Portage and Trumbull Counties, OH

2. The subject ESS transmitted by reference 1.a has been reviewed in accordance with reference 1.b. Reference 1.c provides Department of Defense Explosives Safety Board (DDESB) final approval. This approval will be made part of the administrative record for the site.

3. This ESS is for the removal and treatment of material potentially presenting an explosive hazard (MPPEH) and munitions and explosives of concern (MEC) at Munitions Response Site (MRS) Rocket Ridge Area Open Demolition Area 2 (RVAAP-004-R-01), Ravenna Army Ammunition Plant, Portage and Trumbull Counties, OH.

4. The POC is Ms. Charlotte Curtis, JMAC-ESM, DSN 956-8742, commercial (918) 420-8742, email charlotte.curtis@us.army.mil.

CURTIS.CHARLOTTE.GRACE.1108719091

Digitally signed by CURTIS.CHARLOTTE.GRACE.1108719091
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=CURTIS.CHARLOTTE.GRACE.1108719091
Date: 2010.06.21 10:38:56 -05'00'

Encl

For/CLIFFORD H. DOYLE
MEC Team Leader
Explosives Safety Knowledge, OE and
Chemical Division
US Army Technical Center for Explosives
Safety

JMAC-ESM 21 June 2010

SUBJECT: DDESB Approval of the Explosives Safety Submission Munition and Explosives of Concern Non-Time Critical Interim Removal Action at the Rocket Ridge Area of RVAAP-004-R-01, Open Demolition Area 2, Munitions Response Site, Ravenna Army Ammunition Plant, Portage and Trumbull Counties, OH

CF:

Office of the Director of Army Safety (DACS-SF/Mr. Patton), 223 23rd Street, Crystal Plaza 5, Suite 980, Arlington, VA 22202

Office of the Deputy Assistant Secretary of the Army for Environment, Safety, and Occupational Health, Special Assistant for Munitions, (DASA-DESOH/Mr. King), 110 Army Pentagon, Washington, DC 20310-0110

U.S. Army Corps of Engineers (CESO/Ms Roberts), 20 Massachusetts Avenue, NW, Washington, DC 20314-1000

Office of the Assistant Chief of Staff for Installation Management, Base Realignment and Closure Office (DAIM-BD/Mr. Haughs), 600 Army Pentagon, Washington, DC 20310-0600

DEPARTMENT OF THE ARMY
US ARMY DEFENSE AMMUNITION CENTER
1 C TREE ROAD
MCALESTER OK 74501-9053

REPLY TO
ATTENTION OF

JMAC-ESM

2 September 2010

MEMORANDUM FOR US Army Corps of Engineers, Environmental and Munitions Center of Expertise, (CEHNC-CX-MM/Mr. Zange or Mr. Becker), P.O. Box 1600, Huntsville, AL 35807-4301

Rocket Ridge

SUBJECT: DDESB Approval for an Explosives Site Plan (ESP), Amendment 1, Munitions and Explosives of Concern (MEC), Remedial Investigation/Feasibility Study (RI/FS), Ravenna Army Ammunition Plant (RVAAP), Portage and Trumbull Counties, OH, August 2010

1. References:

a. Memorandum, JMAC-ESM, dated 17 August 2010, subject: Request for DDESB Approval of an Explosives Site Plan, Amendment 1, Munitions and Explosives of Concern (MEC), Remedial Investigation/Feasibility Study, Ravenna Army Ammunition Plant (RVAAP), Portage and Trumbull Counties, OH

b. DOD 6055.09-M, Ammunition and Explosives Safety Standards, February 2008.

c. Memorandum, DDESB-PE, dated 02 September 2010, subject: DDESB Approval of an Explosives Site Plan, Amendment 1, Munitions and Explosives of Concern, Remedial Investigation/Feasibility Study, Ravenna Army Ammunition Plant, Portage and Trumbull Counties, OH

2. The subject ESP transmitted by reference 1.a has been reviewed in accordance with reference 1.b. Reference 1.c provides Department of Defense Explosives Safety Board (DDESB) final approval. This approval will be made part of the administrative record for the site.

3. This Amendment to the ESP addresses the utilization of low input mechanized MEC operations for the Open Demolition Area #2, Firestone Test Facility, Sand Creek Dump, and Atlas Scrap Yard at RVAAP.

4. The POC is Ms. Charlotte Curtis, JMAC-ESM, DSN 956-8742, commercial (918) 420-8742, email charlotte.curtis@us.army.mil.

CURTIS.CHARLOTTE.GRACE.1108719091

FOR/CLIFFORD H. DOYLE
MEC Team Leader
Explosives Safety Knowledge, OE and Chemical Division
US Army Technical Center for Explosives Safety

Encl

RECEIVED 13 Sep 2010

JMAC-ESM 2 September 2010

SUBJECT: DDESB Approval for an Explosives Site Plan (ESP), Amendment 1, Munitions and Explosives of Concern (MEC), Remedial Investigation/Feasibility Study (RI/FS), Ravenna Army Ammunition Plant (RVAAP), Portage and Trumbull Counties, OH, August 2010

CF:

Office of the Director of Army Safety (DACS-SF/Mr. Patton), 223 23rd Street, Crystal Plaza 5, Suite 980, Arlington, VA 22202

Office of the Deputy Assistant Secretary of the Army for Environment, Safety, and Occupational Health, Special Assistant for Munitions, (DASA-DESOH/Mr. King), 110 Army Pentagon, Washington, DC 20310-0110

U.S. Army Corps of Engineers (CESO/Ms Roberts), 20 Massachusetts Avenue, NW, Washington, DC 20314-1000

Office of the Assistant Chief of Staff for Installation Management, Base Realignment and Closure Office (DAIM-BD/Mr. Haughs), 600 Army Pentagon, Washington, DC 20310-0600

DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD
2461 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22331-0600

DDESB-PE

SEP 0 2 2010

MEMORANDUM FOR DIRECTOR, U.S. ARMY DEFENSE AMMUNITION CENTER
ATTENTION: JMAC-ESM

SUBJECT: DDESB Approval of an Explosives Site Plan, Amendment 1, Munitions and Explosives of Concern, Remedial Investigation/Feasibility Study, Ravenna Army Ammunition Plant, Portage and Trumbull Counties, OH

References: (a) DAC JMAC-ESM Memorandum of 17 August 2010, Subject: Request for DDESB Approval for an Explosives Site Plan (ESP), Amendment 1, Munitions and Explosives of Concern (MEC), Remedial Investigation/Feasibility Study (RI/FS), Ravenna Army Ammunition Plant (RVAAP), Portage and Trumbull Counties, OH, August 2010

(b) Email from Ms. Charlotte Curtis (USATCES) to Mr. Tony Dunay (DDESB) dated 1 September 2010, Subject: FW: Ravenna ESS Amend 1

(c) DoDM 6055.09-M, DoD Ammunition and Explosives Safety Standards, 29 February 2008, Administratively Reissued 4 August 2010

(d) DDESB TP-16, Methodologies for Calculating Primary Fragment Characteristics, Revision 3, 1 April 2009

The Department of Defense Explosives Safety Board (DDESB) Staff has reviewed the subject Amendment 1 to the explosives safety submission (ESS) forwarded by reference (a), as clarified by reference (b), against the requirements of reference (c). Based on the information provided, approval is granted for removal and treatment of material potentially presenting an explosive hazard and munitions and explosives of concern (MEC) at Ravenna Army Ammunition Plant, Portage and Trumbull Counties, OH. This approval is based on the following:

a. This amendment adds mechanized low input unintentional detonation operations to Munition Response Sites (MRS) RVAAP-004-R-01 Open Demolition Area #2, RVAAP-033-R-01 Firestone Test Facility, RVAAP-034-R-01 Sand Creek Dump, and RVAAP-050-R-01 Atlas Scrap Yard.

b. The attached Table lists the munition with the greatest fragmentation distance (MGFD) for each MRS; the team separation distance (TSD); the K24 and K18 distances; the minimum separation distance (MSD) for unintentional detonations for nonessential personnel

from manual and mechanized low input unintentional detonation operations; the MSD for intentional single in-grid detonations for nonessential personnel.

c. Operators of mechanized equipment will be shielded from hazardous fragments based on unintentional detonation from mechanized operations involving the MGFD identified in reference (a). The use of barricades/shields are authorized as engineering controls to prevent fragment penetration provided the Army ensures usage per reference (d). Additionally, operators will be provided blast overpressure protection based on K24 of the MGFD.

d. The use of hearing protection is authorized as an engineering control for unintentional detonation operations to provide equivalent K24 blast overpressure protection for essential personnel based on K18 of the MGFD. The Army shall ensure hearing protection provides $\geq$ 9 decibel (dB) protection.

All other stipulations and requirements established via the original ESS remain in effect.

The point of contact for this action is Mr. Tony Dunay, (703) 325-3513, DSN 221-3513, E-mail address: tony.dunay@ddesb.osd.mil.

Attachment
As stated

CURTIS M. BOWLING
Chairman
DDESB

Table

MRS	MGFD	TSD[1] (ft)	K24 (ft)	K18 (ft)	MSD[2] (ft) unintentional detonation	MSD[3] (ft) intentional detonation
RVAAP-004-R-01 Open Demolition Area #2 RVAAP-034-R-01 Sand Creek Dump	105 mm M1 Projectile	78	41	31	341	1,939
RVAAP-050-R-01 Atlas Scrap Yard	40 mm M406 Grenade	19	10	8	345[4]	345
RVAAP-033-R-01 Firestone Test Facility	2.36 in M6 Rocket	39	20	15	125	780

[1] Based on K40 of MGFD, operators of mechanized equipment will be provided blast overpressure and fragment protection
[2] For nonessential personnel based on the greater of K40 or the hazardous fragment distance (HFD) of the MGFD
[3] For nonessential personnel based on the greater of K328 or the maximum fragment distance (MFD) of the MGFD
[4] Use MFD since HFD is not provided on the Fragmentation Data Review Form

Attachment

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

November 06, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
RRA TCRA APP AND QAPP
EPA # 267000859089

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 9796

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Contractor Quality Control Plan and Accident Prevention Plan Prepared for RVAAP-0004-R-01 Open Demolition Area # 2, White Phosphorous Disposal at the Rocket Ridge Area." This undated document was received at Ohio EPA, NEDO, on September 24, 2010, and was prepared by Toltest, Inc. under contract number W912QR-04-D-0038.

Ohio EPA does not have regulatory jurisdiction over Health and Safety Plans (HASPs) or Accident Prevention Plans (APPs), but does have regulatory jurisdiction over Quality Assurance Project Plans (QAPPs). The following comments are broken up by the QAPP and HASP sub-documents. Again, although the Agency does not have jurisdiction over APP's, I would recommend that the issues presented in this correspondence are rectified prior to the commencement of the Toltest portion of the Rocket Ridge Area (RRA) white phosphorous (WP) Time Critical Response Action (TCRA).

QAPP: (Although Ohio EPA'S Division of Hazardous Waste Management (DHWM) is taking the lead on the WP storage and transportation portion of the project, the following should also be addressed)

1. The document does not appear to follow standard Ravenna Army Ammunition Plant (RVAAP) formatting guidelines. The contractor should consult with Ms. Gail Harris (VISTA) and rectify any discrepancies as needed.

2. It is not clear if this is a draft document. If so, there should be line numbers for ease of review and comment.

3. There should be an acronym list.

4. There is a statement for Attachment 2 that outside organization certifications will be supplied at a later date. When will these be provided?

5. Most importantly, the document as a whole seems to be lacking specifics. It would seem that, given the nature of dealing with WP wastes, there would be additional information in

the text of the document as to how the QA/QC of handing these wastes would be performed, details for QA/QC inspections, how to rectify any issues/problems that arise, etc. Unless this is a QA/QC plan for just monitoring contractor quality/performance and not the project as a whole, this document needs considerable revision.

APP: (Again, Ohio EPA does not have regulatory jurisdiction over APPs/HASPs. However as a FYI to the contractor, Ohio EPA does have stop work authority at RVAAP.)

1. The document does not appear to follow standard RVAAP formatting guidelines. The contractor should consult with Ms. Gail Harris (VISTA) and rectify any discrepancies as needed.

2. It is not clear if this is a draft document. If so, there should be line numbers for ease of review and comment.

3. The contractor should run the document through a QA/QC check before providing it to stakeholders. There are a number of grammatical errors, typographical mistakes, an incomplete acronym list, and obvious cut and paste from other documents (i.e., Andrews Air Force Base). There is also a MSDS in here for JP-8. Additionally, on page 8, the line of authority diagram has as one of the SSHOs a person that has a last name of "XXX." There is an alcohol and drug free workplace procedure that does not have sign-off by Toltest principals.

4. The document as a whole does not address the potential issues of dealing with the handling of WP. Here are a few examples (not all inclusive): there is no job safety analysis (JSA)/activity hazard analysis (AHA) for drum handling; no information on how to deal with WP burns; and no real definitive information on how any emergency response regarding spills of WP will be handled. (There is a phone list... but it doesn't detail how to proceed if people cannot be reached); there is a mention of the reportable quantity (RQ) for WP, but not what it is; no listing of Ohio EPA's spill number, no clear information that the WP will now be stored in the hazardous waste building, etc.. Who will be handling any potential WP emergency response issues? The only information provided in the APP does not have a documented source.

5. Unless there is a companion health and safety plan, the APP is very weak on cold weather emergencies and other issues, such as weather emergencies (ex., when to resume work after a thunder/lightning storm); rally points and actual evacuation routes; how to make a determination on whether or not an injured worker should be deconned prior to transport to the hospital; the difference between basic life support and advanced life support emergencies, whether or not there is a sign-off on daily tailgate safety meetings, etc.

6. Many of the JSAs/AHAs are wrong in terms of advising people to call 911 or the police/fire department directly in the event of an emergency instead of Post 1. The directions to the hospital (map and written) are not adequate. None of the JSAs/AHAs were reviewed or have sign-off. The JSAs/AHAs need to indicate that smoking can only be done in areas approved by RVAAP, not the SSHO. Cutting and pasting from other documents resulted in numbering being off. On a few JSAs/AHAs, a person not assigned to this project is listed

as the competent person. There is no indication of what kind of first aid kits will be on-site. There are discrepancies between the JSAs/AHAs in terms of the amount of weight a person can handle alone, i.e., 50, 51, and 70 pounds.

7. With respect to waste management, as a FYI to Toltest, the paint at RVAAP also may contain PCBs. Additionally, the text on page 6 of the lead based paint removal plan references a Waste Management Plan, but does not indicate to the reader where it may be found. Theoretically, this plan should also state where the waste will be stored, as it is not defined in this plan. Additionally, the lead plan indicates on page 7 that "environmental protection will be provided to correct conditions...." This sentence does not make sense.

8. In the Spill Contingency Plan: There is no acronym list; this plan still states that the WP will be stored in earth covered magazines (ECMs); the text indicates that Toltest has the capability to respond to most situations (i.e., spills), but does not clearly spell-out how a WP emergency would be responded to; the text indicates that the primary spill risk would be a leak from a piece of construction equipment (disagree: it would be from an incident with a drum containing WP); the text doesn't indicate that wet sand should be used to respond to WP spills; in section 3.2, the first number that appears on the emergency contact list should be Post 1, etc.

Again, although Ohio EPA does not have regulatory jurisdiction over HASPs/APPS, I believe that the comments in this correspondence indicate that there are some serious issues with the documents that have been prepared and distributed for stakeholder review. I would recommend that there be additional discussion between the Army and the contractor to determine a path forward in rectifying the deficiencies that were noted on the APP, prior to the white phosphorous portion of the RRA TCRA occurring.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Michael J. Eberle
-FOR-

Eileen T. Mohr, Project Manager
Division of Emergency and Remedial Response

ETM/kss

ec: Justin Burke, Ohio EPA, DERR, CO
Todd Fisher, Ohio EPA, DERR, NEDO
Frank Zingales, Ohio EPA, DHWM, NEDO
Greg Moore, USACE Louisville
Eric Cheng, USACE Louisville
LTC Ed Meade, OHARNG
Jim McGee, VISTA/Army
Brian Morgan, Toltest
Mike Eberle, Ohio EPA, DERR, NEDO
Mark Krivansky, AEC
Glen Beckham, USACE Louisville
Nick Stolte, USACE Louisville
Katie Tait, OHARNG
Christy Esler, VISTA/Army
Gail Harris, VISTA/Army

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

November 08, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
TOLTEST RRA TCRA WMP
OHIO EPA # 267000859089

Mr. Mark Patterson, Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7010 1060 0000 0089 6707

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Final Waste Management Plan for RVAAP-00004-R-01 Open Demolition Area # 2 White Phosphorous Disposal at the Rocket Ridge Area." This document, dated September 23, 2010 and received at Ohio EPA on September 24, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District by Toltest Inc., under contract number W912QR-04-D-0038.

Although Ohio EPA's Division of Hazardous Waste Management (DHWM) is taking the lead on this portion of the Rocket Ridge Area (RRA) Time Critical Response Action (TCRA), I have the following comments on the submitted document:

WASTE MANAGEMENT PLAN:

1. (Page i) – BRACO should be BRACD (Base Re-Alignment and Closure Division).

2. (Page ii) - The authorization page is signed and dated on 08/26/10. The date of the document is 09/23/10. Please explain.

3. (Numerous places) – On any future submissions, when referencing state, federal, and local authorities, please use "rules, laws, and regulations."

4. (Page 3, section 2.0) - In two places on this page, there is the reference to improving the roads into the Wet Storage Area (WSA). Although it is my understanding that the roads and the Earth Covered Magazines (ECMs) are to be improved, the text links this to the containerization and transportation of white phosphorous (WP) wastes. As the WP will be transported to, and stored in Building 1047, clarify the intent of this text. (If "overflow" of drums may be stored in the WSA, that scenario should be explained in the text.)

5. (Page 4, section 2.1) – The text indicates that it is "assumed" that the wastes will carry the codes UN-1381 and UN-3191. On page 9 (section 4.0), the text indicates that the wastes will carry these codes. Please rectify the apparent disconnect.

6. The text on page 4 indicates that Toltest "...will be responsible for responding to any spills or leaks by contacting PIKA." Clarification is requested:

   a. Has Toltest sub-contracted this responsibility to PIKA?

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

b. If the process for contacting responsible parties to respond to a spill/leak is what is presented in the Accident Prevention Plan (APP) and later on in this document, there are deficiencies (i.e., the observer of the spill leak just keeps calling down the phone list until there is a response). There is no indication that a competent person will be identified as being "on call" to respond to the spill/leak.

c. If PIKA is sub-contracted to Toltest, does PIKA work under Toltest's APP, or are they responsible for preparing their own? See comments on the APP that were sent to your attention under separate cover.

This issue is additionally confused by the text on page 14 (section 4.12) entitled, "Spill Prevention and Response" in which there is no mention of PIKA.

7. (App A) – The appendix contains a figure of the WSA. Since the WP wastes are now to be stored in Building 1047 (unless additional room is required and "overflow" goes to WSA) shouldn't there be a figure of that building in here instead (or in addition to) the WSA area?

SPILL CONTINGENCY PLAN:

1. (Page 3, section 1.0) - The text in this section indicates that the WP will be stored in and transported from the WSA. Unless the WSA is used for "overflow" this is not correct, as the WP waste will be stored in Building 1047.

2. (Page 3, section 1.2) – The text indicates that the primary spill risk associated with this project would be a leak from a piece of construction equipment. Disagree. The primary spill risk would be from WP drum handling, loading, transport, etc.

3. (Page 4, section 1.4, also page 12) – The text indicates that Toltest has the ability to respond to most situations with their own resources to expedite recovery and clean-up operations. The WMP on page 4 indicates that Toltest will respond to WP spills/leaks by contacting PIKA. Clarify.

4. (Page 6, section 3.0) – In several places, the competent person information needs to be updated to specify the name and contact information for the person assigned to this project.

5. (Page 7, section 3.2) – Post 1 information needs to be on the top of this table. Additionally, the text below the table needs to be beefed up. As currently written, the plan indicates that a person would keep calling down the list until there is a positive response. How about having someone (or a few people) designated as being "on call" for the duration of this project?

6. (Pages 8-10) – Provide the source for this WP information.

7. (Pages 11-12) – Please clarify whether or not the spill control and response is what would be found in a "generic" plan, or one that was specifically prepared for this project. For example:

a. The 4th bullet indicates that the spill would be covered with an absorbent material such as kitty litter or sawdust (the bullet immediately prior has any liquid clean-up as complete). Would you really want to put something like sawdust (which is combustible) on WP (which auto-ignites in the presence of air)?

b. There are no drains in 1047 that have not been plugged with concrete.

c. Post # 1 should be the first point of contact, not the Fire Department.

8. App A, List of Project Contacts needs to be updated:

   a. Update the Toltest contacts.

   b. Christy Esler's title is Office Administrator.

   c. Todd Fisher's phone number is (330) 963-1148.

   d. Post # 1 should be on the top of the list.

9. VISTA spill plan was not reviewed.

APPENDIX F:

1. Please clarify why the response to comment table (RTC) table was not sent to stakeholders for review and (potential) discussion prior to revising the draft WMP. This is standard procedure at RVAAP.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

ETM/kss

ec: Justin Burke, Ohio EPA, CO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Frank Zingales, Ohio EPA, NEDO, DHWM
Greg Moore, USACE Louisville
Eric Cheng, USACE Louisville
LTC Ed Meade, OHARNG
Jim McGee, VISTA/Army
Brian Morgan, Toltest
Mike Eberle, Ohio EPA, NEDO, DERR
Mark Krivansky, AEC
Glen Beckham, USACE Louisville
Nick Stolte, USACE Louisville
Katie Tait, OHARNG
Christy Esler, VISTA/Army
Gail Harris, VISTA/Army

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

April 16, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, DRAFT SAMPLING AND ANALYSIS OF SOILS BELOW FLOOR SLABS AT RVAAP-08 LOAD LINE 1 AND OTHER BUILDING LOCATIONS

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 7679

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled "Draft Sampling and Analysis of Soils Below Floor Slabs at RVAAP-08 Load Line # 1 and Other Building Locations at the Ravenna Army Ammunition Plant, Ravenna, Ohio." This document, dated and received March 16, 2010 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers, Louisville District, by URS Group, Inc.

Ohio EPA has reviewed this document and has found no deficiencies pending review of Appendix F – Data Validation Report / Chemical Quality Assurance Report. As a result, the "Draft Sampling and Analysis of Soils Below Floor Slabs at RVAAP-08 Load Line # 1 and Other Building Locations" can be finalized with the knowledge that Appendix F must be provided, reviewed, and approved by Ohio EPA prior to conducting any remediation.

If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1249.

Sincerely,

Andrew C. Kocher
Site Coordinator
Division of Emergency and Remedial Response

ACK/kss

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Glen Beckham, USACE Louisville
Nathaniel Peters, USACE Louisville
Mark Krivansky, USAEC
Derek Kinder, USACE Louisville
Katie Elgin, OHARNG
Jo Ann Bartsch, URS

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED 20 Apr 2010

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

September 1, 2010

CERTIFIED MAIL
7008 3230 0003 5419 9840

Mr. Mark Patterson, Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Re: Approval for "Section 3.2.4" and "Appendix F – Data Validation Report and Chemical Quality Assurance Report" for the "Draft Report for the Sampling and Analysis of Soils Below Floor Slabs at RVAAP-08 Load Line 1 and Other Buildings at the Ravenna Army Ammunition Plant, Ravenna, Ohio," Dated July 21, 2010, Work Activity No. 267000859077

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled, "Draft Report for the Sampling and Analysis of Soils Below Floor Slabs at RVAAP-08 Load Line 1 and Other Buildings at the Ravenna Army Ammunition Plant, Ravenna, Ohio," dated July 21, 2010. This document, received by Ohio EPA's NEDO on July 22, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by URS Group, Inc.

On April 16, 2010, Ohio EPA reviewed this document and found no deficiencies pending review of Appendix F – Data Validation Report (DVR)/Chemical Quality Assurance Report (CQAR). The documentation received on July 22, 2010 completes the obligation to submit added text to Section 3.2.4 of the report and the DVR/CQAR within Appendix F. Ohio EPA has reviewed this additional documentation and has found no significant deficiencies. As a result, URS Group, Inc. can submit the "Final Report for the Sampling and Analysis of Soils Below Floor Slabs at RVAAP-08 Load Line 1 and Other Buildings."

If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1249.

Sincerely,

Andrew C. Kocher, Site Coordinator
Division of Emergency and Remedial Response

RECEIVED 8 Sept 2010

ACK/kss

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Glen Beckham, USACE Louisville
Nathaniel Peters, USACE Louisville
Mark Krivansky, USAEC
Derek Kinder, USACE Louisville
Katie Tait, OHARNG
Jo Ann Bartsch, URS

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

November 19, 2010

CERTIFIED MAIL
7008 3230 0003 5419 9772

Mr. Mark Patterson, Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Re: Approval for the "Final Report for the Sampling and Analysis of Soils Below Floor Slabs at RVAAP-08 Load Line 1 and Other Buildings at the Ravenna Army Ammunition Plant, Ravenna, Ohio," Dated September 17, 2010, Work Activity No. 267000859077

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled, "Final Report for the Sampling and Analysis of Soils Below Floor Slabs at RVAAP-08 Load Line 1 and Other Buildings at the Ravenna Army Ammunition Plant, Ravenna, Ohio," dated September 17, 2010. This document, received by Ohio EPA's NEDO on September 17, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by URS Group, Inc.

Ohio EPA has reviewed this documentation and has found no significant deficiencies. As a result, the "Final Report for the Sampling and Analysis of Soils Below Floor Slabs at RVAAP-08 Load Line 1 and Other Buildings" has been approved.

If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1249.

Sincerely,

Andrew C. Kocher
Site Coordinator
Division of Emergency and Remedial Response

ACK/kss

cc: Jo Ann Bartsch, URS

ec: Eileen Mohr, Ohio EPA, DERR, NEDO
Glen Beckham, USACE Louisville
Nathaniel Peters, USACE Louisville
Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO
Derek Kinder, USACE Louisville
Katie Tait, OHARNG
Mark Krivansky, USAEC

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

July 16, 2010

CERTIFIED MAIL

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
Building 1037
8451 State Route 5
Ravenna, OH 44266-9297

RE: COMMENTS FOR THE "DRAFT WORK PLAN (WP) FOR SAMPLING & CLOSURE OF LOAD LINES 1, 2, 3, 4, 12 (RVAAP- 08, 09, 10, 11, AND 12) AND OTHER AREAS OF CONCERN AT THE RAVENNA ARMY AMMUNITION PLANT, RAVENNA, OHIO," DATED MAY 25, 2010

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled, "Draft Work Plan (WP) for Sampling & Closure of Load Lines 1, 2, 3, 4, 12 (RVAAP- 08, 09, 10, 11, and 12) and Other Areas of Concern at the Ravenna Army Ammunition Plant, Ravenna, Ohio," dated May 25, 2010. This document, received by Ohio EPA's NEDO on June 1, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by Prudent Technologies, Inc.

Comments on the document from Ohio EPA are provided in the enclosed table. Please provide responses to the enclosed comments within 15 calendar days and a revised document within 30 days, in accordance with the Findings and Orders for RVAAP.

If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1249.

Sincerely,

Andrew C. Kocher
Site Coordinator
Division of Emergency and Remedial Response

ACK/dms

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
LTC Ed Meade, OHARNG RTLS
Katie Elgin, OHARNG RTLS
John Jent, P.E., PRUDENT INC.
Glen Beckham, USACE Louisville
Derek Kinder, USACE Louisville
Mark Krivansky, AEC

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

DRAFT WORK PLAN (WP) FOR SAMPLING & CLOSURE OFLOAD LINES 1, 2, 3, 4, 12 (RVAAP- 08, 09, 10, 11, AND 12) AND OTHER AREAS OF CONCERN AT THE RAVENNA ARMY AMMUNITION PLANT, RAVENNA, OHIO
COMMENT RESPONSE TABLE
JULY 16, 2010

Comment Number	Page No./Line No.	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (Andrew Kocher& Eileen Mohr)		
O-1	Appendix A /Page 1-2/ Lines 17-26		This section discusses the types of material that may be encountered. Maybe also include piping material (e.g., sewer and water lines).	Include text noting that underground piping may be encountered although will be avoided.	
O-2	Appendix A /Page 1-2/ Lines 34-38		This section discusses the use of a roto-sonic drill rig. Although this rig may be useful in penetrating the fill material, it was noted bt previous observations that the roto-sonic "cores" were basically pulverized and recovery was poor.	It is likely that the collection of discrete samples (e.g., 3-5ft) will be compromised using a roto-sonic drill rig. No change to the text is needed; however, it may be unnecessary to mobilize the roto-sonic rig for this sampling event.	
O-3	Appendix A /Page 4-2/ Lines 16-17		This sentence discusses the procedure if refusal of the push probe occurs. Ohio EPA thinks that other alternatives should be evaluated to maximize the number of deeper samples.	One approach might be to move after three attempts and then, based upon what happened at the next few sub-locations, potentially re-visit the ones where they were getting shallow refusal. For example: if the driller were able to get samples at depth in other "sub-locations" ... then they would go back to the areas where they had shallow refusal and try more times to get samples at depth.	
O-4	Appendix A /Page 4-		Again, this sentence discusses the procedure if refusal of the	Please add some text describing how Prudent will deal with various	

DRAFT WORK PLAN (WP) FOR SAMPLING & CLOSURE OFLOAD LINES 1, 2, 3, 4, 12 (RVAAP- 08, 09, 10, 11, AND 12) AND OTHER AREAS OF CONCERN AT THE RAVENNA ARMY AMMUNITION PLANT, RAVENNA, OHIO
COMMENT RESPONSE TABLE
JULY 16, 2010

Comment Number	Page No./Line No.	New Page or Sheet	Comment	Recommendation	Response
	2/ Lines 16-17		push probe occurs. The building footprint (i.e., sampling area) will likely have numerous borings with different refusal depths. The text doesn't clearly explain that this will likely be the case and how this will be logged, collected, and reported. For example: The Plan is the collect 16 borings at the melt pour building. After all the attempts at varies locations, we end up with sixteen 1-3ft increments, thirteen 3-5ft increments, and nine 5-7ft increments.	numbers of increments with depth. Also, explain that if a cleanup standard is exceeded at depth, then only the vertical samples that actually went down to that depth will be analyzed. In my example, the lab would only have to analyze nine samples, if the standard was exceeded in the horizontal sample at 5-7 feet. Discussion may be needed.	
O-5	Appendix A /Page 4-3/ Lines 9-11		This sentence discusses the collection of vertical MI samples. The text mentions the vertical MI sample will be collected and that it will not be processed or analyzed unless the horizontal sample results are above cleanup standards. However, there is no mention of where these samples will be stored and how they will be stored, while maintaining proper chain-of-custody and holding times.	Please add some text to clarify the storage of the vertical samples.	

Ohio Environmental Protection Agency

[illegible], Governor
[illegible], Lt. Governor
[illegible], Director

August 5, 2010

CERTIFIED MAIL
7009 1680 0001 9552 2230

Mr. Mark Patterson, Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Re: Approval for the "Final Work Plan (WP) for Sampling & Closure of Load Lines 1, 2, 3, 4, 12 (RVAAP- 08, 09, 10, 11, and 12), and Other Areas of Concern at the Ravenna Army Ammunition Plant, Ravenna, Ohio," Dated July 30, 2010

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled, "Final Work Plan (WP) for Sampling & Closure of Load Lines 1, 2, 3, 4, 12 (RVAAP- 08, 09, 10, 11, and 12) and Other Areas of Concern at the Ravenna Army Ammunition Plant, Ravenna, Ohio," dated July 30, 2010. This document, received by Ohio EPA's NEDO on July 30, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by Prudent Technologies, Inc. This document also included the "Final Project Management Plan," the "Field Sampling Plan Addendum," the "Quality Assurance Project Plan Addendum," the "MEC Anomaly Avoidance Plan," the "Site Health and Safety Plan Addendum," the "Storm Water Pollution Prevention Plan," and the "Contractor Quality Assurance Plan."

On July 16, 2010, Ohio EPA sent comments on the draft of this document. All the comments have been adequately addressed in the final version of the report, and Ohio EPA has found no further deficiencies. As a result, the "Final Work Plan (WP) for Sampling & Closure of Load Lines 1, 2, 3, 4, 12 (RVAAP- 08, 09, 10, 11, and 12) and Other Areas of Concern" has been accepted and filed.

If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1249.

Sincerely,

Andrew C. Kocher, Site Coordinator
Division of Emergency and Remedial Response

RECEIVED 11 Aug 2010

ACK/kss

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
LTC Ed Meade, OHARNG RTLS
Katie Elgin, OHARNG RTLS
John Jent, P.E., PRUDENT INC.
Glen Beckham, USACE Louisville
Derek Kinder, USACE Louisville
Mark Krivansky, AEC

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

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

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

March 4, 2010

RE: RAVENNA ARMY AMMUNITION PLANT,
PORTAGE/TRUMBULL COUNTIES,
FINAL MULTI-INCREMENT SAMPLING
AND ANALYSIS OF SOILS BELOW FLOOR
SLABS AT RVAAP-09 LOAD LINE 2, RVAAP-10
LOAD LINE 3 AND RVAAP-11 LOAD LINE 4

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 9949

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled "Final Multi-Increment Sampling and Analysis of Soils Below Floor Slabs at RVAAP-09 Load Line # 2, RVAAP-10 Load Line # 3, and RVAAP-11 Load Line # 4 at the Ravenna Army Ammunition Plant, Ravenna, Ohio." This document, dated and received December 4, 2009 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers, Louisville District, by URS Group, Inc.

On February 10, 2010, Ohio EPA gave comments on this document. All the comments have been adequately addressed and Ohio EPA has found no further deficiencies. As a result, the "Final Multi-Increment Sampling and Analysis of Soils Below Floor Slabs at RVAAP-09 Load Line # 2, RVAAP-10 Load Line # 3, and RVAAP-11 Load Line # 4" has been accepted and filed.

If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1249.

Sincerely,

Andrew C. Kocher
Site Coordinator
Division of Emergency and Remedial Response

ACK/kss

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Glen Beckham, USACE Louisville
Nathaniel Peters, USACE Louisville
Mark Krivansky, USAEC
Derek Kinder, USACE Louisville
Katie Elgin, OHARNG
Jo Ann Bartsch, URS

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

November 24, 2010

CERTIFIED MAIL
7008 3230 0003 5419 9758

Mr. Mark Patterson, Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Re: Comments for the "Draft Remediation Completion Report Sub-Slab Soils at RVAAP-09 Load Line 2, RVAAP-10 Load Line 3, and RVAAP-11 Load Line 4 at the Ravenna Army Ammunition Plant, Ravenna, Ohio," Dated October 14, 2010, Work Activity No. 267000859077

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled, "Draft Remediation Completion Report Sub-Slab Soils at RVAAP-09 Load Line 2, RVAAP-10 Load Line 3, and RVAAP-11 Load Line 4 at the Ravenna Army Ammunition Plant, Ravenna, Ohio," dated October 14, 2010. This document, received by Ohio EPA's NEDO on October 15, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by URS Group, Inc.

Comments on the document from Ohio EPA are provided in the enclosed table. Please provide responses to the enclosed comments within 15 calendar days and a revised document within 30 days, in accordance with the Findings and Orders for RVAAP.

If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1249.

Sincerely,

Andrew C. Kocher, Site Coordinator
Division of Emergency and Remedial Response

ACK/kss

enclosure

cc: Jo Ann Bartsch, URS

ec: Eileen Mohr, Ohio EPA, DERR, NEDO
Glen Beckham, USACE Louisville
Nathaniel Peters, USACE Louisville
Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO
Derek Kinder, USACE Louisville
Katie Tait, OHARNG
Mark Krivansky, USAEC

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 487 0769 (fax)
www.epa.ohio.gov

DRAFT REMEDIATION COMPLETION REPORT SUB-SLAB SOILS AT RVAAP-09 LOAD LINE 2, RVAAP-10 LOAD LINE 3, AND RVAAP-11 LOAD LINE 4
COMMENT RESPONSE TABLE
NOVEMBER 24, 2010

Comment Number	Page No./ Line No.	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (Andrew Kocher)		
O-1	General		Please include a table that lists the Cleanup Goals (CUGS) and the Adjusted CUGS.	Please include this new table. In addition, please add (at the bottom), the definition of each.	
O-2	Page 1-1 / Lines 13-15		This statement of the purpose was a little vague.	Please add more detail to this paragraph explaining the Ohio Army National Guard's intended future use. In addition, explain the reasoning for only collecting samples to maximum of four feet below ground surface (see Figures 3-1 to 3-5).	
O-3	Figures 3-1 to 3-5		The figures are stuck into the report and needed too much interpretation. They also seemed to interfere with the text.	Please remove these Figures and place in its own Appendix or attachment. Please add an explanation to these figures on the cover page. Please include details like: when the samples were collected, what purpose do these results tell us (e.g., confirmatory or pre-excavation), were they MI or grab samples, were they laboratory results or screening, are we comparing these results to CUGs or adjusted CUGs, etc?	

DRAFT REMEDIATION COMPLETION REPORT SUB-SLAB SOILS AT RVAAP-09 LOAD LINE 2, RVAAP-10 LOAD LINE 3, AND RVAAP-11 LOAD LINE 4
COMMENT RESPONSE TABLE
NOVEMBER 24, 2010

O-4	Figure 3-3		The concentrations of TNT appear to increase with depth at Sample LL2DB4-SB-048 and LL2DB4-SB-049SN.	Please explain why this apparent trend and explain why samples were not taken deeper considering this trend.	
O-5	Figure 3-3		The figure is titled "Building DB-4/-4WN;" however, building DB-4WN is not shown of the figure.	Please label building DB-4WN on the figure. In general, please review all the figures to make sure all titles reflect the figure itself.	
O-6	Page 4-1 / Lines 31-35		The paragraph explains that the backfill had come from Patrick Excavating.	Please indicate that the sample from Patrick Excavating correlates with Sample BF002.	
O-7	Figures 4-1 to 4-6		Same as O-3.	Same as O-3.	
O-8	Page 4-14 Table 4-2		The table shows a summary of screening results. It unclear as whether the CUG or Adjusted CUG was used and why ND is indicated after Building EB-4.	Please add "Adjusted" in front of "Cleanup Goal." If appropriate, please delete the ND after Building EB-4.	
O-9	Page B-1 Table B-1		The table indicates the analytical results of samples collected from two backfill companies/locations, but does not distinguish which company/location.	Please add to the table a distinction that indicates which sample was collected from which company/location. Note: this comment is similar to Comment O-6, where assumptions were made that Patrick Excavating correlates with Sample BF002.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963-1200 FAX: (330) 487 0769
www.epa.state.oh.us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

January 5, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL LL-12 REMEDIAL DESIGN

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0000 6381 0858

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Final, Remedial Design for the RVAAP-12 Load Line 12, Ravenna Army Ammunition Plant, Ravenna, OH." This document, dated and received at Ohio EPA on October 1, 2009, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by SAIC Engineering of Ohio., under contract number GS-10F-0076J, delivery order number W912QR-05-F-0033.

An Ohio EPA verbal approval was previously provided for the above-mentioned document and this letter serves as the formal approval letter.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher
Project Coordinator
Division of Emergency and Remedial Response

TRF/kss

cc: Mark Krivansky, AEC
Katie Elgin, OHARNG RTLS
Nat Peters, USACE Louisville
Jed Thomas, SAIC, Twinsburg
Eileen Mohr, Ohio EPA, NEDO, DERR
Tia Rutledge, SAIC, Twinsburg
LTC Ed Meade, OHARNG
Glen Beckham, USACE Louisville
Tom Chanda, USACE Louisville
Kevin Jago, SAIC, Oakridge
Derek Kinder, USACE Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

RECEIVED
7 Jan 2010

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

January 6, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FINAL, FWGWMP, DRAFT, RESPONSE TO COMMENTS, FS FOR GROUNDWATER AT LOAD LINE 12, DATED NOVEMBER 30, 2009

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0000 6381 0841

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft Feasibility Study for Groundwater at RVAAP-12 Load Line 12, Response to Comments" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on December 1, 2009, and is dated November 30, 2009. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by SAIC, Twinsburg, Ohio Office, under contract no. W912QR-04-D-0028. This document was reviewed by Ohio EPA personnel in NEDO's DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW).

The above-referenced document was submitted to summarize the evaluation of remedial alternatives in a Feasibility Study (FS) at Load Line 12 (LL12) at RVAAP. The U.S. Army has proposed the implementation of Alternative # 2 [Institutional Controls with Monitored Natural Attenuation (MNA)] for the contaminated groundwater at LL12. It assumed that continued MNA ground water monitoring will demonstrate that 1) nitrate and arsenic concentrations are decreasing to National Guard Trainee (NGT) or Residential Cleanup Goals (CUGs) at LL12 and 2) contaminants will not be migrating outside of the LL12 boundary at concentrations above the NGT CUGs (arsenic is 0.012 mg/L and nitrate is 523 mg/L). Ohio EPA noted in the previous comment letter that a MNA remedy must include, at a minimum, adequate compliance points (wells), performance standards, timetable, and alternative action.

Ohio EPA still has some outstanding comments that need to be addressed prior to approval of the FS document:

(1) Modeling Prediction: The model predicts that arsenic will not migrate off the LL12 boundary at any time above the NGT CUG of 0.012mg/L and nitrate is not expected to reach the boundary within 900 years at a concentration exceeding the NGT CUG value of 523 mg/L. In addition, nitrate is predicted to reach the LL12 boundary at a concentration greater than 17 mg/L in approximately 400 years. The document proposes to sample wells for a total of 30 years.

(A) The model's predictions must be supported by sampling data. Ohio EPA noted that the flow system at LL12 is complicated and that various flow maps generated for that area over the years actually conflict with flow directions.

Ohio EPA remains concerned that the three proposed compliance wells are not adequate for the complex flow system. Please evaluate all existing flow maps for LL12 and re-evaluate if additional compliance wells are needed.

(B) The CUGS are above the Maximum Contaminant Level (MCL) for public drinking water standards for arsenic (0.010 mg/L) and nitrate (10 mg/L). Ohio EPA noted that arsenic is slightly above the MCL and the CUG is the same as the background level. There is no background level for nitrate and the current CUG is considerably higher than the MCL. Ohio EPA also noted that nitrate is predicted to remain above the MCL as it leaves the LL12 boundary in 400 years. Given the uncertainly by the National Guard or another owner for potential use of LL12 and groundwater for the next 400-900 years, and that nitrate is expected to leave the boundary exceeding the MCL, what will prevent groundwater use on LL12 and the adjacent property(s)? How will the predicted concentration be evaluated against the actual concentration if only 30 years of sampling are proposed?

(2) Although the document states that the monitoring will demonstrate that MNA is decreasing the nitrate and arsenic contamination, it does not specify a predicted amount within a specific amount of time as a performance standard. Please discuss.

(3) The document does not discuss an alternative action that will be implemented and when, if the nitrate and arsenic concentrations do not "decrease." An alternative action should be proposed in detail.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Bonnie Buthker, Ohio EPA, DERR, SWDO
Eileen Mohr, Ohio EPA, DERR, NEDO
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Conni McCambridge, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Mark Nichter, USACE Louisville
Kevin Jago, SAIC, Tennessee Office
Jed Thomas, SAIC, Twinsburg Office
Mark Krivansky, AEC

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487 0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

July 21, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
PRELIMINARY DRAFT RA REPORT
LOAD LINE 12 (RVAAP-12)

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2193

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Preliminary Draft, Remedial Action Report for the RVAAP-12 Load Line 12, Ravenna Army Ammunition Plant, Ravenna, Ohio. This document, dated and received at Ohio EPA on July 16, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District, by Science Applications International Corporation (SAIC), under contract number GS-10F-0076J, delivery order number W912QR-05-F-033.

This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). Ohio EPA generated no comments during its review of this document and recommends issuance of the final document, providing there are no additional comments from the Army or Ohio Army National Guard.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
Todd.Fisher@epa.state.oh.us

TRF/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Kevin Jago, SAIC, Oak Ridge
Jed Thomas, SAIC, Twinsburg
Glen Beckham, USACE, Louisville
Mark Krivansky, AEC
MAJ Ed Meade, RTLS
Katie Elgin, RTLS
Derek Kinder, USACE, Louisville
Tom Chanda, USACE, Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

Ohio Environmental Protection Agency

[illegible], Governor
[illegible], Lt. Governor
[illegible], Director

August 16, 2010

RE: RVAAP – SITE MG #: 267000859059
RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL LL-12 REMEDIAL ACTION REPORT
APPROVAL

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2261

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Final, Remedial Action Report for the RVAAP-12 Load Line 12, Ravenna Army Ammunition Plant, Ravenna, OH. This document, dated and received on August 9, 2010 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District, by Science Applications International Corporation (SAIC), under contract number GS-10F-0076J, delivery order number W912QR-05-F-033.

This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). Ohio EPA has determined that all required text changes have been made to this document and considers it to be final and approved, providing there are no additional comments from the Army or Ohio Army National Guard.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
Todd.Fisher@epa.state.oh.us

TRF/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Kevin Jago, SAIC, Oak Ridge
Jed Thomas, SAIC, Twinsburg
Glen Beckham, USACE, Louisville
Thomas Chanda, USACE, Louisville
MAJ Ed Meade, RTLS
Katie Tait, RTLS
Derek Kinder, USACE, Louisville
Mark Krivansky, AEC

ec: Mike Eberle, Ohio EPA, NEDO, DERR

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

8/18/10

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

February 3, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
PREDRAFT RA REPORT FOR FBQ

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0000 6381 0704

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Preliminary Draft Remedial Action Report for the RVAAP-16 Fuze and Booster Quarry Landfill/Ponds, Ravenna Army Ammunition Plant, Ravenna, OH." This document, dated and received at Ohio EPA on December 23, 2009, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by SAIC Engineering of Ohio, Inc., under contract number GS-10F-0076J, delivery order number W912QR-05-F-0033. The comments generated from the review of this document are enclosed.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher
Project Coordinator
Division of Emergency and Remedial Response

TRF/kss

enclosure

cc: Mark Krivansky, AEC
Katie Elgin, OHARNG RTLS
Nat Peters, USACE Louisville
Jed Thomas, SAIC, Twinsburg
Eileen Mohr, Ohio EPA, NEDO, DERR
Tia Rutledge, SAIC, Twinsburg
LTC Ed Meade, OHARNG
Glen Beckham, USACE Louisville
Tom Chanda, USACE Louisville
Kevin Jago, SAIC, Oakridge
Derek Kinder, USACE Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

COMMENT RESOLUTION TABLE

Installation: Ravenna Army Ammunition Plant, Ravenna, Ohio
Document: Preliminary Draft Remedial Action Report for the RVAAP-16 Fuze and Booster Quarry Landfill / Ponds
Reviewer(s): Todd R. Fisher, Ohio EPA
Date: February 3, 2010

Comment No. #	Page No. # Line No. #	Ohio EPA Comment	Ohio EPA Recommendation	Contractor Response
1	Document Distribution Pg.	The Southwest District office (SWDO) is no longer providing review support on RVAAP documents.	Please remove "Ohio EPA-SWDO – Ohio Environmental Protection Agency – Southwest District Office" from the footnote of the distribution table.	
2	Page 5-3 Lines 5-7	The text states that samples were "dried, sieved, and ground finely by the fixed-base laboratory and were analyzed for total manganese. The results were compared against the remedial action CUG for FBQ (1,950 mg/kg)." The name of the laboratory has been omitted and it is unclear what CUG is being referenced (National Guard Trainee vs. Residential Farmer, etc.).	Please include the name of the fixed-base laboratory. In addition, please indicate which CUG is being used.	
3	Page 5-5 Figure 5-1	This figure shows cross-sections with vertical exaggerations of 5x.	Please add "VERTICAL EXAGGERATION = 5X" to the bottom of the figure.	
4	Page 5-5 Figure 5-1	The legend shows the Munitions Response Site (MRS) Boundary as a solid black line. No apparent MRS boundary is shown on the figure.	Please remove "Munitions Response Site Boundary" from the legend.	
5	Page 6-1 Lines 18-20	The text states that "Ohio EPA provided e-mail correspondence approving the use of this borrow	Please provide a copy of Ohio EPA's e-mail approving the backfill source material.	

COMMENT RESOLUTION TABLE

Installation: Ravenna Army Ammunition Plant, Ravenna, Ohio
Document: Preliminary Draft Remedial Action Report for the RVAAP-16 Fuze and Booster Quarry Landfill / Ponds
Reviewer(s): Todd R. Fisher, Ohio EPA
Date: February 3, 2010

Comment No. #	Page No. # Line No. #	Ohio EPA Comment	Ohio EPA Recommendation	Contractor Response
		source for the remedial action restoration activities. " A copy of this e-mail is not included in the report.		
6	Page 7-1 Lines 8-10	The text states that remedy "exceeded clean-up goals for the Resident Subsistence Farmer; as the manganese CUG for the National Guard Trainee is more stringent than the Residential Farmer." The CUG value for Residential Subsistence Farmer has been omitted.	Please add the CUG value for the Resident Subsistence Farmer to the text.	
7	Appendix A-3	The letter from the USACE Pittsburg Branch Chief Scott A. Hans is unsigned.	Please provide a signature copy.	
8	Appendix B Laboratory Analytical Results	This appendix contains no SAIC Chain of Custodies or Laboratory summary of analytical results.	Please provide Laboratory Chain of Custodies and the Laboratory summary of analytical results.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

March 11, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL FBQ REMEDIAL ACTION REPORT

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 7440

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Final, Remedial Action Report for the RVAAP-16 Fuze and Booster Quarry Landfill/Ponds." This document, dated and received at Ohio EPA on March 5, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by SAIC Engineering of Ohio, Inc., under contract number GS-10F-0076J, delivery order number W912QR-05-F-0033. Ohio EPA approves this document, pending any additional comments from the U.S. Army or Ohio Army National Guard.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher
Project Coordinator
Division of Emergency and Remedial Response

TRF/kss

cc: Mark Krivansky, AEC
Katie Elgin, OHARNG RTLS
Nat Peters, USACE Louisville
Jed Thomas, SAIC, Twinsburg
Eileen Mohr, Ohio EPA, NEDO, DERR
Tia Rutledge, SAIC, Twinsburg
LTC Ed Meade, OHARNG
Glen Beckham, USACE Louisville
Tom Chanda, USACE Louisville
Kevin Jago, SAIC, Oakridge
Derek Kinder, USACE Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

January 28, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
SHAW 4 AOC WP – DRAFT

CERTIFIED MAIL
7009 1680 0000 6381 0742

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), has received and reviewed the document entitled: "Draft, Sampling and Analysis Plan No. 1 for Environmental Services at RVAAP-34 Sand Creek Disposal Road Landfill, RVAAP-03 Open Demolition Area # 1, and RVAAP-28 Mustard Agent Burial Site." This document, dated January 20, 2010 and received at Ohio EPA on January 22, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District by Shaw Environmental and Infrastructure Inc., under contract number W912QR-08-D-0013.

Enclosed with this correspondence, please find Ohio EPA's comments.

If you have any questions, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

ETM/kss

enclosure

cc: Glen Beckham, USACE Louisville
Derek Kinder, USACE Louisville
Katie Elgin, OHARNG
Dave Crispo, Shaw
Nat Peters, USACE Louisville
Mark Krivansky, AEC
Dave Cobb, Shaw
Andrea Steele, Shaw

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Christy Esler, RVAAP

RECEIVED
1 Feb 2010

DOCUMENT: "Draft Sampling and Analysis Plan Addendum No.1 for Environmental Services at RVAAP-34 Sand Creek Disposal Road Landfill, RVAAP-03 Open Demolition Area # 1, and RVAAP-28 Mustard Agent Burial Site"
REVIEWER: Eileen T. Mohr, Ohio EPA, NEDO, DERR
DATE: January 28, 2010

Cmt #	Page #/ Line #	Comment	Recommendation/ Requirement	Response
1	3-3/15-17	This section needs to be expanded to indicate that site related contaminants, such as propellants and explosives, cannot be eliminated by the 5% frequency of detection screen.	Please revise.	
2	3-4/33-35 and going onto the next page.	The text sounds as though a chemical will be retained as a COC if it exceeds the most stringent CUG for each receptor based on a 10E-5 or HI of 1. However, the text also seems to indicate that a sum of ratios approach will be used to ensure that the risk goal isn't exceeded as a justification to retain the chemical as a COC.	If the CUG is exceeded for the most stringent receptor options, it will need to be evaluated during the FS (ex. cleanup). For example, if the CUGs exceed the residential re-use, then LUCs and 5 year reviews as costs and alternatives needs to be evaluated in the FS. What is not exactly clear in the text is how you get to the final cleanup numbers. This is where the sum of ratios should come in, i.e., determining whether or not the CUGs are protective for the intended re-use and modifying them if they are not.	
3	3-5/14-20	The future uses for Sand Creek and ODA1 are listed.	Clarify the status of MABS.	
4	4-2/29-30	Text revision requested.	Revise to read: "...work and any vegetation disturbance..." Specifically, does Shaw intend to disturb wetlands as part of this effort?	

5	4-3/1-15	Clarification requested.	Hasn't the GPO already been constructed? If so, revise tense.	
6	4-5/31-34	This section contains text from an old MI SOW that was never revised, but that Ohio EPA had repeatedly asked for revisions with respect to discrete vs. MI data defensibility, etc.	Remove these lines from the revised text.	
7	4-7/7	Revision of text requested.	Change text to read: "....otherwise, decontamination will be..."	
8	4-8/32 and 34	Clarification requested.	I don't have the draft CUGs in front of me. I am aware that we have a draft CUG for hex chrome, but I am blanking on the total chrome CUG. Please provide.	
9	4-11/10-12 and 4-11/13-15	The first bullet talks about collecting and securing artifacts or remains. The second bullet talks about not disturbing the area any further.	These seem to be contradictory. In one, there is a discussion that even Range Control can collect artifacts/remains... this seems counter to archaeological preservation rules. Please clarify.	
10	4-11/11-12	Revision requested.	Remove verbiage that discusses the barrier system, as this relates to another project.	
11	7-1/6	Addition requested.	Add Ohio EPA.	
12	7-1/33	Text revision.	Change to read: "two 55 gallon drums of decontamination fluid..."	
13	App A/A-4/4	Text change requested.	Change text to read: "....potential source areas, it will be necessary..."	
14	App A/A-4/6-7	Clarification requested.	It is unclear why the FWSAP Addendum would be modified to reflect the proposed sampling design. If the sampling design needs to be modified after the workplans are approved, then any changes will be reflected in approved FCOs and added to the report.	

15	App A/TableA-2	Clarification requested, based upon ODA1 surface soil rationale and the ODA1 map (A-1).	Do the 3 proposed MI samples of surface soil close the data gaps? Looking at the map and without having the ODA1 data in front of me... are all other areas on the perimeter "clean" based upon previous analytical work?	
16	App A/table A-2	Clarification requested.	The depth intervals listed in the subsurface soil categories are misleading; i.e. it doesn't look like samples will be collected on 4 foot intervals. This concept is, however, picked up by the number of samples in the next column. Perhaps an asterisk could be added to the subsurface depth column and a footnote added to the bottom of the table that indicates that within these depths, samples will be collected on 4 foot intervals.	
17	App B/B-1/2	Text change.	Change "rational" to "rationale."	
18	App C/Table C-2	Clarification requested.	What is meant by the title of this table? Specifically, the meaning of the "Summary of Accumulation Areas" is unclear.	
19	App C/C-9/14-17	Clarification requested on the contingency samples.	I did not see these scoped in on the Table C-4. Where are these located?	

20	App C/Table C-3	Clarification requested.	The depth interval listed on one of the subsurface soil categories is misleading; i.e., it doesn't look like samples will be collected on 4 foot intervals. This concept is, however, picked up by the number of samples in the next column. Perhaps an asterisk could be added to this subsurface depth column and a footnote added to the bottom of the table that indicates that within these depths, samples will be collected on 4 foot intervals.	
21	App C/Table C-4	Clarification requested.	Clarify where the contingency samples referenced on page C-9 can be found.	
22	QAPP 2-1/7-8	Text revision requested.	Revise text to read: "...laboratory QAPP will be forwarded to USACE and Ohio EPA, once the laboratory is selected."	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

February 25, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL SHAW SAP FOR 3 AOCS

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 2810 0000 5304 9654

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Final Sampling and Analysis Plan Addendum No. 1 for Environmental Services at RVAAP-34 Sand Creek Disposal Road Landfill, RVAAP-03 Open Demolition Area # 1, and RVAAP-28 Mustard Agent Burial Site." This document, dated February 11, 2010 and received at Ohio EPA, NEDO, on February 12, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District by Shaw Environmental and Infrastructure, under contract number W912QR-08-D-0013. This document was compared to the draft document, dated January 20, 2010, and the approved response to Comment (RTC) table.

The above-referenced document is approved.

If you have any questions, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Eileen T. Mohr, Project Manager
Division of Emergency and Remedial Response

ETM/kss

cc: Glen Beckham, USACE Louisville
Derek Kinder, USACE Louisville
Katie Elgin, OHARNG Camp Ravenna
Dave Crispo, Shaw
Nat Peters, USACE Louisville
Mark Krivansky, AEC
Dave Cobb, Shaw
Andrea Steele, Shaw

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Christy Esler, RVAAP Army

RECEIVED 1 Mar 2010

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

March 02, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
DRAFT GPO REPORT

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 9925

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Draft Geophysical Prove-Out Report for Environmental Services at RVAAP-34 Sand Creek Disposal Road Landfill, RVAAP-03 Open Demolition Area # 1, and RVAAP-28 Mustard Agent Burial Site." This document, dated February 5, 2010 and received at Ohio EPA, NEDO, on February 08, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Shaw Environmental and Infrastructure Inc. under contract number W912QR-08-D-0013.

Enclosed with this correspondence, please find Ohio EPA's comments on the above-referenced documents.

If you have any questions, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

-FOR-
Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

ETM/kss

enclosure

cc: Glen Beckham, USACE Louisville
Dave Cobb, Shaw
Dave Crispo, Shaw
Katie Elgin, OHARNG
Derek Kinder, USACE Louisville
Mark Krivansky, AEC
Nat Peters, USACE Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Christy Esler, RVAAP Army

DOCUMENT: **Draft Geophysical Prove-Out Report for Environmental Services at RVAAP-34 Sand Creek Disposal Road Landfill, RVAAP-03 Open Demolition Area # 1, and RVAAP-28 Mustard Agent Burial Site**
REVIEWER: **Eileen T. Mohr, Ohio EPA, NEDO, DERR**
DATE: **March 02, 2010**

Cmt #	Page #/ Line #	Comment	Recommendation/Requirement	Response
1	v/12 Also: 1-3/29; 8-1/5	Acronym change.	Change EQ acronym to EQM.	
2	2-1/24	The text indicates that the GPO site appears to fall within similar soil conditions and geological regimes.	Please clarify... similar soil and geologic regimes as....what? (There are several soil types and formations represented on the maps). Is the intent to indicate that the GPO soil and geologic characteristics are similar to ODA1, SC and MABS?	
3	3-2/16-18	The text indicates that data was initially collected and then when location information became available, the data was converted to NAD83 State Planar coordinates.	Clarify what is meant by "location information" and why it wasn't available prior to data collection.	
4	4-1/12-13	The text indicates that the survey control for the RTK GPS was not available prior to conducting the background survey.	Clarify why survey control was not available prior to conducting the background survey. Any project impact?	
5	4-1/31 to 4-2/2	The text indicates that a higher standard of deviation of measurement was observed for the static measurements from the lower MAG sensor.	a. any impact on the project performance objectives? b. on line 32... should the "and" be removed?	
6	5-1/7-10	The text indicates that the anomaly selection criteria should be considered	Please explain. Shouldn't the anomaly selection criteria be "nailed down" prior to	

		preliminary and will likely be developed further, based upon evaluations at Aberdeen and Yuma Proving Grounds.	conducting the geophysical work here at RVAAP?	
7	5-2/30; Also: 5-2/3; 6-5/10-11; 6-6/15; 6-7/3	The text references the 11x guideline.	Please clarify, as the last we were informed, less weight was being placed on the use of the 11x guideline.	
8	6-3/10	The text indicates that the issue of the in-line and across-line offset distances did not significantly impact the data interpretation of the seed items.	Please clarify what is meant by "significantly." How did it impact the data interpretation?	
9	7-1/7-9	The text indicates that the G858 magnetometer will be used at SC, due to the "steep and rugged topography" that will limit the safe use of the EM61-MK2 system.	Clarification requested. Won't the EM61-MK2 also be used in the more level areas of the Sand Creek Dump?	
10	7-2/6	The acronym GIP appears.	Please define the first time it is used and add it to the acronym list.	
11	7-2/33-34, Also: 7-3/3	Are there any units associated with the SNR?	If yes, please add.	
12	7-3/9-11	The text indicates that in areas of higher anomaly density that there is a much lower probability of accurately characterizing each anomaly due to interference from adjacent anomalies.	Although this makes sense, please describe how this effect is minimized and the potential impact upon the project objectives.	
13	Fig 1-2	The depiction of the interior of the RVAAP is not accurate. (Most of the features on the west side are not shown.)	Please present a more accurate depiction of the interior features of the RVAAP.	

14	Fig 1-3	The inset map does not accurately depict the location of the Sand Creek Dump.	Please revise.	
15	Fig 1-4	The inset map does not accurately depict the locations of the MABS and ODA1.	Please revise.	
16	Fig 2-2	Addition to the legend needed.	Add the soil type names to the legend.	
17	Fig 2-3	Make changes to the map.	a. change HomeWood to Homewood. b. change Condomemberling to Conoquenessing. c. clarify... what is the Blandon?	
18	Fig 2-4	The tree location symbol in the legend does not match what is on the map.	Please rectify the disconnect.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

April 12, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL GPO REPORT – SHAW

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 7655

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the final document entitled, "Final Geophysical Prove-Out Report for Environmental Services at RVAAP-34 Sand Creek Disposal Road Landfill, RVAAP-03 Open Demolition Area # 1, and RVAAP-28 Mustard Agent Burial Site." This document, dated March 25, 2010 and received at Ohio EPA on the same date, and the replacement pages received on April 08, 2010, were prepared for the U.S. Army Corps of Engineers (USACE) Louisville district, by Shaw Environmental, Inc.

The final document is approved.

If you have any questions, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

ETM/kss

cc: Glen Beckham, USACE Louisville
Derek Kinder, USACE Louisville
Mark Krivansky, AEC
Dave Crispo, Shaw
Nat Peters, USACE Louisville
Katie Elgin, OHARNG
Dave Cobb, Shaw

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Christy Esler, RVAAP/Army

RECEIVED
13 Apr 2010

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

November 05, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
SHAW DRAFT DGM REPORT FOR
3 AOCS, RVAAP # 267000859059

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 9802

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Draft Digital Geophysical Mapping Report for the RVAAP-34 Sand Creek Disposal Road Landfill, RVAAP-03 Open Demolition Area # 1, and RVAAP-28 Mustard Agent Burial Site, Version 1.0." This document, dated September 29, 2010 and received at Ohio EPA on September 30, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District.

Enclosed with this correspondence, please find comments from Ohio EPA on the above-referenced document. If you have any questions, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

FOR

Eileen T. Mohr, Project Manager
Division of Emergency and Remedial Response

ETM/kss

enclosure

cc: Dave Crispo, Shaw

ec: Justin Burke, Ohio EPA, CO, DERR
Greg Moore, USACE, Louisville
Glen Beckham, USACE, Louisville
Mark Krivansky, AEC
Katie Tait, OHARNG
Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Mark Nichter, USACE, Louisville
LTC Ed Meade, OHARNG
Dave Cobb, Shaw

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

DOCUMENT: Draft Digital Geophysical Mapping Report for the RVAAP-34 Sand Creek Disposal Road Landfill, RVAAP-03 Open Demolition Area # 1, and RVAAP-28 Mustard Agent Burial Site, Version 1.0

REVIEWER: Eileen T. Mohr, DERR, NEDO

DATE: November 05, 2010

CMT #	PAGE #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
1	Doc dist pg	Title change.	Change to Ohio EPA Project Manager.	
2	Doc dist pg/4	Changes needed.	Change BRACO to BRAC-D and Office to Division.	
3	Fig 1-2	There is a new installation map that has all AOCs/MRs and compliance restoration sites depicted.	If available from USACE in this size, please obtain and put in the revised report.	
4	1-11/11-12	[I am operating from memory here, as I do not have access to any of the MABS reports.] I believe it was a guess that what might be here are CAIS kits, not that it was definitive if there were items present at MABS that they were CAIS kits.	Please check this out by looking at other reports and asking Mark Patterson. If this sentence needs to be less definitive, please make it so.	
5	2-2/32	Clarification requested.	Should this really read parts per million? If not, please change.	
6	Fig 4-1	Clarification requested.	a. There appears to be a number of areas (white) where there was no geophysical coverage within the defined boundary. Please explain.	
7	Fig 4-1	Discussion needed.	It appears that there may be additional anomalies to the north and to the east of the area delineated by the thin grey line (polygon area). Specifically, the	

			equipment was getting a good response in terms of metallic anomalies and the survey ends. The question is: Have we determined the extent, which was a goal of this DGM survey? Is there some reason (i.e., inaccessibility) that the DGM survey was stopped here? Also – add polygon depiction to revised figure key.	
8	Figs 4-2a and 4-2b	Clarification requested.	a. There appears to be a number of areas (white) where there was no geophysical coverage within the defined boundary. Please explain. b. Identify the feature south of the 4557850 line and east of the 489200 line. c. Anyway to depict the former berm area more clearly? (This would help when referred to in text on page 6-1.) If this is done... add to the key. d. Add polygon depiction to revised figure key.	
9	Figs 4-2a and 4-2b	Discussion needed.	It appears that there may be additional anomalies, especially to the south/southwest. Specifically, the equipment was getting a good response in terms of metallic anomalies and the survey ends.	

			The question is: Have we determined the extent, which was a goal of this DGM survey? Is there some reason (i.e., inaccessibility) that the DGM survey was stopped here? Minimally, it looks like we need to expand the area bounded by Seibert stakes.	
10	Fig 4-3	Clarification needed.	Please clarify what the numbers in the circles represent.	
11	Fig 4-3	Discussion needed.	We need to discuss the implications of the results of the survey at MABS; i.e. how/where to implement restrictions.	
12	4-6/2-4	Revisions/clarification requested.	a. The figures that are described in this text should have the polygon areas listed in the appropriate map legends/key. b. How is "relatively higher anomaly density" defined?	
13	4-6/13	Clarification requested.	The text indicates that the automatic target selector was based upon the channel 2 data. It is my understanding that channel 1 provides better data, although there is greater noise. Is this why channel 2 was selected over channel 1?	
14	5-1/8	Typo. Correction needed.	Change collect to collected.	
15	5-2/1	Addition requested.	The text indicates that the performance metrics were met. In the revised document, add text which indicates where these performance metrics can be found.	

16	5-2/16-19	The text indicates that that the nulling of the coils was challenging and that there was also a procedural error in the field.	Please clarify what, if any, impact that these had on the resulting data.	
17	5-2/27	Minor grammar.	Meets should be meet, correct? (Data is plural in this case.)	
18	5-3/21	Clarification needed. Discussion may be needed.	The text indicates that the data determined the broader limits of the metallic waste materials at Sand Creek. We need to look at the issue of whether there would have been more anomalies encountered to the north and east (on the northern end) if the survey had been broader. I am not saying the survey should have been broader, but I am wondering, however, if we can realistically say we have a good handle on the extent of potential MEC/metallic debris, etc.	
19	6-1/4-19	Clarification needed. Discussion may be needed.	The text indicates that the data determined the broader limits of the metallic waste materials at Sand Creek. We need to look at the issue of whether there would have been more anomalies encountered to the north and east (on the northern end) if the survey had been broader. I am not saying the survey should have been broader, I am wondering, however, if we can realistically say we have a good handle on the extent of potential MEC/metallic debris, etc.	
20	6-1/22	Clarification requested.	Should circumvent be "surround" or some other word for text clarity?	

21	6-1/20 to 6-2/11	Discussion will be needed.	Based upon the figures resulting from the DGM surveys, minimally, it appears that the current area surrounded by Seibert stakes will need to be expanded.	
22	6-1/20 to 6-2/11	Discussion will be needed.	It appears that there may be additional anomalies, especially to the south/southwest. Specifically, the equipment was getting a good response in terms of metallic anomalies and the survey ends. The question is: Have we determined the extent, which was a goal of this DGM survey?	
23	6-2/15-16	Clarification needed.	The text indicates that several of the anomalies at MABS have characteristics similar to the items placed in the GPO. Can you prepare another figure that clearly indicates what anomalies are being referred to, and what item their signature is similar to in the GPO?	
24	6-2/18-19	Clarification requested.	The text indicates that the linear features at the MABS AOC are assumed to be related to sub-surface utilities, etc. What is this assumption based upon? Existing as-built drawings?	
25	App C	Provide.	CD missing from original submission.	

** High Priority **

Hi Brian:

Please add this email and attachment to the approved workplan along with the Independence report, the letter from USACE PGH and my previous email

Bottom-line: the attached email just basically spells out specific BMPs that PIKA and Independence are expected to follow. There should be no new information in here. Ohio EPA will come out probably 12 months after the stream is restored and re-score it according to the Ohio EPA scoring sheet that showed the upstream segment at 79.5.

There are no additional reports/plans that we will need to review prior to work commencing at Rocket Ridge.

I would like Greg and Ed to be able to come out and be around during any field work regarding diversion stream excavation, restoration, etc.. Also, I think it would be key for Ed and Greg to have input into the area after the White Phosphorous has been removed to see if there are any issues created with the removal of that portion of the bank.

Thanks for your hard work. You are good to go from Ohio EPA's end.

Have a good weekend.

Eileen

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response
2110 East Aurora Road
Twinsburg, OH 44087
330-963-1221
330-487-0769 (FAX)
email: Eileen.Mohr@epa.state.oh.us

-Received 6/14-10

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

February 1, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
DRAFT SC/FSS WP FOR RVAAP-51

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0000 6381 0728

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Draft Site Characterization and Focused Feasibility Study Work Plan for the Dump along Paris-Windham Road (RVAAP-51), Ravenna Army Ammunition Plant, Ravenna, Ohio." This document, dated and received at Ohio EPA on December 04, 2009, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by SAIC Engineering of Ohio, Inc., under contract number W912QR0-08-D-008, delivery order number 0014. The comments generated from the review of this document are enclosed.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher
Project Coordinator
Division of Emergency and Remedial Response

TRF/kss

enclosure

cc: Mark Krivansky, AEC
Katie Elgin, OHARNG RTLS
Nat Peters, USACE Louisville
Jed Thomas, SAIC, Twinsburg
Eileen Mohr, Ohio EPA, NEDO, DERR
Tia Rutledge, SAIC, Twinsburg
LTC Ed Meade, OHARNG
Glen Beckham, USACE Louisville
Tom Chanda, USACE Louisville
Kevin Jago, SAIC, Oakridge
Derek Kinder, USACE Louisville
Joan Cullen, USACE Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

COMMENT RESOLUTION TABLE

Installation: Ravenna Army Ammunition Plant, Ravenna, Ohio
Document: Draft Site Characterization and Focused Feasibility Study Work Plan for the Dump along Paris-Windham Road (RVAAP-51)
Reviewer(s): Todd R. Fisher and Eileen T. Mohr, Ohio EPA, Division of Emergency and Remedial Response
Date: February 1, 2010

Comment No. #	Page No. # Line No. #	Ohio EPA Comment	Ohio EPA Recommendation	Contractor Response
1	Document Distribution Pg.	Bonnie Buthker has accepted another position within Ohio EPA and is no longer working on RVAAP.	Please remove Bonnie Buthker, Ohio EPA-NEDO from the distribution table.	
2	Document Distribution Pg.	The Southwest District office (SWDO) is no longer providing review support on RVAAP documents.	Please remove "Ohio EPA-SWDO – Ohio Environmental Protection Agency – Southwest District Office" from the footnote of the distribution table.	
3	Page 1-1, line 13	The text states that a "Remedial Design/Removal Action (RD/RA) was conducted in 2003 to remove unconsolidated surface debris..." Calling this action an RD/RA was implemented by the Army in order to secure funding for this project. It was really, in essence, an Interim Removal Action (IRA).	Please add the word "limited" before "Remedial Design/Removal Action." Also, please keep "Remedial Design/Removal Action" in quotations in the text.	
4	Page 1-1, Line 15	See Ohio EPA comment above.	Add the following sentences before the word "completion:" "The RD/RA was conducted by the Base Re-Alignment and Closure Division (BRACD). Although defined as an RD/RA, it was, in fact, an interim removal action and was not intended to be a final remedy."	
5	Page 1-1, Lines 24-27	The objective of the project does not mention identifying potential data gaps.	Please include "identify potential data gaps" as an objective.	
6	Page 1-3 Lines 4-13	Although it won't be residential, is there any consideration to look	Please provide comment.	

COMMENT RESOLUTION TABLE

Installation: Ravenna Army Ammunition Plant, Ravenna, Ohio
Document: Draft Site Characterization and Focused Feasibility Study Work Plan for the Dump along Paris-Windham Road (RVAAP-51)
Reviewer(s): Todd R. Fisher and Eileen T. Mohr, Ohio EPA, Division of Emergency and Remedial Response
Date: February 1, 2010

Comment No. #	Page No. # Line No. #	Ohio EPA Comment	Ohio EPA Recommendation	Contractor Response
		at a RD/RA from a residential standpoint for unrestricted OHARNG usage?		
7	Page 2-1, Lines 4-13	There is no mention of identifying potential data gaps.	Please add identify potential data gaps to the numbered list.	
8	Page 2-1, Lines 28-30	The text states "groundwater data does not exist for the vicinity of the AOC" and "groundwater will be excluded as a potential exposure pathway, and will be addressed by the US Army under a future decision for the RVAAP Facility-Wide Groundwater AOC (RVAAP-68)."	What mechanism or assurance will require this area to be addressed under the FWGW program? Why not drill a few wells specific to this AOC? Please provide further justification as to why GW will not be investigated.	
9	Page 3-3, Lines 28-30	The text states that "small fragments of transite were left in place in the southern portion of the AOC." How are "small fragments" defined?	Please provide clarification.	
10	Page 3-7, Figure 3-2	There is no discussion of the Ecological Sample in the text preceding this figure.	Please add a discussion in the text or remove ecological sample location from the figure.	
11	Page 5-2 Figure 5-1	The vertical text under the column heading "Potential Receptors" is illegible.	Please correct figure.	
12	Page 5-2 Figure 5-1	The drainage swale during the August 2009 walkover contained	Please change pathway to show potential complete exposure pathway to receptors.	

COMMENT RESOLUTION TABLE

Installation: Ravenna Army Ammunition Plant, Ravenna, Ohio
Document: Draft Site Characterization and Focused Feasibility Study Work Plan for the Dump along Paris-Windham Road (RVAAP-51)
Reviewer(s): Todd R. Fisher and Eileen T. Mohr, Ohio EPA, Division of Emergency and Remedial Response
Date: February 1, 2010

Comment No. #	Page No. # Line No. #	Ohio EPA Comment	Ohio EPA Recommendation	Contractor Response
		no standing water. However, water may be present during other times of the year and not observed.		
13	Page 5-2 Figure 5-1	Is the footnote "b" based on the August 2009 visit?	Please update table to reflect the date(s) that the swale was observed.	
14	Page 6-1 Line 23	The bullet states that "no specific development project is identified for this AOC."	Please add the word "currently" between the words "is" and "indentified."	
15	Page 6-2 Lines 13-27	The receptors have a potential to have direct contact to surface water.	Please add surface water to each receptor scenario.	
16	Page 6-3,4 Section 6.1.2	This section contains no evaluation of surface water COCs.	Please evaluate surface water COCs and provide this information in the text.	
17	Page 6-4 Section 6.1.4 Lines 3-9	The text states that the "SC/FFS will include an evaluation of contaminant nature and extent based on existing data."	Please clarify whether or not we have a good handle on nature and extent of contamination before we proceed further. Either we have or have not determined nature and extent. Please explain why the determination of nature and extent is a risk management decision.	
18	Page 6-4 Section 6.1.4 Lines 27-29	The text states that "the likelihood of surface water conveyance of contaminants from AOC to nearby habitats will be ascertained. One of the principal sources of information will be the Facility-Wide Biological and Water Quality Study (USACE	Please provide clarification.	

COMMENT RESOLUTION TABLE

Installation: Ravenna Army Ammunition Plant, Ravenna, Ohio
Document: Draft Site Characterization and Focused Feasibility Study Work Plan for the Dump along Paris-Windham Road (RVAAP-51)
Reviewer(s): Todd R. Fisher and Eileen T. Mohr, Ohio EPA, Division of Emergency and Remedial Response
Date: February 1, 2010

Comment No. #	Page No. # Line No. #	Ohio EPA Comment	Ohio EPA Recommendation	Contractor Response
		2005b)." How many data points are being used from the FW SW report? Will there be any hydraulic modeling? How will wetlands be determined?		
19	Page 7-1 Lines 5-6	The text states that "residual small fragments of transite were left in place." What was the size of these fragments (range)?	Please make the appropriate changes to the text.	
20	Page 7-1 Lines 11-12	Surface water pathway has been omitted.	Please add surface water pathway.	
21	Page 7-1 Lines 16-18	The text states that "transite should not be considered further as it is not exposed and the surface soil/subsurface soil pathway has been determined to be incomplete." Transite may now be exposed at the surface from erosion and /or frost heave.	Recommend sampling for asbestos.	
22	Page 7-1 Lines 33-41	It is unclear whether a summary of all data collected will be included in the SC/FSS.	Recommend including a summary of all data in Section 3.0.	

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

August 19, 2010

RE: RVAAP – SITE MTG #: 267000859059
RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL PARIS-WINDHAM DUMP
SITE CHARACTERIZATION FFS WORKPLAN
APPROVAL

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 9864

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Final, Site Characterization and Focused Feasibility Work Plan for the RVAAP-51 Dump Along Paris-Windham Road, Ravenna Army Ammunition Plant, Ravenna, OH. This document, dated and received on August 5, 2010 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District, by Science Applications International Corporation (SAIC), under contract number W912QR0-08-D-008, delivery order number 0014.

This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). Ohio EPA has determined that all required text changes have been made to this document and considers it to be final and approved, providing there are no additional comments from the Army or Ohio Army National Guard.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Michael Eberle
— FOR —

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
Todd.Fisher@epa.state.oh.us

TRF/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Kevin Jago, SAIC, Oak Ridge
Jed Thomas, SAIC, Twinsburg
Glen Beckham, USACE, Louisville
Thomas Chanda, USACE, Louisville
Mark Nichter, USACE, Louisville
MAJ Ed Meade, RTLS
Katie Tait, RTLS
Derek Kinder, USACE, Louisville
Mark Krivansky, AEC
Joan Cullen, USACE, Louisville
Angela Schmidt, USACE, Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

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

** High Priority **

Brian:

EXCUSE ANY TYPOS. CANNOT SPELL CHECK FROM HERE.

Here is a list of the final information that needs to be appended to the conditionally approved TCRA workplan for there to be final approval. Please ensure that all stakeholders are sent copies of the following so that they can insert them into the final workplan:

1. A copy of the Independence Excavating information dated May 4, 2010;
2. A copy of the correspondence from the USACE - Pittsburgh District dated May 21, 2010; and,
3. A copy of this email.

Additionally, representatives from the Ohio EPA conducted a QHEI evaluation independent of the one conducted by HzW (HzW QHEI score=69.5). The Ohio EPA QHEI was conducted upstream of the Rocket Ridge TCRA area and resulted in a score of 79.5. During the scoring, the three stages of obligate salamanders were observed (egg, larval and adult). Both the scoring and the presence of the obligate salamander stages indicate that we are dealing with a really great environment. Once again, this underscores the fact that the stream, when restored, needs to be restored to as close as possible to the original condition as possible (minus contamination). This would include restoring the substrate as much as possible to the original with respect to percentages of boulders v. cobbles v. sand, etc.. In order to achieve this, prior to disturbing the stream, the Ohio EPA requests that overlapping pictures (i.e. panoramic) of the current stream segment be obtained and estimates of the substrate composition be made. At some point in the future, Ohio EPA representatives will be coming back and scoring the restored area of the stream to see if it has achieved the goal of reaching the scoring level of the upstream segment.

Once all information is sent to the appproved stakeholders, this workplan is approved without conditions.

If you have any questions, please do not hesitate to contact me.

Eileen

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response
2110 East Aurora Road
Twinsburg, OH 44087
330-963-1221
330-487-0769 (FAX)
email: Eileen.Mohr@epa.state.oh.us

Received 6/14/10

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

January 5, 2010

RE: RAVENNA ARMY AMMUNITION PLANT,
PORTAGE/TRUMBULL COUNTIES,
DRAFT, FWGWMP JULY 2009
SAMPLING EVENT REPORT,
RESPONSE TO OHIO EPA COMMENTS
DATED DECEMBER 21, 2009

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0000 6381 0865

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Response to Ohio EPA Comments, Facility-Wide Ground Water Monitoring Program (FWGWMP) Draft July 2009 Sampling Event" document. The "Investigative Derived Waste and Characterization and Disposal Plan" (IDW) has been included in Appendix E in this document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on December 21, 2009. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036.

The IDW plan, Appendix E, was previously approved. The comments have been adequately addressed and the report is approved. Please forward one copy of the replacement pages and titles.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Bonnie Buthker, Ohio EPA, DERR, SWDO
Katie Elgin, OHARNG RTLS
Glen Beckham, USACE Louisville
John Miller, EQM
Conni McCambridge, Ohio EPA, DERR, NEDO
Eileen Mohr, Ohio EPA, DERR, NEDO
Maj. Ed Meade, OHARNG RTLS
Mark Krivansky, AEC
Mark Nichter, USACE Louisville

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED 7 Jan 2010

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

January 20, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, DRAFT, FWGWMP, ANNUAL REPORT FOR 2009

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0000 6381 0797

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Facility-Wide Ground Water Monitoring Program (FWGWMP), Draft Annual Report for 2009, Ravenna Army Ammunition Plant, Ravenna, Ohio (RVAAP)" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on December 10, 2009. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036. This document was reviewed by Ohio EPA personnel in NEDO, DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW).

Summary:

The RVAAP Facility now has 237 existing wells and 6 new deep Sharon Conglomerate Formation (SCF) wells that were installed in 2009, totaling 243 wells. The annual report summarizes the results of all ground water monitoring activities conducted in October 2008, January, April, and July 2009 under the FWGWMP. A total of 132 wells were sampled in October 2008, 131 wells were sampled in January 2009, 53 wells in April 2009, and 46 wells in July 2009. Water in LL-11, MW-009, was frozen and not sampled during the January 2009 event. The 5 RCRA wells (RQL: 3 wells and DA2: 2 wells) were sampled in October 2008 and April 2009 as required by the FWGWMP. Perchlorate analysis was conducted during the October 2008 sampling event and Ohio EPA noted that most of the wells had low level detections.

Water levels were measured at all 237 wells prior to the January 2009 sampling event, to generate the annual potentiometric maps for the unconsolidated aquifer and deeper bedrock system including the new deep wells. The bedrock system is differentiated by geologic formation to represent the Homewood Member of the Pennsylvania-age Pottsville Formation in the western half of the facility and the Sharon Member of the Pottsville Formation in the eastern half of the facility, per methods suggested by the USACE (Hockett, 2007). The report noted that 4 wells at LL-12 were designated as being completed in the Sharon Shale; however, these 4 wells were not used to prepare the potentiometric maps. In addition, the groundwater elevations from the new Sharon Conglomerate wells were evaluated and determined not to be representative of either the Homewood or the Sharon aquifers and, therefore, were not used to

determine the potentiometric contours. The report states the elevations for these wells will be further evaluated after the next groundwater elevation monitoring event for all wells, which is scheduled for January 2010.

The report states 17 wells were redeveloped in June 2009 and 22 wells in September 2009. These activities were performed to remove fines accumulating as sediment in the well bottoms. Ohio EPA noted that the 4 wells at LL-12 did not clear during redevelopment and the purged water was described as grey-colored slurry.

Proposed Changes to the FWGWMP for 2009-10:

Several changes were presented for the 2010 FWGWMP monitoring schedule, which will include the October 2009 and January, April, and July 2010 sampling events. They include the following:

1) Approximately 48 wells will be sampled each quarter or 192 wells total during the 2010 monitoring schedule in accordance with the 20% well sampling requirement.

2) The 6 new deep SCF wells will continue to be sampled during the 2010 monitoring schedule.

3) Twelve wells will be added to the 2010 monitoring schedule, which were inexplicably excluded from the expanded monitoring program conducted in 2008 and 2009. They include 5 wells located at LL-1, 3 wells at LL-2, 2 wells at LL-3, 1 well at LL-4, and 1 well at Open Detonation # 2.

4) All 147 wells were sampled for filtered and unfiltered metals for a geochemical study during the October 2009 sampling event that will be included in the 2010 report.

5) The report also states 12 wells at LL-12 will be sampled annually for arsenic and nitrate, as per the draft Feasibility Study, dated November 6, 2009.

Report Recommendations:

1) Continue groundwater monitoring as proposed and scheduled, including the above recommendations.

2) Background Well Issue: Historically, the integrity of the background wells has not been resolved between Ohio EPA and the USACE. The report states that reinterpretation of the groundwater flow systems suggests that only wells BKGmw-005, BKGmw-006, and BKGmw-018 may be located to establish unaffected regional water-quality conditions. All other background wells may be located hydraulically down gradient from activities and practices at RVAAP that may result in measurable affects.

Ohio EPA concurs with the proposed changes and recommendations. The background well issue(s) still need(s) to be resolved between Ohio EPA and USACE.

Enclosed are Ohio EPA's comments on the report that need to be addressed before the document can be approved. The Director's Final Findings and Orders require that the responses to comments (RTCs) be received within fifteen (15) days of the Army's receipt of Ohio EPA correspondence, and that the revised document be submitted within thirty (30) days of the Army's receipt of Agency correspondence.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DERR, NEDO
John Miller, EQM

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

Ravenna Army Ammunition Plant
Draft, Facility Wide Groundwater Monitoring Program (FWGWMP) Annual Report for 2009
Comment Response Table
Document Reviewer: Ohio EPA

#	Location	Reviewer Comment	Recommendation	Response
1.	Pg. 20	RE: LL-12: (1) 12 wells are listed for sampling arsenic and nitrate; however, each well is specified as an arsenic or nitrate source. Will each well be sampled for both arsenic and nitrate? (2) Did any other LL-12 wells historically have detects of nitrate or arsenic? (3) The FS included sampling MW-189, which has not been included in the list of wells.	(1) Please clarify. (2) Please discuss and provide data, if applicable. (3) Please verify.	
2.	Pg. 22	RE: flow maps. Why were the 4 bedrock wells at LL-12 not included in the flow maps? Report states the new Sharon Conglomerate wells were not included in the flow maps because they are not representative of the Homewood or Sharon aquifers. How and when will this be resolved?	Please discuss.	
3.	Page 28/ Line 19 (Sections 3.1 and 3.3, Table 3-2)	Table 3-2 indicates that wells DET-002, DA2MW-104, DA2MW-107, DA2MW-109, DA2MW-112, DA2MW-113, and NTAMW-116 appear to have more than 1 foot of	Please provide a discussion concerning how and when this issue of excessive silting will be addressed in these wells.	

		sediment accumulations (or greater than 10% of the screen length, 10 feet), yet these wells were not included during the June or September 2009 redevelopment activities. These accumulations could be indicative of excessive silting in these wells (FWGWMPP, Section 4.1, pg. 4-1).		
4.	Page 33 - 43/ Line 27 (Section 3.2.2, Table 3-4)	Section 3.2.2 indicates that maintenance was performed on all background and monitoring wells in 2009. However, several issues were noted in the review: a) Table 3-4 indicated that two wells (Erie Burning Grounds - EBGMW-126 and Mustard Agent Burial Site - MBSMW-001) are *"...consistently under water due to low topography and marshy conditions."* b) When are the proposed 2010 well maintenance activities scheduled?	Please provide a brief discussion concerning the following issues. a) What criteria will be used to determine the integrity of the pad and casing if well pad is under water? b) Please provide a brief discussion as to the timing of the 2010 well maintenance activities.	

5.	Pg.47 Line 43	Report states LL-12 redeveloped wells did not clear; water was grey-colored slurry.	Please discuss the potential impact, if any, this may have on arsenic and nitrate analysis.	
6.	Page 48/ Line 15 (Section 3.3.2)	Section 3.3.2 text indicates that well FBQmw-073 was redeveloped. It is unclear what well is being referred here in the text.	Please provide a clarification of which well was redeveloped in the Fuse and Booster Quarry.	
7.	Table 4.2 pg. 70	Re: LL-12 (1) MCL is incorrect, should be 10 mg/L for nitrate-nitrite. (2) Please verify detected units for nitrate—is it ug/L or mg/L? (3) Table lists most nitrate detects with B and J qualifiers. Table indicates MW-187 had 200 B ug/L detected. No lab narratives were included to discuss these issues for nitrate. (4) MNA is proposed at LL-12 for nitrate and arsenic. According to John Miller, EQM (phone 1/6/10), the nitrate samples are not field filtered, but are preserved. The lab filters the preserved sample once they receive it. The report indicates the wells at LL-12 remain turbid. Could this potentially affect the analysis, since preservative is added? Although the S&A Plan	(1) Please correct. (2) Please verify and correct. (3) Please verify nitrate detects and discuss the B and J qualifiers. Please provide the lab narratives. (4) Please discuss.	

		requires preserving the sample, nitrate can be collected without preserving if analyzed within 24 hours. Should the unfiltered, preserved sample AND either a field filtered preserved sample OR an unpreserved, analyzed within 24 hours sample be collected and compared?		
8.	Section 4.21.1, pg 124, line 9-11	Re: list of nitrate wells: LL-12mw-185 is listed twice and it appears another has been left out.	Please verify list and change if necessary.	
9.	Page 130/ (Section 4.27.1, Tables 4-2 and 4-4)	(1) Tables 4-2 and 4-4 contain one parameter (arsenic), which exceeded its MCL in several wells. It is unclear what course of action will be implemented to address the exceedance of MCL in these wells. (2) The MCL for nitrate-nitrate, in line 44, is incorrect.	(1) Please provide a discussion concerning how and when this issue of arsenic concentrations greater than MCLs will be addressed in the impacted wells. (2) Please change.	
10.	Sec 5.2 pg 132	Background wells: Ohio EPA noted that EQM suggested, due to flow directions, that background wells 005, 006, and 018 appear to be truly upgradient and unaffected by activities.	No response required. Ohio EPA and USACE hope to resolve this issue in the near future.	

11.	Plate (map) 3	Ohio EPA could not locate MW-186 or MW-189 on the map for LL-12.	Please verify.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963 1200 **FAX:** (330) 487 0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

January 20, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, DRAFT, FWGWMP, ANNUAL REPORT FOR 2009

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0000 6381 0797

CERTIFIED MAIL (second mailing)
7009 1680 0000 6381 0735
Signed Copy Resent 02/02/2010

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Facility-Wide Ground Water Monitoring Program (FWGWMP), Draft Annual Report for 2009, Ravenna Army Ammunition Plant, Ravenna, Ohio (RVAAP)" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on December 10, 2009. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036. This document was reviewed by Ohio EPA personnel in NEDO, DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW).

Summary:

The RVAAP Facility now has 237 existing wells and 6 new deep Sharon Conglomerate Formation (SCF) wells that were installed in 2009, totaling 243 wells. The annual report summarizes the results of all ground water monitoring activities conducted in October 2008, January, April, and July 2009 under the FWGWMP. A total of 132 wells were sampled in October 2008, 131 wells were sampled in January 2009, 53 wells in April 2009, and 46 wells in July 2009. Water in LL-11, MW-009, was frozen and not sampled during the January 2009 event. The 5 RCRA wells (RQL: 3 wells and DA2: 2 wells) were sampled in October 2008 and April 2009 as required by the FWGWMP. Perchlorate analysis was conducted during the October 2008 sampling event and Ohio EPA noted that most of the wells had low level detections.

Water levels were measured at all 237 wells prior to the January 2009 sampling event, to generate the annual potentiometric maps for the unconsolidated aquifer and deeper bedrock system including the new deep wells. The bedrock system is differentiated by geologic formation to represent the Homewood Member of the Pennsylvania-age Pottsville Formation in the western half of the facility and the Sharon Member of the Pottsville Formation in the eastern half of the facility, per methods suggested by the USACE (Hockett, 2007). The report noted that 4 wells at LL-12 were designated as being completed in the Sharon Shale; however, these 4 wells were not used to prepare the potentiometric maps. In addition, the groundwater elevations from the new Sharon Conglomerate wells were evaluated and determined not to be representative of either the Homewood or the Sharon aquifers and, therefore, were not used to

determine the potentiometric contours. The report states the elevations for these wells will be further evaluated after the next groundwater elevation monitoring event for all wells, which is scheduled for January 2010.

The report states 17 wells were redeveloped in June 2009 and 22 wells in September 2009. These activities were performed to remove fines accumulating as sediment in the well bottoms. Ohio EPA noted that the 4 wells at LL-12 did not clear during redevelopment and the purged water was described as grey-colored slurry.

Proposed Changes to the FWGWMP for 2009-10:

Several changes were presented for the 2010 FWGWMP monitoring schedule, which will include the October 2009 and January, April, and July 2010 sampling events. They include the following:

1) Approximately 48 wells will be sampled each quarter or 192 wells total during the 2010 monitoring schedule in accordance with the 20% well sampling requirement.

2) The 6 new deep SCF wells will continue to be sampled during the 2010 monitoring schedule.

3) Twelve wells will be added to the 2010 monitoring schedule, which were inexplicably excluded from the expanded monitoring program conducted in 2008 and 2009. They include 5 wells located at LL-1, 3 wells at LL-2, 2 wells at LL-3, 1 well at LL-4, and 1 well at Open Detonation # 2.

4) All 147 wells were sampled for filtered and unfiltered metals for a geochemical study during the October 2009 sampling event that will be included in the 2010 report.

5) The report also states 12 wells at LL-12 will be sampled annually for arsenic and nitrate, as per the draft Feasibility Study, dated November 6, 2009.

Report Recommendations:

1) Continue groundwater monitoring as proposed and scheduled, including the above recommendations.

2) Background Well Issue: Historically, the integrity of the background wells has not been resolved between Ohio EPA and the USACE. The report states that reinterpretation of the groundwater flow systems suggests that only wells BKGmw-005, BKGmw-006, and BKGmw-018 may be located to establish unaffected regional water-quality conditions. All other background wells may be located hydraulically down gradient from activities and practices at RVAAP that may result in measurable affects.

Ohio EPA concurs with the proposed changes and recommendations. The background well issue(s) still need(s) to be resolved between Ohio EPA and USACE.

Enclosed are Ohio EPA's comments on the report that need to be addressed before the document can be approved. The Director's Final Findings and Orders require that the responses to comments (RTCs) be received within fifteen (15) days of the Army's receipt of Ohio EPA correspondence, and that the revised document be submitted within thirty (30) days of the Army's receipt of Agency correspondence.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DERR, NEDO
John Miller, EQM

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

Ravenna Army Ammunition Plant
Draft, Facility Wide Groundwater Monitoring Program (FWGWMP) Annual Report for 2009
Comment Response Table
Document Reviewer: Ohio EPA

#	Location	Reviewer Comment	Recommendation	Response
1.	Pg. 20	RE: LL-12: (1) 12 wells are listed for sampling arsenic and nitrate; however, each well is specified as an arsenic or nitrate source. Will each well be sampled for both arsenic and nitrate? (2) Did any other LL-12 wells historically have detects of nitrate or arsenic? (3) The FS included sampling MW-189, which has not been included in the list of wells.	(1) Please clarify. (2) Please discuss and provide data, if applicable. (3) Please verify.	
2.	Pg. 22	RE: flow maps. Why were the 4 bedrock wells at LL-12 not included in the flow maps? Report states the new Sharon Conglomerate wells were not included in the flow maps because they are not representative of the Homewood or Sharon aquifers. How and when will this be resolved?	Please discuss.	
3.	Page 28/ Line 19 (Sections 3.1 and 3.3, Table 3-2)	Table 3-2 indicates that wells DET-002, DA2MW-104, DA2MW-107, DA2MW-109, DA2MW-112, DA2MW-113, and NTAMW-116 appear to have more than 1 foot of	Please provide a discussion concerning how and when this issue of excessive silting will be addressed in these wells.	

		sediment accumulations (or greater than 10% of the screen length, 10 feet), yet these wells were not included during the June or September 2009 redevelopment activities. These accumulations could be indicative of excessive silting in these wells (FWGWMPP, Section 4.1, pg. 4-1).		
4.	Page 33 - 43/ Line 27 (Section 3.2.2, Table 3-4)	Section 3.2.2 indicates that maintenance was performed on all background and monitoring wells in 2009. However, several issues were noted in the review: a) Table 3-4 indicated that two wells (Erie Burning Grounds - EBGMW-126 and Mustard Agent Burial Site - MBSMW-001) are *"...consistently under water due to low topography and marshy conditions."* b) When are the proposed 2010 well maintenance activities scheduled?	Please provide a brief discussion concerning the following issues. a) What criteria will be used to determine the integrity of the pad and casing if well pad is under water? b) Please provide a brief discussion as to the timing of the 2010 well maintenance activities.	

5.	Pg.47 Line 43	Report states LL-12 redeveloped wells did not clear; water was grey-colored slurry.	Please discuss the potential impact, if any, this may have on arsenic and nitrate analysis.	
6.	Page 48/ Line 15 (Section 3.3.2)	Section 3.3.2 text indicates that well FBQmw-073 was redeveloped. It is unclear what well is being referred here in the text.	Please provide a clarification of which well was redeveloped in the Fuse and Booster Quarry.	
7.	Table 4.2 pg. 70	Re: LL-12 (1) MCL is incorrect, should be 10 mg/L for nitrate-nitrite. (2) Please verify detected units for nitrate—is it ug/L or mg/L? (3) Table lists most nitrate detects with B and J qualifiers. Table indicates MW-187 had 200 B ug/L detected. No lab narratives were included to discuss these issues for nitrate. (4) MNA is proposed at LL-12 for nitrate and arsenic. According to John Miller, EQM (phone 1/6/10), the nitrate samples are not field filtered, but are preserved. The lab filters the preserved sample once they receive it. The report indicates the wells at LL-12 remain turbid. Could this potentially affect the analysis, since preservative is added? Although the S&A Plan	(1) Please correct. (2) Please verify and correct. (3) Please verify nitrate detects and discuss the B and J qualifiers. Please provide the lab narratives. (4) Please discuss.	

		requires preserving the sample, nitrate can be collected without preserving if analyzed within 24 hours. Should the unfiltered, preserved sample AND either a field filtered preserved sample OR an unpreserved, analyzed within 24 hours sample be collected and compared?		
8.	Section 4.21.1, pg 124, line 9-11	Re: list of nitrate wells: LL-12mw-185 is listed twice and it appears another has been left out.	Please verify list and change if necessary.	
9.	Page 130/ (Section 4.27.1, Tables 4-2 and 4-4)	(1) Tables 4-2 and 4-4 contain one parameter (arsenic), which exceeded its MCL in several wells. It is unclear what course of action will be implemented to address the exceedance of MCL in these wells. (2) The MCL for nitrate-nitrate, in line 44, is incorrect.	(1) Please provide a discussion concerning how and when this issue of arsenic concentrations greater than MCLs will be addressed in the impacted wells. (2) Please change.	
10.	Sec 5.2 pg 132	Background wells: Ohio EPA noted that EQM suggested, due to flow directions, that background wells 005, 006, and 018 appear to be truly upgradient and unaffected by activities.	No response required. Ohio EPA and USACE hope to resolve this issue in the near future.	

11.	Plate (map) 3	Ohio EPA could not locate MW-186 or MW-189 on the map for LL-12.	Please verify.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963-1200 FAX: (330) 487 0769
www.epa.state.oh.us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

January 21, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, DRAFT, INVESTIGATION DERIVED WASTE AND DISPOSAL PLAN, FWGWMP, FOR THE DEEP BEDROCK WELL INSTALLATION IN THE BASAL SHARON CONGLOMERATE, RECOVERED PURGE WATER, DATED JANUARY 14, 2010

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0000 6381 0780

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Implementation of Well Installation Work Plan in the Basal Sharon Conglomerate, Characterization and Disposal Letter Report for Recovered Purge Water at the Ravenna Army Ammunition Plant, Ravenna, OH" document. This document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on January 15, 2010, and is dated January 14, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by SAIC Engineering of Ohio, Inc., under contract no. W912QR-04-D-0028.

The report is approved and Ohio EPA concurs that the generation of Investigation Derived Waste (IDW) consisting of purged water may be disposed of as non-contaminated, non-hazardous waste and that it be sent off-site for disposal to a permitted water treatment facility.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Katie Elgin, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
Amanda Trent, SAIC Twinsburg, OH
Maj. Ed Meade, OHARNG RTLS
Mark Nichter, USACE Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR

RECEIVED
25 Jan 10

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

January 28, 2010

RE: RAVENNA ARMY AMMUNITION PLANT,
PORTAGE/TRUMBULL COUNTIES,
FINAL, FWGWMP, JULY 2009
SAMPLING EVENT REPORT

CERTIFIED MAIL
7009 1680 0000 6381 0759

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Facility Wide Groundwater Monitoring Program (FWGWMP) Final July 2009 Sampling Event" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on January 26, 2009. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036.

The document is approved. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
John Miller, EQM
Mark Nichter, USACE Louisville
Conni McCambridge, Ohio EPA, DDAGW, NEDO

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED
29 Jan 10

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

February 2, 2010

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Re: Previous Letter Dated January 20, 2010 and Titled "Ravenna Army Ammunition Plant, Portage/Trumbull Counties, Draft, FWGWMP, Annual Report for 2009"

Dear Mr. Patterson:

The letter referenced above was sent to you without the signature of Vicki Deppisch. The letter has been revised with her signature and is enclosed. I am sorry for any inconvenience this may cause you.

Sincerely,

Kathy S. Schillo

Kathy S. Schillo
Office Assistant 3
Division of Operations

/kss

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DERR, NEDO
John Miller, EQM

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

Environmental Quality Management, Inc.
1800 Carillon Boulevard
Cincinnati, Ohio 45240
(513) 825-7500
FAX (513) 825-7495
www.eqm.com

February 8, 2010

Ms. Vicki Deppisch
Ohio Environmental Protection Agency
Division of Emergency and Remedial Response
2110 E. Aurora Road
Twinsburg, OH 44087

Re: Facility-Wide Groundwater Monitoring Program
Annual Report for 2009 Response to Comments
Ravenna Army Ammunition Plant
Ravenna, Ohio

Dear Ms. Deppisch:

On behalf of the US Army Corps of Engineers (USACE) Environmental Quality Management, Inc. (EQM) is submitting to the Ohio EPA the responses to Ohio EPA comments (dated January 20, 2010) on the *Draft Facility-Wide Groundwater Monitoring Program Annual Report for 2009* at the Ravenna Army Ammunition Plant. Enclosed please find two (2) printed copies of the responses. An electronic copy of the responses has been sent via email.

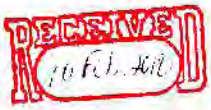
If you have any questions, please call me at (513) 825-7500, or Mr. Mark Nichter of the USACE at (502) 315-6375.

Sincerely,

ENVIRONMENTAL QUALITY MANAGEMENT, INC.

John M. Miller, CHMM

cc: M. Nichter – USACE
M. Patterson – RVAAP (BRAC)



PRELIMINARY DRAFT FACILITY-WIDE GROUNDWATER MONITORING PROGRAM
ANNUAL REPORT FOR 2009
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
January 20, 2010

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (V. Deppisch/C. McCambridge)		
O-1	Pg. 20		Re: LL12-: (1) 12 wells are listed for sampling arsenic and nitrate; however each wells is specified as an arsenic source or nitrate source. Will each well be sampled for both arsenic and nitrate? (2) Did any other LL-12 wells historically have detects of nitrate or arsenic? (3) The FS included sampling MW-189 which has not been included in the list of wells.	(1) Please clarify. (2) Please discuss and provide data, if necessary. (3) Please verify.	(1) As detailed in Table 1-1 of the Annual Report for 2009 all of the 12 wells identified on page 20 will be sampled for all of the current FWGWMP analytical parameters which include both arsenic and nitrate/nitrite. (2) In addition to the wells listed on page 20 of the report the following wells at LL12 have had historical (i.e., 2007-8) detects for nitrate and arsenic: mw-154, mw-184, mw-189, mw-243. All of these wells had arsenic levels above the MCL, but the nitrate/nitrite levels were below the MCL. mw-188 had historical detects for nitrate/nitrite below the MCL. (3) Page 20 will be revised to include mw-189 in the list of wells to be sampled.
O-2	Pg. 22		Re: flow maps. (1) Why were the 4 bedrock wells at LL-12 not included in the flow maps? (2) Report states that the new Sharon Conglomerate wells were not included in the flow maps because they are not representative of the Homewood or Sharon aquifers. How and when will this be resolved?	Please discuss.	(1) The 4 bedrock wells at Load Line 12 (LL12mw-113, LL12mw-183, LL12mw-186 and LL12mw-186) were not included in construction of the Sharon Aquifer per the "Proposal to Update the Facility-Wide Groundwater Monitoring Program," (Hockett, October 2007). These Sharon Shale wells were determined to be screened in a portion of the Sharon Member of the Pottsville Formation different from all other Sharon Aquifer wells, and thus are not a part of the Sharon Aquifer. Refer to Comment O-11 for more discussion. (2) The potentiometric map (Plate 3) was prepared using data obtained in January 2009. The new Sharon Conglomerate wells were not installed until after that date. However, the

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
Ohio EPA (V. Deppisch/C. McCambridge)					
					groundwater elevations in the new Sharon Conglomerate wells obtained at the time of installation are provided. Plate 3 will be revised to indicate that these data are not contemporaneous to the other elevation data. The statement in the report is supported by comparison of elevation data on Plate 3 for the Sharon and Homewood Aquifer wells and the Sharon Conglomerate wells. At the location of Sharon Conglomerate well SCFmw-001, the Homewood Aquifer elevation is about 1105 feet, whereas the reported elevation of water in the well is 1120.71. This 15-foot difference indicates that the Sharon Conglomerate and Homewood Unit are not in direct hydraulic communication, reflecting two different aquifer systems. At the locations of Sharon Conglomerate wells SCFmw-005 and SCFmw-006 the Sharon Aquifer elevation is about 955 feet and 970 feet, respectively. These elevations compare to measured levels of 960.80 feet and 965.92, respectively. Again this approximate 5-foot difference is suggestive of two separate aquifer systems. During 2010 further consideration will be given to determining if a separate Sharon Conglomerate potentiometric map is needed.
O-3	Page 28/Line 19 (Sections 3.1 and 3.3, Table 3-2)		Table 3-2 indicates that wells DET-002, DA2mw-104, DA2mw-107, DA2mw-109, DA2mw-112, DA2mw-113, and NTAmw-116 appear to have more than 1 foot of	Please provide a discussion concerning how and when this issue of excessive silting will be addressed in these wells.	Table 3-2 had a transcription error and has been corrected to indicate that none of these wells had greater than 1-foot of sediment accumulation. The page showing these well

PRELIMINARY DRAFT FACILITY-WIDE GROUNDWATER MONITORING PROGRAM
ANNUAL REPORT FOR 2009
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
January 20, 2010

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (V. Deppisch/C. McCambridge)		
			sediment accumulations (or greater than 10% of the screen length, 10 feet) yet these wells were not included in the June or September 2009 redevelopment activities. These accumulations could be the result of excessive silting in these wells (FWGWMPP, Section 4.1, pg. 4-1).		depths and sediment accumulations is attached. Additionally, the January 2009 well depth for NTAmw-116 appears to be an error in reading the depth. Previous depth readings for this well have shown a -0.16 to -0.08 feet of sediment accumulation. Further the January 2010 measurement showed a sediment accumulation of 0.05 feet. A footnote will be added to Table 3-2 indicating the historical depths of the well.
O-4	Page 33-43/Line 27 (Section 3.2.2, Table 3-4)		Section 3.2.2 indicates that maintenance was performed on all background and monitoring wells in 2009. However several issues were noted in the review: a) Table 3-4 indicated that 2 wells (Erie Burning Grounds – EBGMW-126 and Mustard Agent Burial Site – MBSmw-001 are *"...consistently under water due to low topography and marshy conditions."* b) When are the proposed 2010 well maintenance activities scheduled?	Please provide a brief discussion concerning the following issues. a) What criteria will be used to determine the integrity of the pad and casing if well pad is under water? b) Please provide a brief discussion as to the timing of the 2010 well maintenance activities.	a) The text in the bullet beginning on line 27 Page 46 in Section 3.2.2 will be deleted and replaced with the following text: *The pads at two wells have been noted as being consistently under water. These wells (EBGmw-126 and MBSmw-001) are monitored for signs of deterioration. The pads for the wells that are underwater will be visually inspected during sampling/well inspection events to confirm that they are still intact and that the integrity of the wells is not compromised. Additionally, the water levels in the well will be closely monitored. If the water levels are found to be at ground surface it may be indicative of water entering the casing. Currently the water levels in these wells range between 2- and 7-feet below ground surface.* *It should also be noted that neither of these wells are flush-mounts, and the risers are well above the water level.* b) Well inspections for 2010 were completed in January 2010. The schedule for well maintenance activities is still being developed.

PRELIMINARY DRAFT FACILITY-WIDE GROUNDWATER MONITORING PROGRAM
ANNUAL REPORT FOR 2009
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
January 20, 2010

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (V. Deppisch/C. McCambridge)		
					The maintenance performed will be addressed under 2010 funding. The maintenance schedule for 2010 will be provided to the Ohio EPA prior to conducting any field maintenance activities.
O-5	Page 47 Line 43		Report states that LL-12 redeveloped wells did not clear; water was grey colored slurry.	Please discuss the potential impact, if any, this may have on arsenic and nitrate analysis.	Generally, for metals analysis, a total analysis (i.e., non field filtered) will result in higher concentrations of target metals than an analysis performed on a dissolved (i.e., field filtered) sample. At RVAAP, the metals samples (i.e., arsenic) are field filtered to minimize the impacts of turbidity in the wells and thus give a better indication of dissolved versus suspended metals. The October groundwater monitoring event involved sampling for both filtered and unfiltered metals which provided an indication of potential impact the turbidity might actually have on all target metal concentrations. In nearly all cases all target metals concentrations from the October event were higher in the total analysis than the soluble analysis. For a discussion of nitrate/nitrite please see the response to Comment O-7.
O-6	Page 48/Line 15 (Section 3.3.2)		Section 3.2.2 text indicates that well FBQmw-073 was redeveloped. It is unclear what well is being referred to here in the text.	Please provide a clarification of which well was redeveloped in the Fuse and Booster Quarry.	The text should read FBQmw-173. This typo graphical error will be corrected.
O-7	Table4.2 pg. 70		• Re: LL-12 (1) MCL is incorrect should be 10mg/L for nitrate/nitrite. (2) Please verify detected units for nitrate – is it µg/L or mg/L? (3) Table lists most	(1) Please correct. (2) Please verify and correct. (3) Please verify nitrate detects and discuss the B and J qualifiers. Please provide the	(1) The MCL for nitrates is 10 mg/L, however the MCL for nitrites is 1 mg/L. The MCL used in the tables has reflected the most conservative standard (i.e., 1 mg/L). No change is

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (V. Deppisch/C. McCambridge)		
			nitrate detects with B and J qualifiers. Table indicates Mw-187 had 200 B µg/L detected. No lab narratives were included to discuss these issues for nitrate. (4) MNA is proposed for LL-12 for nitrate and arsenic. According to John Miller, EQM (phone 1/6/10) the nitrate samples are not field filtered, but are preserved. The lab filters the preserved sample once they receive it. The report indicates the wells at L112- remain turbid. Could this potentially affect the analysis since the preservative is added? Although the S&A Plan requires preserving the sample, nitrate can be collected without preserving if collected within 24 hours. Should the unfiltered preserved sample AND either a field filtered preserved sample OR an unpreserved, analyzed within 24 hours sample be collected and compared?	lab narratives. (4) Please discuss.	recommended from 1 to 10. (2) The units of measurement will be corrected to read mg/L. (3) This issue was discussed as part of the review of the October 2008 data. The attached letter was submitted and accepted by the Ohio EPA in response to the blank contamination. This letter as well as the laboratory narratives will be added as an appendix to the annual report (4) The current analytical method used in the analysis of nitrate/nitrite (EPA 353.2) for groundwater samples at RVAAP requires that samples be analyzed within 24 hours of sample collection **or** preserved to a pH < 2 with concentrated sulfuric acid, kept stored at 4° ± 2° C, and analyzed within 28 days. Due to logistical restrictions, EQM has always collected samples for nitrate/nitrite analysis at RVAAP in pre-preserved bottles in order to take advantage of the 28 day hold time. Reference documents do not address any known impact associated with field preservation. The method also recommends filtration by the laboratory, prior to analysis, to eliminate any interferences which could result from suspended matter in the reduction column which could possibly restrict sample flow. As stated, the lab is currently doing this on a preserved sample.
O-8	Section		Re: list of nitrate wells: LL-12mw-185 is	Please verify list and change if	Section 4.21.1 will be revised to indicate that

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (V. Deppisch/C. McCambridge)		
	4.21.1, pg. 124, line 9-11		listed twice and it appears another has been left out.	necessary.	LL12mw-088, LL12mw-128, LL12mw-154, LL12mw-185, LL12mw-187, LL12mw-188, LL12mw-242, LL12mw- 243, and LL12mw-244 had nitrate detections above the reporting limit (RL).
O-9	Page 130/(Section 4.27.1, Tables 4-2 and 4-4)		(1) Tables 4-2 and 4-4 contain one parameter (arsenic) which exceeded its MCL in several wells. It is unclear what course of action will be implemented to address the exceedance of MCL in these wells. (2) The MCL for nitrate-nitrite in line 44 is incorrect.	(1) Please provide a discussion concerning how and when this issue of arsenic concentrations will be addressed in the impacted wells. (2) Please change.	(1) This comment pertains to potential remedial activities for groundwater at the facility. As stated in Section 4.28 the facility-wide groundwater conditions are still being evaluated, including background levels for all inorganic compounds. This will also include an evaluation of arsenic as well as iron and manganese as it relates to exceedances of the MCL. No remedial activities associated with the groundwater are planned until all groundwater wells at the facility have completed a minimum of 4 quarters of sampling. It should be further noted that additional sampling for metals was completed in October 2009. This data will be used to conduct a specialized geochemical study to better characterize the groundwater quality as it pertains to metals at the site. This study will be completed in 2010. It should also be noted that the facility is currently in the remedial investigation (RI) stage of the CERCLA process for facility-wide groundwater. Since there are no immediate threats to human health and the environment, the Army plans to address any possible remedial action activities by next conducting a

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
Ohio EPA (V. Deppisch/C. McCambridge)					
					feasibility study (FS). The FS will address how the Army plans to implement any remedial activities for the facility-wide groundwater. SAIC is currently contracted (under the PBA-2008 Delivery Order) to implement further RI and FS activities for groundwater at several of the AOCs. SAIC has already conducted the FS for groundwater at Load Line 12, and will continue to do so for the other AOCs. (2) This typographical error will corrected to read mg/L.
O-10	Sec 5.2 pg 132		Background wells; Ohio EPA noted that EQM suggested due to flow directions that background wells 005, 006, and 018 appear to be truly upgradient and unaffected by activities.	No response required. Ohio EPA and USACE hope to resolve this issue in the near future.	Noted.
O-11	Plate (map) 3		Ohio EPA could not locate Mw-186 or MW-189 on the map for LL-12.	Please verify.	As indicated in the response to comment O-2, wells LL12mw-186 and LL12-mw189 are Sharon Shale wells that have been determined by the USACE (Hockett, 2007) to not be a part of the Sharon Aquifer. Thus, these wells are not included when preparing the Sharon Aquifer potentiometric map. Plate 3 will be revised to include the measured elevations in these wells noting that the data were not used to prepare the potentiometric interpretation.

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963 1200 FAX: (330) 487 0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

February 18, 2010

RE: ***RAVENNA ARMY AMMUNITION PLANT***
PORTAGE/TRUMBULL COUNTIES,
DRAFT, INVESTIGATION DERIVED
WASTE AND DISPOSAL PLAN, FWGWMP,
JANUARY 2010 SAMPLING EVENT

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
Building 1037
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft, Investigation-Derived Waste Characterization and Disposal Plan (IDW), for the Facility-Wide Groundwater Monitoring Program, January 2010 Sampling Event, at the Ravenna Army Ammunition Plant, Ravenna, OH" document. This document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on February 12, 2010, and is dated February 11, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under Contract No. W912QR-04-D-0036.

The report is approved, and Ohio EPA concurs that the IDW (groundwater and decontamination fluids) from the January 2010 Sampling Event may be disposed of as contaminated, non-hazardous waste, and that it be sent off-site for disposal to a permitted water treatment facility.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/ds

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Katie Elgin, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
John Miller, EQM
Maj. Ed Meade, OHARNG RTLS
Mark Nichter, USACE Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR

RECEIVED
FEB 2010

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

February 18, 2010

RE: ***RAVENNA ARMY AMMUNITION PLANT***
PORTAGE/TRUMBULL COUNTIES,
DRAFT, FWGWMP, CRT REVIEW
ANNUAL REPORT FOR 2009

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
Building 1037
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Facility-Wide Ground Water Monitoring Program (FWGWMP), Response to Ohio EPA Comments, Draft Annual Report for 2009, Ravenna Army Ammunition Plant, Ravenna, Ohio (RVAAP)" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on February 9, 2010, and is dated February 8, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under Contract No. W912QR-04-D-0036. This document was reviewed by Ohio EPA personnel in NEDO, DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW).

The RVAAP Facility now has 237 existing wells and six new deep Sharon Conglomerate Formation (SCF) wells that were installed in 2009, totaling 243 wells. The annual report summarizes the results of all ground water monitoring activities conducted in October 2008, January, April, and July 2009 under the FWGWMP. A total of 132 wells were sampled in October 2008, 131 wells were sampled in January 2009, 53 wells in April 2009, and 46 wells in July 2009. Water in LL-11, MW-009, was frozen and not sampled during the January 2009 event. The five RCRA wells (RQL: three wells and DA2: two wells) were sampled in October 2008 and April 2009 as required by the FWGWMP. Perchlorate analysis was conducted during the October 2008 sampling event, and Ohio EPA noted that most of the wells had low level detections.

The comments have been adequately addressed; however, Ohio EPA still has some concerns that relate to the LL-12 area. Historical flow maps have indicated conflicting flow directions at LL-12. Monitored Natural Attenuation (MNA) has been proposed as a remedy in a separate Feasibility Study report. Ohio EPA suggests that USACE re-evaluate, verify, and re-confirm that the proposed wells for sampling arsenic and nitrate at LL-12 are on target.

In addition, the Comment Response Table (Comment #0-2) indicated the bedrock wells (LL12mw-186 and LL12mw-189) at LL-12 are not part of the Sharon or Homewood aquifer system at RVAAP, and thus, was not included in the flow maps. Ohio EPA suggests that USACE evaluate if the vertical extent of contamination at LL-12 has been defined.

Please forward two copies of the replacement pages and titles for the final document. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/ds

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Maj. Ed Meade, OHARNG RTLS
Mark Nichter, USACE Louisville
Conni McCambridge, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
John Miller, EQM

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963 1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

March 3, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, DRAFT, WORK PLAN FOR THE GEOCHEMICAL EVALUATION OF Mr. METALS IN GROUNDWATER, VERSION 1, DATED JANUARY 14, 2010

Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 9918

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft Work Plan for the Geochemical Evaluation of Metals in Groundwater at Ravenna Army Ammunition Plant, Ravenna, Ohio, Version 1,0" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on January 19, 2010, and is dated January 14, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District by Shaw Environmental & Infrastructure, Inc., under contract no. W912QR-08-D-0013. This document was reviewed by Ohio EPA personnel in NEDO, DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW). Enclosed are Ohio EPA's comments.

The Director's Final Findings and Orders require that the responses to comments (RTCs) be received within fifteen (15) days of the Army's receipt of Ohio EPA's correspondence, and that the revised document be submitted within thirty (30) days of the Army's receipt of Agency correspondence.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch, Project Coordinator
Division of Emergency and Remedial Response

VD/kss

enclosure

cc: Glen Beckham, USACE Louisville
David Cobb, Shaw Environmental, Inc.
Katie Elgin, OHARNG RTLS
Mark Krivansky, AEC
Maj. Ed Meade, OHARNG RTLS
Conni McCambridge, Ohio EPA, DERR, NEDO
Eileen Mohr, Ohio EPA, DERR, NEDO
Mark Nichter, USACE Louisville

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RVAAP
COMMENT RESPONSE TABLE
(March 3, 2010)

Document Title: Draft Work Plan for the Geochemical Evaluation of Metals in Groundwater

Document Reviewer: Conni McCambridge, Ohio EPA, DDAGW and Vicki Deppisch, Ohio EPA, DERR

Document Preparer: Shaw Environmental & Infrastructure, Inc.

NUMBER	LOCATION	REVIEWER COMMENT	REV. RECOMMENDATION	PREPARER RESPONSE
1	General	Section 2.0 outlines the approach to the geochemical evaluation; however, the description is vague and lacks detail.	Dr. Jonathan Myers' presentation slides from the 2/9/20 RVAAP meeting provided more specific and detailed information. A copy of his presentation should be added to the Final Work Plan.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963 1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

March 4, 2010

RE: RAVENNA ARMY AMMUNITION PLANT,
PORTAGE/TRUMBULL COUNTIES,
FINAL, FWGWMP, ANNUAL REPORT FOR
2009

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 9956

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Facility Wide Groundwater Monitoring Program (FWGWMP) Final Annual Report for 2009 for the Ravenna Army Ammunition Plant" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on March 4, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036.

The document is approved. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Glen Beckham, USACE Louisville
Katie Elgin, OHARNG RTLS
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DDAGW, NEDO
Maj. Ed Meade, OHARNG RTLS
John Miller, EQM
Eileen Mohr, Ohio EPA, DERR, NEDO
Mark Nichter, USACE Louisville

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P. O. BOX 59
LOUISVILLE, KENTUCKY 40201-0059
http://www.lrl.usace.army.mil

15 March 2010

Ohio Environmental Protection Agency, NE District Office
Division of Emergency and Remedial Response
2110 E. Aurora Road
Twinsburg, OH 44087
(330) 963-1207

Attention: Ms. Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

Subject: **Proposed Amendment to the 2010 Well Monitoring Schedule**
Facility-Wide Groundwater Monitoring Program (FWGWMP)
Ravenna Army Ammunition Plant
Ravenna, Ohio

Ms. Deppisch:

Pursuant to the ground water quality meeting held at the former Ravenna Army Ammunition Plant (RVAAP) on 8-10 February 2010, the US Army Corps of Engineers (USACE) has prepared a proposed and revised schedule of groundwater wells to be monitored at the facility for the 2010 Facility-Wide Groundwater Monitoring Program (FWGWMP). The proposed schedule constitutes a revision of the monitoring wells initially identified for inclusion in the 2010 FWGWMP (see Table 1-1, *FWGWMP Annual Report for 2009*). The revised summary of proposed wells is attached for your consideration and approval (see Attachment A).

The 2010 proposed well sampling schedule includes a total of 157 wells to be sampled during the 2010 FWGWMP. A breakdown of the proposed monitoring events is as follows:

- April 2010 - 43 Wells
- July 2010 - 40 Wells
- October 2010 - 37 Wells
- January 2011 - 37 Wells

Well Selection Process

The wells selected for inclusion in the 2010 FWGWMP meet one or more of the following criteria:

- The wells exhibit one or more contaminant concentrations that exceed the approved facility-wide clean up goals (CUGs) (as presented in the February 2010 meeting)

- Time-trend graphs presented in the *FWGWMP Annual Report for 2009* suggest increasing concentrations of one or more constituents in wells (includes inorganic constituents above background levels, and/or other constituent concentrations above tap water and MCL screening values)

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Background	BKGmw-004	Unconsolidated																
	BKGmw-005	Unconsolidated																
	BKGmw-006	Sharon	Annual				1	1	1	1	1	1	1	1	1			The USACE anticipates this well is representative of background with respect to the upper portion of the Sharon Sandstone. Resampling is requested
	BKGmw-008	Sharon																
	BKGmw-010	Sharon	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	BKGmw-012	Sharon																
	BKGmw-013	Unconsolidated																
	BKGmw-015	Sharon																
	BKGmw-016	Unconsolidated																
	BKGmw-017	Unconsolidated					1	1	1	1	1	1	1	1	1			The USACE anticipates this well is representative of background with respect to the unconsolidated aquifer. Resampling is requested
	BKGmw-018	Sharon	Annual				1	1	1	1	1	1	1	1	1			The USACE anticipates this well is representative of background with respect to the upper portion of the Sharon Sandstone. Resampling is requested.
	BKGmw-019	Unconsolidated																
	BKGmw-020	Unconsolidated																
	BKGmw-021	Unconsolidated																
	LL1mw-063	Sharon																
	LL1mw-064	Unconsolidated		1				1	1	1	1	1	1	1	1			Well is located hydraulically down-gradient of Load Line 1, and is in close proximity to the east RVAAP fenceline. Monitoring is recommended.
	LL1mw-065	Unconsolidated		1				1	1	1	1	1	1	1	1			Well is located hydraulically down-gradient of Load Line 1, and is in close proximity to the east RVAAP fenceline. Monitoring is recommended.

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Load Line 1	LL1mw-067	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL1mw-078	Sharon																
	LL1mw-079	Sharon																
	LL1mw-080	Sharon	Annual	1				1	1	1	1	1	1	1	1			Lead, Iron, Manganese, and Hexahydro-1,3,5-trinitro-1,3,5-triazine dectected at concentration above CUG. Added to 2010 program for annual monitoring
	LL1mw-081	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA
	LL1mw-082	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL1mw-083	Sharon	Annual	1				1	1	1	1	1	1	1	1			2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Amino-4,6-dinitrotoluene, and 4-Amino-2,6-dinitrotoluene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL1mw-084	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL1mw-085	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL2mw-059	Sharon																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Load Line 2	LL2mw-060	Sharon	Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG Added to 2010 program for annual monitoring
	LL2mw-261	Sharon	Annual	1				1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentrations (above background, PRG, and MCL value)
	LL2mw-262	Sharon	Annual	1				1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Magnesium is increasing in concentrations (above background value)
	LL2mw-263	Sharon	Annual	1				1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring
	LL2mw-264																	
	LL2mw-265			1				1	1	1	1	1	1	1	1			Well is located hydraulically down-gradient of Load Line 2, and is in close proximity to RVAAP fenceline. Monitoring is recommended.
	LL2mw-266	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL2mw-267	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL2mw-268	Sharon																
	LL2mw-269	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
	LL2mw-270	Sharon	Annual	1				1	1	1	1	1	1	1	1			Manganese, Bis(2-ethylhexyl)phthalate, and Pentachlorophenol dectected at concentration above CUG. Added to 2010 program for annual monitoring.
Load Line 3	LL3mw-232	Sharon	Annual	1				1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Magnesium is increasing in concentrations (above background value)
	LL3mw-233	Sharon																
	LL3mw-234	Sharon	Annual	1				1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL3mw-235	Sharon																
	LL3mw-236	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL3mw-237	Sharon	Annual			1		1	1	1	1	1	1	1	1			2-Amino-4,6-dinitrotoluene, and 4-Amino-2,6-dinitrotoluene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL3mw-238	Sharon	Annual			1		1	1	1	1	1	1	1	1			2-Amino-4,6-dinitrotoluene, 4-Amino-2,6-dinitrotoluene and 2,4,6-Trinitrotoluene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL3mw-239	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4			Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL3mw-240	Sharon																
	LL3mw-241	Sharon																
	LL3mw-242	Sharon																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
	LL3mw-243	Sharon				1		1	1	1	1	1	1	1	1			Well is located hydraulically down-gradient of Load Line 3, and is in close proximity to RVAAP fenceline. Monitoring is recommended.
Load Line 4	LL4mw-193	Unconsolidated	Annual				1	1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring
	LL4mw-194	Unconsolidated																
	LL4mw-195	Unconsolidated	Annual				1	1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring
	LL4mw-196	Unconsolidated	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in Apnl Monitoring Event at the Request of the OEPA.
	LL4mw-197	Unconsolidated	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL4mw-198	Unconsolidated																
	LL4mw-199	Unconsolidated																
	LL4mw-200	Unconsolidated					1	1	1	1	1	1	1	1	1			Well is located hydraulically down-gradient of Load Line 4, and is located in close proximity to a natural surface drainage feature that drains Load Line 4. Monitoring is recommended.
Load Line 5	LL5mw-001	Homewood																
	LL5mw-002	Homewood																
	LL5mw-003	Unconsolidated																
	LL5mw-004	Homewood																
	LL5mw-005	Homewood																
	LL5mw-006	Homewood																
	LL6mw-001	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL6mw-002	Unconsolidated																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Load Line 6	LL6mw-003	Homewood																
	LL6mw-004	Homewood	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL6mw-005	Homewood	Annual		1			1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentrations (above background, tap water, and MCL values)
	LL6mw-006	Unconsolidated																
	LL6mw-007	Homewood																
Load Line 7	LL7mw-001	Homewood	Annual		1			1	1	1	1	1	1	1	1			1,1-Dichloroethane dectected at concentration above CUG Added to 2010 program for annual monitoring.
	LL7mw-002	Homewood																
	LL7mw-003	Homewood	Annual		1			1	1	1	1	1	1	1	1			Iron dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL7mw-004	Homewood																
	LL7mw-005	Homewood	Annual		1			1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL7mw-006	Homewood																
Load Line 8	LL8mw-001	Unconsolidated																
	LL8mw-002	Unconsolidated																
	LL8mw-003	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL8mw-004	Unconsolidated																
	LL8mw-005	Homewood																
	LL8mw-006	Homewood																
Load Line 9	LL9mw-001	Homewood																
	LL9mw-002	Homewood	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL9mw-003	Homewood																
	LL9mw-004	Homewood	Annual		1			1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
	LL9mw-005	Homewood																
	LL9mw-006	Homewood																
	LL9mw-007	Homewood																
Load Line 10	LL10mw-001	Homewood																
	LL10mw-002	Homewood	Annual		1			1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG Added to 2010 program for annual monitoring
	LL10mw-003	Homewood	Annual		1			1	1	1	1	1	1	1	1			Carbon Tetrachloride dectected at concentration above CUG Added to 2010 program for annual monitoring
	LL10mw-004	Homewood																
	LL10mw-005	Homewood																
	LL10mw-006	Unconsolidated																
Load Line 11	LL11mw-001	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring
	LL11mw-002	Unconsolidated																
	LL11mw-003	Unconsolidated																
	LL11mw-004	Unconsolidated																
	LL11mw-005	Unconsolidated																
	LL11mw-006	Unconsolidated																
	LL11mw-007	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentrations (above background, tap water, and MCL values)
	LL11mw-008	Unconsolidated																
	LL11mw-009	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Trichloroethylene and Tetrachloroethylene dectected at concentration above CUG Added to 2010 program for annual monitoring.
	LL11mw-010	Unconsolidated																
	LL12mw-088	Unconsolidated		1				1	1	1	1	1	1	1	1	1		Sample all wells in Load Line 12 per discussion with Ohio EPA.
	LL12mw-107	Unconsolidated		1				1	1	1	1	1	1	1	1	1		Sample all wells in Load Line 12 per discussion with Ohio EPA

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Load Line 12	LL12mw-113	Sharon Shale	Annual	1				1	1	1	1	1	1	1	1	1		Time-Trend graph presented in 2009 Annual FWGWMP report suggests Manganese is increasing in concentrations (above background value)
	LL12mw-128	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.
	LL12mw-153	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.
	LL12mw-154	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.
	LL12mw-182	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.
	LL12mw-183	Sharon Shale	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.
	LL12mw-184	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL
	LL12mw-185	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12. Nitrate detected at concentration above CUG.
	LL12mw-186	Sharon Shale		1				1	1	1	1	1	1	1	1	1		Sample all wells in Load Line 12 per discussion with Ohio EPA.
	LL12mw-187	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12. Nitrate detected at concentration above CUG
	LL12mw-188	Unconsolidated		1				1	1	1	1	1	1	1	1	1		Sample all wells in Load Line 12 per discussion with Ohio EPA
	LL12mw-189	Sharon Shale	Annual	1				1	1	1	1	1	1	1	1	1		Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL12mw-242	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12.
	LL12mw-243	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
	LL12mw-244	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Lead dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL12mw-245	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12.
	LL12mw-246	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12.
Atlas Scrap Yard	ASYmw-001	Sharon																
	ASYmw-002	Sharon																
	ASYmw-003	Sharon	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	ASYmw-004	Sharon																
	ASYmw-005	Sharon																
	ASYmw-006	Sharon																
	ASYmw-007	Unconsolidated																
	ASYmw-008	Unconsolidated																
	ASYmw-009	Sharon																
	ASYmw-010	Unconsolidated																
Building 1200	B12mw-010	Sharon	Annual				1	1	1	1	1	1	1	1	1			Indeno(1,2,3-cd)pyrene and Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	B12mw-011	Sharon																
	B12mw-012	Sharon	Annual				1	1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Bis(2-ethylhexyl)phthalate is increasing in concentrations
C-Block Quarry	CBLmw-001	Homewood																
	CBLmw-002	Homewood																
	CBLmw-003	Homewood																
	CBLmw-004	Homewood	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Central Burn Pits	CBPmw-001	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Time-Trend graphs presented in 2009 Annual FWGWMP report suggests Arsenic and Magnesium are increasing in concentrations (above background values)
	CBPmw-002	Unconsolidated																
	CBPmw-003	Unconsolidated																
	CBPmw-004	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	CBPmw-005	Unconsolidated																
	CBPmw-006	Unconsolidated																
	CBPmw-007	Unconsolidated																
	CBPmw-008	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Magnesium is increasing in concentrations (above background value)
Cobbs Pond	CPmw-001	Unconsolidated																
	CPmw-002	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	CPmw-003	Unconsolidated																
	CPmw-004	Unconsolidated																
	CPmw-005	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Barium is increasing in concentrations (above background value)
	CPmw-006	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Manganese and Naphthalene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	DET-001B	Unconsolidated																
	DET-002	Unconsolidated																
	DET-003	Unconsolidated	Semi-Annual		1		1	2	2	2	2	2	2	2	2			RCRA well. Bi-Annual monitoring required by DFF&Os.
	DET-004	Unconsolidated	Semi-Annual		1		1	2	2	2	2	2	2	2	2			RCRA well. Bi-Annual monitoring required by DFF&Os.
	DA2mw-104	Unconsolidated																
	DA2mw-105	Unconsolidated																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Open Demolition Area 2	DA2mw-106	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring. Time-Trend graph presented in 2009 Annual FWGWMP report suggests Magnesium is increasing in concentration
	DA2mw-107	Unconsolidated																
	DA2mw-108	Unconsolidated																
	DA2mw-109	Unconsolidated																
	DA2mw-110	Unconsolidated																Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	DA2mw-111	Unconsolidated																
	DA2mw-112	Unconsolidated																
	DA2mw-113	Unconsolidated																
Erie Burning Grounds	EBGmw-123	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring. Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentration (above background value)
	EBGmw-124	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Lead dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	EBGmw-125	Unconsolidated																
	EBGmw-126	Unconsolidated				1		1	1	1	1	1	1	1	1			Well is located at Erie Burning Ground adjacent to the northern RVAAP fenceline. Monitoring is recommended.
	EBGmw-127	Unconsolidated																
	EBGmw-128	Unconsolidated																
	EBGmw-129	Unconsolidated				1		1	1	1	1	1	1	1	1			Well is located at Erie Burning Ground adjacent to the northern RVAAP fenceline. Monitoring is recommended.
	EBGmw-130	Unconsolidated																
	FBQmw-166	Unconsolidated																
	FBQmw-167	Unconsolidated																
	FBQmw-168	Homewood																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Fuze and Booster Quarry	FBQmw-169	Homewood	Annual			1		1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring
	FBQmw-170	Homewood																
	FBQmw-171	Homewood																
	FBQmw-172	Homewood	Annual			1		1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	FBQmw-173	Homewood	Annual			1		1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Bis (2-ethylhexyl)phthalate is increasing in concentrations (above PRG or tap water value)
	FBQmw-174	Homewood	Annual			1		1	1	1	1	1	1	1	1			2,4,6-Trinitrotoluene, 2-Amino-4,6-dinitrotoluene, and 4-Amino-2,6-dinitrotoluene dectected at concentration above CUG. Added to 2010 program for annual monitoring
	FBQmw-175	Homewood																
	FBQmw-176	Unconsolidated																
	FBQmw-177	Homewood																
Landfill North of Winklepeck	LNWmw-024	Unconsolidated																
	LNWmw-025	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic dectected at concentration above CUG Added to 2010 program for annual monitoring
	LNWmw-026	Unconsolidated																
	LNWmw-027	Unconsolidated																
NACA Test Area	NTAmw-107	Unconsolidated																
	NTAmw-108	Unconsolidated																
	NTAmw-109	Unconsolidated																
	NTAmw-110	Unconsolidated																
	NTAmw-111	Unconsolidated																
	NTAmw-112	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentrations (above background, PRG and MCL values)
	NTAmw-113	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Lead dectected at concentration above CUG. Added to 2010 program for annual monitoring

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
	NTAmw-114	Unconsolidated																
	NTAmw-115	Unconsolidated																
	NTAmw-116	Unconsolidated																
	NTAmw-117	Unconsolidated																
	NTAmw-118	Unconsolidated																
Ramsdell Quarry Landfill	RQLmw-006	Sharon	Annual		1			1	1	1	1	1	1	1	1			Arsenic, Iron, Manganese, and Nickel dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	RQLmw-007	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2			RCRA well. Bi-Annual monitoring required by DFF&Os Arsenic, Iron, and Manganese detected at concentrations above CUGs
	RQLmw-008	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2			RCRA well. Bi-Annual monitoring required by DFF&Os. Arsenic and Iron detected at concentrations above CUGs.
	RQLmw-009	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2			RCRA well. Bi-Annual monitoring required by DFF&Os. Arsenic, Manganese, and Bis(2-ethylhexyl)phthalate detected at concentrations above CUGs
	RQLmw-010	Sharon	Annual		1			1	1	1	1	1	1	1	1			Manganese and Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring
	RQLmw-011	Sharon	Annual		1			1	1	1	1	1	1	1	1			Manganese, Tetrachloroethylene, and Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	RQLmw-012	Sharon																
	RQLmw-013	Sharon																
	RQLmw-014	Sharon	Annual				1	1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	RQLmw-015	Sharon																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
	RQLmw-016	Sharon	Annual				1	1	1	1	1	1	1	1	1			Manganese and Iron dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	RQLmw-017	Sharon	Annual				1	1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG Added to 2010 program for annual monitoring.
Winklepeck Burning Grounds	WBGmw-005	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Manganese is increasing in concentrations (above background, PRG and MCL values)
	WBGmw-006	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Hexahydro-1 3,5-1 3,5-trinitro-1,3,5-triazine dectected at concentration above CUG. Added to 2010 program for annual monitoring
	WBGmw-007	Unconsolidated																
	WBGmw-008	Unconsolidated																
	WBGmw-009	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Hexahydro-1,3,5-1,3,5-trinitro-1,3,5-triazine dectected at concentration above CUG Added to 2010 program for annual monitoring
	WBGmw-010	Unconsolidated																
	WBGmw-011	Unconsolidated																
	WBGmw-012	Unconsolidated																
	WBGmw-013	Unconsolidated																
	WBGmw-014	Unconsolidated																
	WBGmw-015	Unconsolidated																
	WBGmw-016	Unconsolidated																
	WBGmw-017	Unconsolidated																
Suspected Mustard Agent Burial Site	MBS-001	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	MBS-002	Unconsolidated																
	MBS-003	Unconsolidated																
	MBS-004	Unconsolidated																
	MBS-005	Unconsolidated																
	MBS-006	Unconsolidated																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Facility-Wide Groundwater: Basal Sharon Conglomerate Wells	SCFmw-001	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2	2		Well added to FWGWMP for 2010. Semi-Annual monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-002	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2	2		Well added to FWGWMP for 2010. Semi-Annual monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-003	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2	2		Well added to FWGWMP for 2010. Semi-Annual monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-004	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2	2		Well added to FWGWMP for 2010. Semi-Annual monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-005	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2	2		Well added to FWGWMP for 2010. Semi-Annual monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-006	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2	2		Well added to FWGWMP for 2010. Semi-Annual monitoring recommended in support of initial characterization performed by SAIC.
TOTALS =				43	40	37	37	157	157	157	157	157	157	157	157	31	11	

Former Ground Water Analytical Results Exhibits Contaminant Concentrations Above CUGs
Time-Trend Graphs Presented in 2009 Annual FWGWMP Report Suggest Concentrations of Potential Contaminant(s) is Increasing
FWGWMP CERCLA Wells - Highlighted Red
FWGWMP RCRA Wells - Highlighted Blue

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P. O. BOX 59
LOUISVILLE, KENTUCKY 40201-0059
http://www.lrl.usace.army.mil

15 March 2010

Ohio Environmental Protection Agency, NE District Office
Division of Emergency and Remedial Response
2110 E. Aurora Road
Twinsburg, OH 44087
(330) 963-1207

Attention: Ms. Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

Subject: **Proposed Amendment to the 2010 Well Monitoring Schedule**
Facility-Wide Groundwater Monitoring Program (FWGWMP)
Ravenna Army Ammunition Plant
Ravenna, Ohio

Ms. Deppisch:

Pursuant to the ground water quality meeting held at the former Ravenna Army Ammunition Plant (RVAAP) on 8-10 February 2010, the US Army Corps of Engineers (USACE) has prepared a proposed and revised schedule of groundwater wells to be monitored at the facility for the 2010 Facility-Wide Groundwater Monitoring Program (FWGWMP). The proposed schedule constitutes a revision of the monitoring wells initially identified for inclusion in the 2010 FWGWMP (see Table 1-1, *FWGWMP Annual Report for 2009*). The revised summary of proposed wells is attached for your consideration and approval (see Attachment A).

The 2010 proposed well sampling schedule includes a total of 157 wells to be sampled during the 2010 FWGWMP. A breakdown of the proposed monitoring events is as follows:

- April 2010 - 43 Wells
- July 2010 - 40 Wells
- October 2010 - 37 Wells
- January 2011 - 37 Wells

Well Selection Process

The wells selected for inclusion in the 2010 FWGWMP meet one or more of the following criteria:

- The wells exhibit one or more contaminant concentrations that exceed the approved facility-wide clean up goals (CUGs) (as presented in the February 2010 meeting)

- Time-trend graphs presented in the *FWGWMP Annual Report for 2009* suggest increasing concentrations of one or more constituents in wells (includes inorganic constituents above background levels, and/or other constituent concentrations above tap water and MCL screening values)

- Wells previously excluded from the 2008-2009 expanded monitoring events (11 wells total)
- RCRA Monitoring wells (5 wells total)
- New deep Sharon Conglomerate wells (6 wells total)
- All Load Line 12 Wells (per SAIC's preliminary proposal for LTM, and subsequent discussions with Ohio EPA)
- Representative background wells (4 wells total)
- Wells located hydraulically down-gradient of an AOC(s) and in close proximity to the RVAAP fence line or natural surface drainage features

A description of the selection criteria for each well is included in the proposed well sampling schedule (see Attachment A).

Proposed Monitoring Frequency and Schedule

The well monitoring frequency is proposed as follows:

- Wells previously excluded from the 2008-2009 expanded groundwater monitoring program will be sampled on a quarterly basis
- RCRA groundwater monitoring wells will be sampled on a bi-annual basis (as required)
- The six new (deep) Sharon Conglomerate wells will be sampled on a bi-annual basis
- Remaining wells included in the proposed 2010 FWGWMP will be sampled on an annual basis

The proposed well monitoring schedule is as follows:

- Those wells previously excluded from the 2008-2009 expanded groundwater monitoring program will be sampled in the April, July and October 2010 events, and the January 2011 monitoring event.
- Those wells previously excluded from perchlorates monitoring will be sampled for perchlorates in the April 2010 monitoring event.
- Those wells selected for bi-annual monitoring will be sampled during the July 2010 and January 2011 monitoring events.
- Wells selected for annual monitoring will be sampled during various monitoring events throughout the 2010 FWGWMP. Attempts were made to group these wells based on AOC boundaries and/or groups of AOC boundaries (geographic location selection). The well schedules were distributed over the 2010 FWGWMP to attempt an even distribution of the numbers of wells for each quarter.

Selected Analytical Parameters

Then analytical parameters selected for the 2010 FWGWMP are consistent with previous sampling events. The full suite of analyses is required consistent with the existing and approved FWGWMP Plan. As such, all of the selected and approved wells will be sampled and the groundwater samples will be analyzed for the following parameters:

- Volatile Organic Compounds (VOCs)
- Semi-Volatile Organic Compounds (SVOCs)
- Explosives
- Propellants
- Pesticides
- PCBs
- TAL Metals
- Cyanide

In addition to the above list of analyses, groundwater samples collected from the Load Line 12 wells will be analyzed for Nitrate/Nitrite. Perchlorates will also be analyzed for the samples collected from the 11 quarterly groundwater monitoring wells. Perchlorate analysis will occur during the April 2010 monitoring event only.

Other

It should be noted that the above-proposed groundwater monitoring schedule is subject to modification or amendment following the comprehensive groundwater meeting tentatively scheduled to occur later this summer. The summer meeting will likely occur in the June to July 2010 time period. Therefore, the USACE anticipates that only the April and July proposed monitoring schedules presented herein will occur as currently planned. We anticipate the October 2010 and January 2011 monitoring events may be modified or amended as a result of the summer meeting.

Should you have any questions concerning this correspondence or the project in general, please contact me at your convenience.

Sincerely,

Mark W. Nichter, PG
(CELRL-ED-E-C), Room 351
U.S. Army Corps of Engineers, Louisville District
P.O. Box 59
Louisville, KY 40201-0059
Office: (502) 315-6375
Mobile: (502) 418-8449
mark.w.nichter@usace.army.mil

Cc: Mark Patterson, BRAC Ravenna
Mark Krivansky USAEC
Eileen Mohr, Ohio EPA
Todd Fisher, Ohio EPA
Conni McCambridge, Ohio EPA
Katie Elgin, OHARNG RTL
Maj. Ed Meade, OHARNG RTL
Glen Beckham, USACE
Nat Peters, USACE

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Background	BKGmw-004	Unconsolidated																
	BKGmw-005	Unconsolidated																
	BKGmw-006	Sharon	Annual				1	1	1	1	1	1	1	1	1			The USACE anticipates this well is representative of background with respect to the upper portion of the Sharon Sandstone. Resampling is requested.
	BKGmw-008	Sharon																
	BKGmw-010	Sharon	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CJG. Added to 2010 program for annual monitoring
	BKGmw-012	Sharon																
	BKGmw-013	Unconsolidated																
	BKGmw-015	Sharon																
	BKGmw-016	Unconsolidated																
	BKGmw-017	Unconsolidated					1	1	1	1	1	1	1	1	1			The USACE anticipates this well is representative of background with respect to the unconsolidated aquifer. Resampling is requested.
	BKGmw-018	Sharon	Annual				1	1	1	1	1	1	1	1	1			The USACE anticipates this well is representative of background with respect to the upper portion of the Sharon Sandstone. Resampling is requested.
	BKGmw-019	Unconsolidated																
	BKGmw-020	Unconsolidated																
	BKGmw-021	Unconsolidated																
	LL1mw-063	Sharon																
	LL1mw-064	Unconsolidated		1				1	1	1	1	1	1	1	1			Well is located hydraulically down-gradient of Load Line 1, and is in close proximity to the east RVAAP fenceline. Monitoring is recommended.
	LL1mw-065	Unconsolidated		1				1	1	1	1	1	1	1	1			Well is located hydraulically down-gradient of Load Line 1, and is in close proximity to the east RVAAP fenceline. Monitoring is recommended.

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Load Line 1	LL1mw-067	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL1mw-078	Sharon																
	LL1mw-079	Sharon																
	LL1mw-080	Sharon	Annual	1				1	1	1	1	1	1	1	1			Lead, Iron, Manganese, and Hexahydro-1,3 5-trinitro-1,3.5-triazine dectected at concentration above CUG. Added to 2010 program for annual monitoring
	LL1mw-081	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL1mw-082	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL1mw-083	Sharon	Annual	1				1	1	1	1	1	1	1	1			2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Amino-4,6-dinitrotoluene, and 4-Amino-2,6-dinitrotoluene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL1mw-084	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL1mw-085	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL2mw-059	Sharon																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Load Line 2	LL2mw-060	Sharon	Annual	1				1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL2mw-261	Sharon	Annual	1				1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentrations (above background, PRG, and MCL value)
	LL2mw-262	Sharon	Annual	1				1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Magnesium is increasing in concentrations (above background value)
	LL2mw-263	Sharon	Annual	1				1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL2mw-264																	
	LL2mw-265			1				1	1	1	1	1	1	1	1			Well is located hydraulically down-gradient of Load Line 2, and is in close proximity to RVAAP fenceline. Monitoring is recommended.
	LL2mw-266	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL2mw-267	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL2mw-268	Sharon																
	LL2mw-269	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
	LL2mw-270	Sharon	Annual	1				1	1	1	1	1	1	1	1			Manganese, Bis(2-ethylhexyl)phthalate, and Pentachlorophenol dectected at concentration above CUG. Added to 2010 program for annual monitoring
Load Line 3	LL3mw-232	Sharon	Annual	1				1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Magnesium is increasing in concentrations (above background value)
	LL3mw-233	Sharon																
	LL3mw-234	Sharon	Annual	1				1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL3mw-235	Sharon																
	LL3mw-236	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA
	LL3mw-237	Sharon	Annual			1		1	1	1	1	1	1	1	1			2-Amino-4,6-dinitrotoluene and 4-Amino-2,6-dinitrotoluene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL3mw-238	Sharon	Annual			1		1	1	1	1	1	1	1	1			2-Amino-4,6-dinitrotoluene, 4-Amino-2,6-dinitrotoluene and 2,4,6-Trinitrotoluene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL3mw-239	Sharon	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4			Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL3mw-240	Sharon																
	LL3mw-241	Sharon																
	LL3mw-242	Sharon																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
	LL3mw-243	Sharon				1		1	1	1	1	1	1	1	1			Well is located hydraulically down-gradient of Load Line 3, and is in close proximity to RVAAP fenceline. Monitoring is recommended.
Load Line 4	LL4mw-193	Unconsolidated	Annual				1	1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL4mw-194	Unconsolidated																
	LL4mw-195	Unconsolidated	Annual				1	1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL4mw-196	Unconsolidated	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL4mw-197	Unconsolidated	Quarterly	1	1	1	1	4	4	4	4	4	4	4	4		1	Well added to FWGWMP for 2010. Previously excluded from expanded FWGWMP. Sample for Perchlorate in April Monitoring Event at the Request of the OEPA.
	LL4mw-198	Unconsolidated																
	LL4mw-199	Unconsolidated																
	LL4mw-200	Unconsolidated					1	1	1	1	1	1	1	1	1			Well is located hydraulically down-gradient of Load Line 4, and is located in close proximity to a natural surface drainage feature that drains Load Line 4. Monitoring is recommended.
Load Line 5	LL5mw-001	Homewood																
	LL5mw-002	Homewood																
	LL5mw-003	Unconsolidated																
	LL5mw-004	Homewood																
	LL5mw-005	Homewood																
	LL5mw-006	Homewood																
	LL6mw-001	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL6mw-002	Unconsolidated																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Load Line 6	LL6mw-003	Homewood																
	LL6mw-004	Homewood	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring
	LL6mw-005	Homewood	Annual		1			1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentrations (above background, tap water, and MCL values)
	LL6mw-006	Unconsolidated																
	LL6mw-007	Homewood																
Load Line 7	LL7mw-001	Homewood	Annual		1			1	1	1	1	1	1	1	1			1,1-Dichloroethane dectected at concentration above CUG Added to 2010 program for annual monitoring
	LL7mw-002	Homewood																
	LL7mw-003	Homewood	Annual		1			1	1	1	1	1	1	1	1			Iron dectected at concentration above CUG. Added to 2010 program for annual monitoring
	LL7mw-004	Homewood																
	LL7mw-005	Homewood	Annual		1			1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG Added to 2010 program for annual monitoring
	LL7mw-006	Homewood																
Load Line 8	LL8mw-001	Unconsolidated																
	LL8mw-002	Unconsolidated																
	LL8mw-003	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL8mw-004	Unconsolidated																
	LL8mw-005	Homewood																
	LL8mw-006	Homewood																
Load Line 9	LL9mw-001	Homewood																
	LL9mw-002	Homewood	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL9mw-003	Homewood																
	LL9mw-004	Homewood	Annual		1			1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
	LL9mw-005	Homewood																
	LL9mw-006	Homewood																
	LL9mw-007	Homewood																
Load Line 10	LL10mw-001	Homewood																
	LL10mw-002	Homewood	Annual		1			1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG Added to 2010 program for annual monitoring
	LL10mw-003	Homewood	Annual		1			1	1	1	1	1	1	1	1			Carbon Tetrachloride dectected at concentration above CUG. Added to 2010 program for annual monitoring
	LL10mw-004	Homewood																
	LL10mw-005	Homewood																
	LL10mw-006	Unconsolidated																
Load Line 11	LL11mw-001	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring
	LL11mw-002	Unconsolidated																
	LL11mw-003	Unconsolidated																
	LL11mw-004	Unconsolidated																
	LL11mw-005	Unconsolidated																
	LL11mw-006	Unconsolidated																
	LL11mw-007	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentrations (above background, tap water, and MCL values)
	LL11mw-008	Unconsolidated																
	LL11mw-009	Unconsolidated	Annual		1			1	1	1	1	1	1	1	1			Trichloroethylene and Tetrachloroethylene dectected at concentration above CUG Added to 2010 program for annual monitoring
	LL11mw-010	Unconsolidated																
	LL12mw-088	Unconsolidated		1				1	1	1	1	1	1	1	1	1		Sample all wells in Load Line 12 per discussion with Ohio EPA.
	LL12mw-107	Unconsolidated		1				1	1	1	1	1	1	1	1	1		Sample all wells in Load Line 12 per discussion with Ohio EPA.

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Load Line 12	LL12mw-113	Sharon Shale	Annual	1				1	1	1	1	1	1	1	1	1		Time-Trend graph presented in 2009 Annual FWGWMP report suggests Manganese is increasing in concentrations (above background value)
	LL12mw-128	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.
	LL12mw-153	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.
	LL12mw-154	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.
	LL12mw-182	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.
	LL12mw-183	Sharon Shale	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.
	LL12mw-184	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.
	LL12mw-185	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12. Nitrate detected at concentration above CUG
	LL12mw-186	Sharon Shale		1				1	1	1	1	1	1	1	1	1		Sample all wells in Load Line 12 per discussion with Ohio EPA.
	LL12mw-187	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12. Nitrate detected at concentration above CUG
	LL12mw-188	Unconsolidated		1				1	1	1	1	1	1	1	1	1		Sample all wells in Load Line 12 per discussion with Ohio EPA
	LL12mw-189	Sharon Shale	Annual	1				1	1	1	1	1	1	1	1	1		Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring
	LL12mw-242	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12
	LL12mw-243	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Arsenic historically detected above background and MCL.

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
	LL12mw-244	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Lead dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LL12mw-245	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12.
	LL12mw-246	Unconsolidated	Annual	1				1	1	1	1	1	1	1	1	1		Well selected for annual sampling in 2010 program to support the anticipated RA process and LTM for Load Line 12.
Atlas Scrap Yard	ASYmw-001	Sharon																
	ASYmw-002	Sharon																
	ASYmw-003	Sharon	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	ASYmw-004	Sharon																
	ASYmw-005	Sharon																
	ASYmw-006	Sharon																
	ASYmw-007	Unconsolidated																
	ASYmw-008	Unconsolidated																
	ASYmw-009	Sharon																
	ASYmw-010	Unconsolidated																
Building 1200	B12mw-010	Sharon	Annual				1	1	1	1	1	1	1	1	1			Indeno(1,2,3-cd)pyrene and Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	B12mw-011	Sharon																
	B12mw-012	Sharon	Annual				1	1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Bis(2-ethylhexyl)phthalate is increasing in concentrations.
C-Block Quarry	CBLmw-001	Homewood																
	CBLmw-002	Homewood																
	CBLmw-003	Homewood																
	CBLmw-004	Homewood	Annual				1	1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.

Attachment A. Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Central Burn Pits	CBPmw-001	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Time-Trend graphs presented in 2009 Annual FWGWMP report suggests Arsenic and Magnesium are increasing in concentrations (above background values)
	CBPmw-002	Unconsolidated																
	CBPmw-003	Unconsolidated																
	CBPmw-004	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	CBPmw-005	Unconsolidated																
	CBPmw-006	Unconsolidated																
	CBPmw-007	Unconsolidated																
	CBPmw-008	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Magnesium is increasing in concentrations (above background value)
Cobbs Pond	CPmw-001	Unconsolidated																
	CPmw-002	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring
	CPmw-003	Unconsolidated																
	CPmw-004	Unconsolidated																
	CPmw-005	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Barium is increasing in concentrations (above background value)
	CPmw-006	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Manganese and Naphthalene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	DET-001B	Unconsolidated																
	DET-002	Unconsolidated																
	DET-003	Unconsolidated	Semi-Annual		1		1	2	2	2	2	2	2	2	2			RCRA well. Bi-Annual monitoring required by DFF&Os.
	DET-004	Unconsolidated	Semi-Annual		1		1	2	2	2	2	2	2	2	2			RCRA well. Bi-Annual monitoring required by DFF&Os.
	DA2mw-104	Unconsolidated																
	DA2mw-105	Unconsolidated																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Open Demolition Area 2	DA2mw-106	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring. Time-Trend graph presented in 2009 Annual FWGWMP report suggests Magnesium is increasing in concentration
	DA2mw-107	Unconsolidated																
	DA2mw-108	Unconsolidated																
	DA2mw-109	Unconsolidated																
	DA2mw-110	Unconsolidated																Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring
	DA2mw-111	Unconsolidated																
	DA2mw-112	Unconsolidated																
	DA2mw-113	Unconsolidated																
Erie Burning Grounds	EBGmw-123	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Bis(2-etnylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring. Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentration (above background value)
	EBGmw-124	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Lead dectected at concentration above CUG. Added to 2010 program for annual monitoring
	EBGmw-125	Unconsolidated																
	EBGmw-126	Unconsolidated				1		1	1	1	1	1	1	1	1			Well is located at Erie Burning Ground adjacent to the northern RVAAP fenceline. Monitoring is recommended.
	EBGmw-127	Unconsolidated																
	EBGmw-128	Unconsolidated																
	EBGmw-129	Unconsolidated				1		1	1	1	1	1	1	1	1			Well is located at Erie Burning Ground adjacent to the northern RVAAP fenceline. Monitoring is recommended.
	EBGmw-130	Unconsolidated																
	FBQmw-166	Unconsolidated																
	FBQmw-167	Unconsolidated																
	FBQmw-168	Homewood																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Fuze and Booster Quarry	FBQmw-169	Homewood	Annual			1		1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	FBQmw-170	Homewood																
	FBQmw-171	Homewood																
	FBQmw-172	Homewood	Annual			1		1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	FBQmw-173	Homewood	Annual			1		1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Bis (2-ethylhexyl)phthalate is increasing in concentrations (above PRG or tap water value)
	FBQmw-174	Homewood	Annual			1		1	1	1	1	1	1	1	1			2,4,6-Trinitrotoluene, 2-Amino-4,6-dinitrotoluene, and 4-Amino-2,6-dinitrotoluene dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	FBQmw-175	Homewood																
	FBQmw-176	Unconsolidated																
	FBQmw-177	Homewood																
Landfill North of Winklepeck	LNWmw-024	Unconsolidated																
	LNWmw-025	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Arsenic dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	LNWmw-026	Unconsolidated																
	LNWmw-027	Unconsolidated																
NACA Test Area	NTAmw-107	Unconsolidated																
	NTAmw-108	Unconsolidated																
	NTAmw-109	Unconsolidated																
	NTAmw-110	Unconsolidated																
	NTAmw-111	Unconsolidated																
	NTAmw-112	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Arsenic is increasing in concentrations (above background, PRG and MCL values)
	NTAmw-113	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Lead dectected at concentration above CUG. Added to 2010 program for annual monitoring.

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
	NTAmw-114	Unconsolidated																
	NTAmw-115	Unconsolidated																
	NTAmw-116	Unconsolidated																
	NTAmw-117	Unconsolidated																
	NTAmw-118	Unconsolidated																
Ramsdell Quarry Landfill	RQLmw-006	Sharon	Annual		1			1	1	1	1	1	1	1	1			Arsenic Iron, Manganese, and Nickel dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	RQLmw-007	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2			RCRA well. Bi-Annual monitoring required by DFF&Os. Arsenic, Iron, and Manganese detected at concentrations above CUGs.
	RQLmw-008	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2			RCRA well. Bi-Annual monitoring required by DFF&Os Arsenic and Iron detected at concentrations above CUGs
	RQLmw-009	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2			RCRA well. Bi-Annual monitoring required by DFF&Os. Arsenic, Manganese, and Bis(2-ethylhexyl)phthalate detected at concentrations above CUGs.
	RQLmw-010	Sharon	Annual		1			1	1	1	1	1	1	1	1			Manganese and Bis(2-ethylhexyl)phthalate dectected at concentration above CUG Added to 2010 program for annual monitoring
	RQLmw-011	Sharon	Annual		1			1	1	1	1	1	1	1	1			Manganese, Tetrachloroethylene and Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	RQLmw-012	Sharon																
	RQLmw-013	Sharon																
	RQLmw-014	Sharon	Annual				1	1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG Added to 2010 program for annual monitoring.
	RQLmw-015	Sharon																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
	RQLmw-016	Sharon	Annual				1	1	1	1	1	1	1	1	1			Manganese and Iron dectected at concentration above CUG. Added to 2010 program for annual monitoring
	RQLmw-017	Sharon	Annual				1	1	1	1	1	1	1	1	1			Manganese dectected at concentration above CUG. Added to 2010 program for annual monitoring.
Winklepeck Burning Grounds	WBGmw-005	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Time-Trend graph presented in 2009 Annual FWGWMP report suggests Manganese is increasing in concentrations (above background. PRG and MCL values)
	WBGmw-006	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Hexahydro-1,3,5-trinitro-1,3,5-triazine dectected at concentration above CUG. Added to 2010 program for annual monitoring.
	WBGmw-007	Unconsolidated																
	WBGmw-008	Unconsolidated																
	WBGmw-009	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Hexahydro-1,3,5-1,3,5-trinitro-1,3,5-triazine dectected at concentration above CUG. Added to 2010 program for annual monitoring
	WBGmw-010	Unconsolidated																
	WBGmw-011	Unconsolidated																
	WBGmw-012	Unconsolidated																
	WBGmw-013	Unconsolidated																
	WBGmw-014	Unconsolidated																
	WBGmw-015	Unconsolidated																
	WBGmw-016	Unconsolidated																
	WBGmw-017	Unconsolidated																
Suspected Mustard Agent Burial Site	MBS-001	Unconsolidated	Annual			1		1	1	1	1	1	1	1	1			Bis(2-ethylhexyl)phthalate dectected at concentration above CUG. Added to 2010 program for annual monitoring
	MBS-002	Unconsolidated																
	MBS-003	Unconsolidated																
	MBS-004	Unconsolidated																
	MBS-005	Unconsolidated																
	MBS-006	Unconsolidated																

Attachment A: Proposed Well Sampling Schedule
2010 Facility-Wide Groundwater Monitoring Program
Ravenna Army Ammunition Plant
Ravenna, Ohio

RVAAP Area	Location / Well ID	Monitored Zone	Proposed Sample Frequency	Proposed Sample Schedule				Proposed Analytical Parameters										Rationale For / Against Selection
				Apr 2010	Jul 2010	Oct 2010	Jan 2011	VOCs	SVOCs	Explosives	Propellants	Pesticides	PCBs	TAL Metals	Cyanide	Nitrate/Nitrite	Perchlorate	
Facility-Wide Groundwater: Basal Sharon Conglomerate Wells	SCFmw-001	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2	2		Well added to FWGWMP for 2010. Semi-Annual monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-002	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2	2		Well added to FWGWMP for 2010. Semi-Annual monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-003	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2	2		Well added to FWGWMP for 2010. Semi-Annual monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-004	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2	2		Well added to FWGWMP for 2010. Semi-Annual monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-005	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2	2		Well added to FWGWMP for 2010. Semi-Annual monitoring recommended in support of initial characterization performed by SAIC.
	SCFmw-006	Sharon	Semi-Annual		1		1	2	2	2	2	2	2	2	2	2		Well added to FWGWMP for 2010. Semi-Annual monitoring recommended in support of initial characterization performed by SAIC.
TOTALS =				43	40	37	37	157	157	157	157	157	157	157	157	31	11	

Former Ground Water Analytical Results Exhibits Contaminant Concentrations Above CUGs
Time-Trend Graphs Presented in 2009 Annual FWGWMP Report Suggest Concentrations of Potential Contaminant(s) is Increasing
FWGWMP CERCLA Wells - Highlighted Red
FWGWMP RCRA Wells - Highlighted Blue

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963-1200 FAX: (330) 487 0769
www.epa.state.oh.us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

March 22, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, DRAFT, OCTOBER 2009 SAMPLING EVENT REPORT

CERTIFIED MAIL
7008 3230 0003 5419 7464

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft, Facility-Wide Ground Water Monitoring Program (FWGWMP) October 2009 Sampling Event, Ravenna Army Ammunition Plant, Ravenna, Ohio" document. The "Investigative Derived Waste and Characterization and Disposal Plan" (IDW) has been included as Appendix E. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on February 8, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036. This document was reviewed by Ohio EPA personnel in NEDO, DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW).

This monitoring event was completed under the FWGWMP. Forty-six wells were sampled during an eight-day sampling event on October 12 through 15, 2009.

The IDW Plan, Appendix E, was approved in a November 23, 2009 letter from Ohio EPA. Enclosed are Ohio EPA's comments that need to be addressed before the entire document can be approved.

The Director's Final Findings and Orders require that the responses to comments (RTCs) be received within fifteen (15) days of the Army's receipt of Ohio EPA correspondence, and that the revised document be submitted within thirty (30) days of the Army's receipt of Agency correspondence.

RECEIVED

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DERR, NEDO
John Miller, EQM

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

COMMENT RESPONSE TABLE
RVAAP FWGWMP
OCTOBER 2009 SAMPLING EVENT
REVIEWERS: CONNI MC CAMBRIDGE, OHIO EPA, DDAGW, AND VICKI DEPPISCH, OHIO EPA, DERR

No.	Location	Reviewer Comment	Reviewer Recommendation	Preparer Response
1.	Pg. 40 (Sec. 3.2.3, line 26)	The text indicates that tetrachloroethene (PCE) was reported at 4.1 ug/L monitoring well, LL11mw-009. For PCE, the MCL is 5 ug/L and Region 9 PRG is 0.1 ug/L. It is unclear where PCE has been increasing or decreasing in this well during 2009.	Please provide a brief summary and discussion of the historical PCE results reported from this well.	
2.	Pg. 67 to 75 (Sec. 3.2.5-Tqble 3-8)	Table 3-8 contains "rejected data" for 4,4-DDT in two sampled wells. During October 2009, only two pieces of data out of 12,684 were rejected (Section 3.3, pg. 81).	The issue of "rejected data" has been noted in several previous submittals. In each case, the Facility has responded that the issue will be addressed/has been addressed with the analytical lab to avoid further problems. With the appearance of only two pieces of data being rejected, it appears that the Facility has addressed this on-going issue. The new steps appear to have prevented the on-going problem of "rejected data" from reoccurring in this sampling event and hopes it continues in the future.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

March 23, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, PROPOSED AMENDMENT TO THE 2010 WELL MONITORING SCHEDULE, FWGWMP, MARCH 15, 2010

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 7471

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Proposed Amendment to the 2010 Well Monitoring Schedule Facility-Wide Groundwater Monitoring Program (FWGWMP), Ravenna Army Ammunition Plant, Ravenna, Ohio" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on March 18, 2010 and is dated March 15, 2010.

Enclosed are Ohio EPA's comments that need to be addressed before the document can be approved. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch

Vicki Deppisch, Project Coordinator
Division of Emergency and Remedial Response

VD/kss

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DERR, NEDO

RECEIVED 24 Mar 2010

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

COMMENT RESPONSE TABLE
RVAAP-FWGWMP
PROPOSED AMENDMENT TO THE 2010 WELL MONITORING SCHEDULE TO THE FWGWMP
OHIO EPA REVIEWER: VICKI DEPPISCH, DERR
(03/23/10)

Cmt. #	Location	Comment	Recommendation	Response
1.	Pg. 1	Re: Well selection is based on exceedances of the CUGS. There is no mention of MCLs.	Please re-evaluate and include all contaminants above MCLs.	
2.	Pg. 2	Re: Four (4) background wells, BKGmw-006, 010, 017, and 018, selected for annual sampling. The 2009 Annual Report by EQM has identified that due to newly interpreted GW flow interpretations, BKGmw-005 (unconsolidated), 006 (Sharon), and 018 (Sharon) may be the only background wells located in affected areas. BKGmw-006 is not scheduled to be sampled.	1) The EQM statement needs to be resolved between Ohio EPA and USACE. 2) Please re-evaluate inclusion of BKGmw-005 for annual sampling or provide a brief explanation for exclusion.	
3.	General	There is no discussion regarding the contractor(s) for the proposed sampling. Contractor change may affect laboratory methodologies, reporting limits, etc.	Please discuss.	

Environmental Quality Management, Inc.
1800 Carillon Boulevard
Cincinnati, Ohio 45240
(513) 825-7500
FAX (513) 825-7495
www.eqm.com

March 29, 2010

Ms. Vicki Deppisch
Ohio Environmental Protection Agency, NE District Office
Division of Emergency and Remedial Response
2110 E. Aurora Road
Twinsburg, OH 44087

Re: Facility-Wide Groundwater Monitoring Program
October 2009 Sampling Event Response to Comments
Ravenna Army Ammunition Plant
Ravenna, Ohio

Dear Ms. Deppisch:

On behalf of the US Army Corps of Engineers (USACE) Environmental Quality Management, Inc. (EQM) is submitting to the Ohio EPA the responses to Ohio EPA comments (dated March 22, 2010) on the *Draft Facility-Wide Groundwater Monitoring Program Report on the October 2009 Sampling Event* at the Ravenna Army Ammunition Plant. Enclosed please find two (2) printed copies of the responses. An electronic copy of the responses has also been sent via email.

If you have any questions, please call me at (513) 825-7500, or Mr. Mark Nichter of the USACE at (502) 315-6375.

Sincerely,

ENVIRONMENTAL QUALITY MANAGEMENT, INC.

RECEIVED
23 Mar 2010

John M. Miller, CHMM
Project Manager

cc: M. Nichter – USACE
M. Patterson – RVAAP (BRAC)

PRELIMINARY DRAFT FACILITY-WIDE GROUNDWATER MONITORING PROGRAM
(REPORT ON THE OCTOBER 2009 SAMPLING EVENT)
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
March 22, 2010

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (V. Deppisch/C. McCambridge)		
O-1	Pg. 40 (Sec. 3.2.3, line 26)		The text indicates that tetrachloroethene (PCE) was reported at 4.1 µg/L in monitoring well LL11mw-009. For PCE the MCl is 5 µg/L and the Region 9 PRG is 0.1µg/L. It is unclear where PCE has been increasing or decreasing in this well during 2009/	Please provide a brief summary and discussion of the historical PCE results reported from this well.	The following text will be added to Section 4: *Tetrachloroethene (PCE) has been detected in well LL11mw-009 at levels ranging from 3.8µg/L to 4.1µg/L during the April, July and October 2009 sampling events. There does not appear to be an increasing or decreasing trend in the detected levels of PCE, the levels are remaining fairly steady-state. It should be noted that this well has been identified for future sampling and analysis after the required four quarters of sampling. PCE levels will be monitored closely over future sampling and analysis events. The 2010 FWGWMP includes the annual monitoring of this well.* Additionally, the results from the January 2010 event for this well showed PCE at a level of 3.8 µg/L, further evidence that there is no decreasing or increasing trend for this well.
O-2	Pg. 67 to 75 Sec. 3.2.5-Table 3-8)		Table 3-8 contains "rejected data" for 4,4-DDT in two sampled wells. During October 2009, only two pieces of data out of 12,684 were rejected (Section 3.3, pg. 81).	The issue of "rejected data" has been noted in several previous submittals. In each case the Facility has responded that the issue will be addressed/has been addressed with the analytical lab to avoid further problems. With the appearance of only two pieces of data being rejected, it appears that the facility has addressed this ongoing issue.	Noted. Additionally, the January 2010 event had no rejected data.

PRELIMINARY DRAFT FACILITY-WIDE GROUNDWATER MONITORING PROGRAM
(REPORT ON THE OCTOBER 2009 SAMPLING EVENT)
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
March 22, 2010

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
Ohio EPA (V. Deppisch/C. McCambridge)					
				The new steps appear to have prevented the on-going problem of "rejected data" from reoccurring in this sampling event and hopes it continues in the future.	

PRELIMINARY DRAFT FACILITY-WIDE GROUNDWATER MONITORING PROGRAM
(REPORT ON THE OCTOBER 2009 SAMPLING EVENT)
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
April 12, 2010

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (V. Deppisch/C. McCambridge)		
O-1	Page 5, Section 2.1		The text does not indicate how groundwater samples were filtered during the sampling event.	Please provide a brief discussion of the procedures used to filter groundwater samples during this event.	The following text will be added to Section 2.1: *Unfiltered metals samples were collected directly into sample bottles containing nitric acid. Filtered samples collected through the bladder pump used an inline 0.45 micron filter emptying directly into sample bottles containing nitric acid. For samples collected using a bailer the samples were poured from the bailer into a decontaminated holding vessel and then filtered using a hand-pump through a 0.45 micron filter into sample bottles containing nitric acid. All sampling procedures for the filtered metals were conducted in accordance with Section 4.3.5 of the Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant March 2001.*
O-2	Page 13, Section 3.1		Section 3.1 text and associated table indicates a pH of less than 5 in several wells during purging and sampling (i.e., B12mw-010, B12mw-0011, B12mw-012, BKGmw-010, BKGmw-016, FBQmw-170, FBQmw-171, FBQmw-173, LL11mw-005, LL1mw-067, LL1mw-083, LL1mw-084, LL9mw-006, RQLmw-012, and RQLmw-013). A lower ph could be indicative of groundwater contamination. It is unclear whether pH has been increasing in these wells over time.	Please provide documentation and/or reference to substantiate the possible reason(s) for these lower pH values noted in several wells. Please also discuss whether these conditions will affect the reported metal concentrations in groundwater.	As shown in the attached table several of the pH readings appear to be anomalous when compared to past sampling events. These include B12mw-010, B12mw-011, and LL1mw-083. Two of the wells appear to be showing decreasing trends for pH (B12mw-012 and BKGmw-016. The remaining wells appear to have historical pH values that are low but not decreasing. The geochemical evaluation of the October 2009 data set that is currently in progress considers the relationships between element concentrations versus pH, redox state, and

PRELIMINARY DRAFT FACILITY-WIDE GROUNDWATER MONITORING PROGRAM
(REPORT ON THE OCTOBER 2009 SAMPLING EVENT)
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
April 12, 2010

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (V. Deppisch/C. McCambridge)		
					hydrostratigraphic unit. Fifteen of the 258 samples have pH measurements below 5.0. Nine of these samples are from the Sharon, four are from the Homewood, and two are from the Unconsolidated units. We anticipate the results of the geochemical evaluation may be able to explain some of the occurrences of the lower pH values.
O-3	Page 13, Section 3.1		Table 3-1 reported high turbidity values in several wells that utilized low-flow purging and sampling techniques. It is unclear whether this observed high turbidity value is related to inadequate well development issue or well design issue and how this issue will be resolved.	Please provide an explanation as to how the issue of high turbidity values will be resolved to provide representative water samples.	The data collected during the metals sampling event is to be used in support of the geochemical evaluation conducted by Shaw. A major component of this evaluation concerns trace element adsorption on suspended materials. It is anticipated that the geochemical evaluation will help to clarify how the observed high turbidity values affect the sample results.
O-4	Table 3-3 & 3-4		All qualifiers have not been included in the notes including U, J, UJ, JB, UJB, etc.	Please add all qualifiers to all notes in Tables 3-3 and 3-4.	The tables will be revised to clarify that the qualifiers used are as follows: U, J, UJ, and B. The spacing in the tables has made it appear as if UJB and JB are qualifiers when in actuality the qualifiers should read UJ, B and J, B respectively.
O-5	Pages 40 and 41, Table 3-3, Section 3.3		Aluminum, arsenic, iron, and manganese concentrations in unfiltered samples were reported above their respective maximum contaminant levels (MCLs) or secondary MCLs in several wells (i.e., BKGmw-004, BKGmw-005, BKGmw-008, etc.) Based on the abovementioned observations,	The issue of inorganic concentrations in background wells has been noted in previous data reviews. These exceedances of MCLs (aluminum, arsenic) and SMCLs (iron and manganese) for inorganics continue to raise questions on the integrity of data	The major focus of the geochemical evaluation will be to determine if the monitored metals reflect naturally high background levels at the facility. As stated above the geochemical evaluation of the October, 2009 data set will consider the relationships between element concentrations versus pH, redox state, and hydrostratigraphic unit. One of the major

PRELIMINARY DRAFT FACILITY-WIDE GROUNDWATER MONITORING PROGRAM
(REPORT ON THE OCTOBER 2009 SAMPLING EVENT)
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
April 12, 2010

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
			Ohio EPA (V. Deppisch/C. McCambridge)		
			there is a concern that these background wells may have been impacted by the facility practices.	obtained from background well locations. It is unclear whether these background wells have been previously impacted by explosives and previous facility activities and whether they are currently capable of providing representative groundwater samples that remain unaffected by the facility practices. Please provide a brief discussion as to how the geochemical elevation will provide a more definitive characterization for these background wells.	purposes of conducting the geochemical evaluation is to provide a better understanding of the true background concentration, or range of concentrations, for inorganics at the facility. A full description and the results of the study will be provided in the geochemical report.

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963 1200 FAX: (330) 487 0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

March 30, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, FINAL, WORK PLAN FOR THE GEOCHEMICAL EVALUATION OF METALS IN GROUNDWATER, VERSION 1.0, DATED MARCH 25, 2010

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 7549

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Final Work Plan for the Geochemical Evaluation of Metals in Groundwater at Ravenna Army Ammunition Plant, Ravenna, Ohio, Version 1.0" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on March 26, 2010, and is dated March 25, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District by Shaw Environmental & Infrastructure, Inc., under contract no. W912QR-08-D-0013.

Ohio EPA's comment has been adequately addressed and the document is approved.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch, Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Glen Beckham, USACE Louisville
David Cobb, Shaw Environmental, Inc.
Katie Elgin, OHARNG RTLS
Mark Krivansky, AEC
Maj. Ed Meade, OHARNG RTLS
Conni McCambridge, Ohio EPA, DERR, NEDO
Eileen Mohr, Ohio EPA, DERR, NEDO
Mark Nichter, USACE Louisville

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED
5 Apr 2010

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487 0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

March 31, 2010

RE: RAVENNA ARMY AMMUNITION PLANT,
PORTAGE/TRUMBULL COUNTIES,
DRAFT, FWGWMP OCTOBER 2009
SAMPLING EVENT REPORT,
RESPONSE TO OHIO EPA COMMENTS
DATED MARCH 29, 2010

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 7556

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Response to Ohio EPA Comments, Facility-Wide Ground Water Monitoring Program (FWGWMP) Draft October 2009 Sampling Event," dated March 29, 2010, document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on March 30, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036.

The IDW plan, included as Appendix E, was previously approved. The comments have been adequately addressed. Please forward one copy of the replacement pages and titles.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Maj. Ed Meade, OHARNG RTLS
Mark Krivansky, AEC
Mark Nichter, USACE Louisville
Conni McCambridge, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Glen Beckham, USACE Louisville
John Miller, EQM

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED 5 Apr 2010

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963 1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

April 12, 2010

RE: RAVENNA ARMY AMMUNITION PLANT,
PORTAGE/TRUMBULL COUNTIES,
DRAFT, FWGWMP, DRAFT, 2009 METALS
SAMPLING EVENT REPORT

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plan
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft, Facility-Wide Ground Water Monitoring Program (FWGWMP), Report on the 2009 Metals Sampling Event" document. The document was dated and received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on March 2, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036. This document was reviewed by Ohio EPA personnel in NEDO, DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW).

The comments have been adequately addressed; however, Ohio EPA still has some concerns that relate to the LL-12 area. Historical flow maps have indicated conflicting flow directions at LL-12. Monitored Natural Attenuation (MNA) has been proposed as a remedy in a separate Feasibility Study report. Ohio EPA suggests that USACE re-evaluate, verify, and re-confirm that the proposed wells for sampling arsenic and nitrate at LL-12 are on target.

Enclosed are Ohio EPA's comments for your review. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch, Project Coordinator
Division of Emergency and Remedial Response

VD/kss

RECEIVED 13 April 2010

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Maj. Ed Meade, OHARNG RTLS
Mark Nichter, USACE Louisville
Conni McCambridge, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
John Miller, EQM

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

COMMENT RESPONSE TABLE
RVAAP – FWGWMP
DRAFT, FWGWMP 2009 METALS SAMPLING REPORT
OHIO EPA REVIEWERS: CONNI McCAMBRIDGE AND VICKI DEPPISCH

No.	Location	Reviewer Comment	Reviewer Recommendation	Response
1	Page 5, Section 2.1	The text does not indicate how ground water samples were filtered during the sampling event.	Please provide a brief discussion of the procedure used to filter ground water samples during this event.	
2	Page 13, Section 3.1	Section 3.1 text and associated table indicates a pH of less than 5 in several wells during purging and sampling (i.e., B12mw-010, B12mw-011, B12mw-012, BKGmw-010, BKGmw-016, FBQmw-170, FBQmw-171, FBQmw-173, LL11mw-005, LL1mw-067, LL1mw-083, LL1mw-084, LL9mw-006, RQLmw-012, and RQLmw-013). A lower pH could be indicative of ground water contamination. It is unclear whether pH has been decreasing in these wells over time.	Please provide documentation and/or a reference to substantiate the possible reason(s) for these lower pH values noted in several wells. Please also discuss whether these conditions will affect the reported metal concentrations in ground water.	
3	Page 13, Section 3.1	Table 3-1 reported high turbidity values in several wells that utilized low-flow purging and sampling techniques. It is unclear whether this observed high turbidity value is related to inadequate well development issue or well design issue and how this issue will be resolved.	Please provide an explanation as to how the issue of high turbidity values will be resolved to provide representative ground water samples.	
4	Table 3-3 & 3-4	All qualifiers have not been included in the notes including U, J, UJ, JB, UJB, etc.	Please add all qualifiers to all notes in Tables 3-3 and 3-4.	
5	Pages 40 and 41, Table 3-3, Section 3.3	Aluminum, arsenic, iron, and manganese concentrations, in unfiltered samples, were reported above their respective maximum	The issue of inorganic concentrations in background wells has been noted in previous data reviews. These exceedances of MCLs (aluminum,	

		contaminant levels (MCLs) or secondary MCLs in several background wells (i.e., BKGmw-004, BKGmw-005, BKGmw-008, etc.). Based on the abovementioned observations, there is a concern that these background wells may have been impacted by the facility practices.	arsenic) and SMCLs (iron and manganese) for inorganics continue to raise questions on the integrity of the data obtained from background well locations. It is unclear whether these background wells have been impacted by explosives from previous facility activities and whether they are currently capable of providing representative ground water samples that remained unaffected by the facility practices. Please provide a brief discussion as to how the geochemical elevation will provide a more definitive characterization for these background wells.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

April 14, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, DRAFT QUALITY CONTROL PLAN FOR THE GEOCHEMICAL EVALUATION OF METALS IN GROUNDWATER

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plan
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft Quality Control Plan for the Geochemical Evaluation of Metals in Groundwater at Ravenna Army Ammunition Plant, Ravenna, Ohio (RVAAP)" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on April 13, 2010, and is dated April 12, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District by Shaw, under contract no. W912QR-08-D-0013.

Enclosed are Ohio EPA's comments. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Maj. Ed Meade, OHARNG RTLS
Mark Nichter, USACE Louisville
Conni McCambridge, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
David Cobb, Shaw

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED 14 Apr 2010

RVAAP – FWGWMP
COMMENT RESPONSE TABLE
DRAFT QUALITY CONTROL PLAN FOR THE GEOCHEMICAL EVALUATION OF METALS IN GROUNDWATER
REVIEWER: VICKI DEPPISCH, DERR/NEDO, OHIO EPA
(April 14, 2010)

No.	Location	Comment	Recommendation	Response
1	Pg. 4-1, line 10-11	Report states "Older, existing groundwater analytical data may be used for conducting the geochemical evaluation…." Has it been decided which older data will be included? Will all be used? What are the criteria for inclusion and exclusion? Will "J" values be used?	Please discuss in detail.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963-1200 FAX: (330) 487 0769
www.epa.state.oh.us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

April 23, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, PRELIMINARY DRAFT, MONITORING REPORT FOR THE DEEP BEDROCK WELL INSTALLATION IN THE BASAL SHARON CONGLOMERATE DATED MARCH 12, 2010

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 7686

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Preliminary Draft Monitoring Report for the Deep Bedrock Well Installation in the Basal Sharon Conglomerate, Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio" document, dated March 12, 2010. The document was also received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on March 12, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by SAIC Engineering of Ohio, Inc., Twinsburg, Ohio, under contract no. W912QR-04-D-0028. This document was reviewed by Ohio EPA personnel in NEDO, DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW).

Six monitoring wells were installed to further investigate possible impact in the basal portions of the Sharon Conglomerate due to historical operations at RVAAP. Enclosed are Ohio EPA's comments that need to be addressed before the entire document can be approved.

The Director's Final Findings and Orders require that the responses to comments (RTCs) be received within fifteen (15) days of the Army's receipt of Ohio EPA correspondence, and that the revised document be submitted within thirty (30) days of the Army's receipt of Agency correspondence.

RECEIVED 28 Apr 2010

If you have any questions, please call me at (330) 963-1207.

Sincerely,

/Vicki Deppisch

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DERR, NEDO
Jed Thomas, SAIC Twinsburg

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

Ravenna Army Ammunition Plant
FWGWMP
Preliminary Draft, Monitoring Report for the Deep Bedrock Well Installation in the Basal Sharon Conglomerate
Ohio EPA Comment Response Table
Reviewers: Vicki Deppisch, DERR and Conni Mc Cambridge, DDAGW
(April 23, 2010)

No.	Location	Reviewer Comment	Reviewer Recommendation	Preparer Response
1	Page 2-17, Section 2.5.2, Section 3.1	Section 2.5.2 text indicates ground water results were qualified as "U," "UJ," "J," "R," and "=" based on laboratory review. However, Section 3.1 further defines that organic estimated results were flagged with a "J" qualifier, while inorganic estimated results were flagged with "B." This has been discussed many times and appears to be still unresolved. It is confusing to have two different qualifiers ("B" and "J") representing estimated results. In addition, future sampling will be incorporated into the FWGWMP, which currently uses the "J" value for both inorganics and organics. There are also many different people utilizing the data, which can add to inaccuracies.	Please discuss and change.	

2	Page 3-5, Table 3-2, Section 3.6	The text indicates that six explosives were detected below the laboratory reporting limits during quarterly sampling events. While these results were flagged with a "J" (estimated) qualifier, it should be noted that "J" values may be indicative of potential impacts to the aquifer.	It is unclear whether these "J" values reported in the six new wells indicate the presence of explosives from previous facility activities in ground water. Ohio EPA concurs with the recommendation to continue quarterly ground water sampling during 2011. Ohio EPA also recommends that both filtered and unfiltered samples be collected for metal analyses during these 2011 sampling events.	
3	Appendix G	The April 2009 (Ist Quarter) well purge log for SCFmw-004 reports pH values between 11.45 and 12.64. These values were attributed to problems with the pH meter.	Please provide a brief discussion of this pH field issue in Sections 2.4.1 and 2.4.2.1 of the text.	
4	Appendix G	Well purge logs reported high turbidity values (i.e., 366 NTUs in SCFmw-001 on 7/14/2009; 999 NTUs in SCFmw-001 on 10/12/2009) in several wells	The reason for elevated turbidity value needs to be addressed. Please provide an explanation as to how the issue of high turbidity values will be resolved to provide	

		that utilized low-flow purging and sampling techniques. The report did not include any reasoning for the observed elevated turbidity values or address whether the newly installed wells were adequately developed. Thus, it is unclear whether these observed turbidity values are related to inadequate well development and/or well design issues.	representative ground water samples.	
5	Appendix H	Several Chain of Custodies do not have laboratory receipt sign-off signatures (i.e., April 2009: RVAAP-SCF-004; July 2009: RVAAP-SCF-006; October 2009: RVAAP-SCF-010; January 2010: RVAAP-SCF-013).	The submittal needs to provide a brief discussion of the procedure used by the laboratory to sign off on containers containing ground water samples. Also, during future sampling events, please take adequate measures to assure that Chain of Custody forms contain the appropriate signatures.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh..us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

April 28, 2010

RE: RAVENNA ARMY AMMUNITION PLANT,
PORTAGE/TRUMBULL COUNTIES,
FINAL, FWGWMP, OCTOBER 2009
SAMPLING EVENT REPORT

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 1981

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Final, Facility Wide Groundwater Monitoring Program (FWGWMP) October 2009 Sampling Event" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on April 20, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036.

The document is approved. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Glen Beckham, USACE Louisville
Katie Elgin, OHARNG RTLS
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DDAGW, NEDO
Maj. Ed Meade, OHARNG RTLS
John Miller, EQM
Eileen Mohr, Ohio EPA, DERR, NEDO
Mark Nichter, USACE Louisville

RECEIVED
APR 30 2010

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

Environmental Quality Management, Inc.
1800 Carillon Boulevard
Cincinnati, Ohio 45240
(513) 825-7500
FAX (513) 825-7495
www.eqm.com

May 7, 2010

Ms. Vicki Deppisch
Ohio Environmental Protection Agency, NE District Office
Division of Emergency and Remedial Response
2110 E. Aurora Road
Twinsburg, OH 44087

Re: Facility-Wide Groundwater Monitoring Program
Metals 2009 Sampling Event Response to Comments
Ravenna Army Ammunition Plant
Ravenna, Ohio

Dear Ms. Deppisch:

On behalf of the US Army Corps of Engineers (USACE) Environmental Quality Management, Inc. (EQM) is submitting to the Ohio EPA the responses to Ohio EPA comments (dated April 12, 2010) on the Draft *Facility-Wide Groundwater Monitoring Program Report on the 2009 Metals Sampling Event* at the Ravenna Army Ammunition Plant. Enclosed please find two (2) printed copies of the responses. An electronic copy of the responses has also been sent via email.

If you have any questions, please call me at (513) 825-7500, or Mr. Mark Nichter of the USACE at (502) 315-6375.

Sincerely,

ENVIRONMENTAL QUALITY MANAGEMENT, INC.

John M. Miller, CHMM
Project Manager

cc: M. Nichter – USACE
M. Patterson – RVAAP (BRAC)

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963 1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

May 13, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, PRELIMINARY DRAFT, MONITORING REPORT FOR THE DEEP BEDROCK WELL INSTALLATION IN THE BASAL SHARON CONGLOMERATE CRT, DATED MAY 7, 2010

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2056

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Comment Response Table for the Preliminary Draft Monitoring Report for the Deep Bedrock Well Installation in the Basal Sharon Conglomerate, Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio" document, dated May 7, 2010. The document was also received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on May 7, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by SAIC Engineering of Ohio, Inc., Twinsburg, Ohio, under contract no. W912QR-04-D-0028. This document was reviewed by Ohio EPA personnel in NEDO's DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW).

All comments have been adequately addressed. Regarding comment # 1 and the use of the "J" qualifier for both inorganic and organic analytes, please make sure all analytical data for "B" qualifiers for inorganic analytes will be replaced with the "J" qualifier in the final report. Please forward the final report or specific cover pages and replacement pages to Ohio EPA.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Maj. Ed Meade, OHARNG RTLS
Mark Nichter, USACE Louisville
Conni McCambridge, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
Jed Thomas, SAIC Twinsburg

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED
17 May 2010

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

May 13, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, PROPOSED AMENDMENT TO THE 2010 WELL MONITORING SCHEDULE, CRT, DATED APRIL 22, 2010

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2063

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Comment Response Table to the Proposed Amendment To the 2010 Well Monitoring Schedule Facility-Wide Groundwater Monitoring Program (FWGWMP), Ravenna Army Ammunition Plant, Ravenna, Ohio" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on April 22, 2010, and is dated April 15, 2010.

Enclosed are Ohio EPA's comments for comments # 1 and 2 that still require further clarification. Comment # 3 has been adequately addressed. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch

Vicki Deppisch, Project Coordinator
Division of Emergency and Remedial Response

VD/kss

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Maj. Ed Meade, OHARNG RTLS
Mark Nichter, USACE Louisville
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Glen Beckham, USACE Louisville

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED
17 May 2010

Comment Response Table
RVAAP – FWGWMP
Response to Comment Response Table
Proposed Amendment to the 2010 Well Monitoring Schedule to the FWGWMP
Ohio EPA Reviewer: Vicki Deppisch, DERR, NEDO
(May 13, 2010)

Comment No.	Location	Comment	Recommendation	Response
1	Pg. 1	(Previous comment # 1) It is unclear from the response if Newfields averaged the four sampling events data to obtain a concentration number or if the highest value was used. It is also unclear if the small list includes all exceedances of MCLs. Also, the specific well with the exceedances was not specified. The response also discusses MCLs vs. CUGs. Please list and specify all constituents that have MCLs (and SMCLs) and a different CUG value. As the comment response discusses the appropriate use of CUGs for GW, please discuss the exclusion of MCLs. Please discuss the exclusion of wells in the proposed sampling that have a higher CUG value and lower MCL (if any, other that nitrate).	Please clarify the process that Newfields used. Please respond to all questions in the comment column. Please add/delete/modify the response to the previous CRT, as needed.	

2	Pg. 2	(Previous comment # 2) Regarding the acceptance of background wells BKGmw-005 (unconsolidated), BKGmw-006 (Sharon), and BKGmw-018 (Sharon) according to EQM's flow maps identifying unaffected areas.	Although Ohio EPA concurs with the flow maps, a review of the data for these wells indicates low levels of contaminants that are not naturally occurring, suggesting possible influence from previous activities at RVAAP. Ohio EPA is skeptical if any designated background wells have been unaffected by previous activities. As CUGs have been discussed in the previous CRT, please discuss the role the background well values, if any, played in the development of the CUG values.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487 0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

May 18, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, DRAFT, JANUARY 2010 SAMPLING EVENT REPORT

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2070

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft, Facility-Wide Ground Water Monitoring Program (FWGWMP) January 2010 Sampling Event, Ravenna Army Ammunition Plant, Ravenna, Ohio" document. The "Investigative Derived Waste and Characterization and Disposal Plan" (IDW) has been included as Appendix E. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on May 3, 2010 and is dated April 30, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036. This document was reviewed by Ohio EPA personnel in NEDO/DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW).

This monitoring event was completed under the Facility-Wide Ground Water Monitoring Program (FWGWMP). Eleven wells were sampled during a two-day sampling event on January 20 and 21, 2010.

The IDW Plan, Appendix E, was approved in a February 18, 2010 letter from Ohio EPA. Enclosed are Ohio EPA's comments that need to be addressed before the entire document can be approved.

The Director's Final Findings and Orders require that the responses to comments (RTCs) be received within fifteen (15) days of the Army's receipt of Ohio EPA's correspondence, and that the revised document be submitted within thirty (30) days of the Army's receipt of Agency correspondence.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DERR, NEDO
John Miller, EQM

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

OHIO EPA COMMENT RESPONSE TABLE
RVAAP – FWGWMP
Draft, FWGWMP Report on the January 2010 Sampling Event
Reviewers: Conni McCambridge, DDAGW (DGW) and Vicki Deppisch, DERR
(May 18, 2010)

No.	Location	Reviewer Comment	Reviewer Recommendation	Response
1	Section 2.1, pg. 7	The text indicated that *"...the ground water elevations from the new Sharon Conglomerate wells were evaluated and determined not to be representative of either the Homewood or the Sharon aquifers, therefore they were not used to determine the potentiometric contours."* It was unclear what criteria were used to make this determination.	Ohio EPA thought this issue had been previously resolved. Please discuss with Mark Nichter, USACE. Please provide an explanation as to how it was determined that the ground water elevations from the six new wells were not representative of the Homewood or Sharon aquifers beneath the facility. Also, explain how the ground water elevations for these wells will be utilized in the FWGWMP in the future.	
2	Section 2.2, Page 7 and Appendix C	Well purge logs reported high turbidity values (i.e., 655 NTUs in ASYmw-002 on 1/20/2010; 999 NTUs in LL3mw-235 on 1/19/2010) in several wells that utilized low-flow purging and sampling techniques. It is unclear whether these observed turbidity values are related to inadequate well development and/or well design issues.	The report did not include any reasoning for the observed elevated turbidity values or address whether the newly installed wells were adequately developed. Thus, the reason for elevated turbidity value needs to be addressed. Please provide an explanation as to how the issue of high turbidity values will be resolved to provide representative ground water samples.	

3	Section 2.2, Page 8, Line 16	The text does not indicate how ground water samples were filtered during the sampling event.	Please provide a brief discussion of the procedure(s) used to filter ground water samples during the sampling event.	
4	Section 3.1, Page 12 and Table 3-1	Table 3-1 indicates that well ASYmw-008 has a total sediment accumulation of greater than 1 foot (or greater than 10% of the screen length, 10 feet). This could be indicative of excessive silting in this well (FWGWMPP, Section 4.1, pg. 4-1).	Please provide a discussion concerning how and when this issue of excessive silting will be addressed in these wells.	
5	Section 3.2.2, Pages 19-20 and Table 3-3	Table 3-3 contains several inorganic parameters which exceeded their respective MCLs and/or Region 9 PRGs in various wells. These parameters are: arsenic, iron, and manganese.	As previously noted during reviews of earlier sampling reports, these parameters exceeded their respective MCL values and/or the Region 9 PRG values. It remains unclear what course of action will be taken to address these exceedences. Please acknowledge the exceedences and add that this issue will be addressed in the future.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963 1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

May 18, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, DRAFT, FWGWMP, 2009 METALS SAMPLING EVENT REPORT, RESPONSE TO COMMENTS, DATED MAY 7, 2010

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plan
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft, Facility-Wide Ground Water Monitoring Program (FWGWMP), Report on the 2009 Metals Sampling Event, Response to Comments" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on May 10, 2010, and is dated May 7, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036. This document was reviewed by Ohio EPA personnel in NEDO/DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW).

All comments have been adequately addressed. Please forward the final report or specific replacement and cover pages to Ohio EPA.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Maj. Ed Meade, OHARNG RTLS
Mark Nichter, USACE Louisville
Conni McCambridge, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
John Miller, EQM

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED
19 May 2010

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

June 2, 2010

CERTIFIED MAIL

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

RE: ***RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, DRAFT, INVESTIGATION DERIVEDWASTE AND DISPOSAL PLAN, FWGWMP, FOR THE "IMPLEMENTATION OF REMEDIAL INVESTIGATION WORK PLAN-CHARACTERIZATION AND DISPOSAL, LETTER REPORT FOR SOIL CUTTINGS AND DECONTAMINATION FLUIDS" DATED MAY 25, 2010***

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Implementation of Remedial Investigation Work Plan-characterization and Disposal Letter Report for Soil cuttings and Decontamination Fluids" at the Ravenna Army Ammunition Plant, Ravenna, OH document. This document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), and is dated May 25, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by SAIC Engineering of Ohio, Inc., under contract no. W912QR-04-D-0028.

The report is approved and Ohio EPA concurs that the generation of Investigation Derived Waste (IDW) consisting of purged water may be disposed of as non-contaminated, non-hazardous waste and that it be sent off-site for disposal to a permitted water treatment facility.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD:ddw

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Amanda Trent, SAIC Twinsburg, OH
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Mark Krivansky, AEC

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR

RECEIVED
3 JUN 2010

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

CERTIFIED MAIL

June 2, 2010

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, FINAL, MONITORING REPORT FOR THE DEEP BEDROCK WELL INSTALLATION IN THE BASAL SHARON CONGLOMERATE, DATED MAY 21, 2010

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Final, Preliminary Draft Monitoring Report for the Deep Bedrock Well Installation in the Basal Sharon Conglomerate, Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio" document dated May 21, 2010 document. The document was also received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on May 21, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by SAIC Engineering of Ohio, Inc., Twinsburg, Ohio, under contract no. W912QR-04-D-0028.

The document is approved. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD:ddw

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DDAGW, NEDO
Jed Thomas, SAIC Twinsburg
ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED 5 Jun 2010

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963 1200 FAX: (330) 487-0769
www.epa.state.oh.us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

June 3, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, DRAFT, FWGWMP, FINAL, 2009 METALS SAMPLING EVENT REPORT, RESPONSE TO COMMENTS, DATED JUNE 2, 2010

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plan
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Final, Facility-Wide Ground Water Monitoring Program (FWGWMP), Report on the 2009 Metals Sampling Event" for the Ravenna Army Ammunition Plant document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on June 3, 2010 and is dated June 2, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036.

The report is approved. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD:ddw

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DERR, NEDO
John Miller, EQM

RECEIVED 3 Jun 2010

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

Shaw®
a world of Solutions

Mark Patterson, Facility Manager
RVAAP Administrative Records Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

June 15, 2010

Attached is a revised transmittal letter for the document entitled "Draft Quality Control Plan for the Geochemical Evaluation of Metals in Groundwater" that was inadvertently sent to Ohio EPA as part of the overall distribution. This was intended to be an Army only document. Please replace the current transmittal letter in the archives with the attached.

I apologize for any confusion this may have caused. Please feel free to contact me at (617) 589-5561 if you have any questions or need additional information.

Sincerely,

David P. Cobb
Project Manager

Attachment

CC: Mr. Mark Nichter, USACE
Mr. Mark Krivansky, USAEC
Ms. Katie Elgin, OHARNG
Ms. Gail Harris - RVAAP

RECEIVED
16 JUN 2010
Copy placed with the document.

100 TECHNOLOGY CENTER DRIVE, STOUGHTON, MA 02072
617.589.1043 • Fax 617.589.2922

Shaw®
a world of Solutions™

Date: April 12, 2010

Project No.: 137265.02000000

Shaw Tracking No.: SHAW-A/E-0006-4

TRANSMITTAL LETTER:

To: RVAAP Administrative Records Manager
Mark Patterson, Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

Re: *Draft Quality Control Plan for the Geochemical Evaluation of Metals in Groundwater*
Contract No. W912QR-08-D-0013, Task Order 0006

For: ***Review*** ____ ***As Requested*** ____ ***Approval*** ____ ***Corrections*** ____ ***Submittal*** ***X*** ***Other*** ____

Item No:	***No. of Hard Copies***	***No. of Electronic Copies***	***Date:***	***Document Title***
1	2	2	April 12, 2010	*Draft Quality Control Plan for the Geochemical Evaluation of Metals in Groundwater*

Enclosed please find the *Draft Quality Control Plan for the Geochemical Evaluation of Metals in Groundwater*. I can be reached at 617.589.5561 or at dave.cobb@shawgrp.com if you have any questions or comments.

Sincerely:

David P. Cobb
Project Manager

cc: Mr. Mark Nichter, USACE (3 HC, 3 EC)
Mr. Mark Krivansky USAEC (1EC)
Ms. Katie Elgin, OHARNG (1 HC, 1 EC)

100 TECHNOLOGY CENTER DRIVE, STOUGHTON, MA 02072
617.589.1043 • FAX 617.589.2922

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

June 17, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
DRAFT, FWGWMP JANUARY 2010
SAMPLING EVENT REPORT
RESPONSE TO OHIO EPA COMMENTS

CERTIFIED MAIL

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
Building 1037
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Response to Ohio EPA Comments, Facility-Wide Ground Water Monitoring Program (FWGWMP) Draft January 2010 Sampling Event" document. The "Investigative Derived Waste and Characterization and Disposal Plan" (IDW) has been included in Appendix E in this document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on June 7, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036.

The IDW plan, Appendix E, was previously approved. The comments have been adequately addressed. Please forward one copy of the replacement pages and titles.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/ds

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
John Miller, EQM
Mark Nichter, USACE Louisville
Conni McCambridge, Ohio EPA, DERR, NEDO

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED 23 Jun 2010

Environmental Quality Management, Inc.
1800 Carillon Boulevard
Cincinnati, Ohio 45240
(513) 825-7500
FAX (513) 825-7495
www.eqm.com

June 23, 2010

Ms. Vicki Deppisch
Ohio Environmental Protection Agency, NE District Office
Division of Emergency and Remedial Response
2110 E. Aurora Road
Twinsburg, OH 44087

Re: Facility-Wide Groundwater Monitoring Program
July 2010 Sampling Event
Ravenna Army Ammunition Plant
Ravenna, Ohio

Dear Ms. Deppisch:

On behalf of the US Army Corps of Engineers (USACE) Environmental Quality Management, Inc. (EQM) is providing this letter as notification that the groundwater monitoring event for the above referenced site is currently scheduled to be performed July 7 through July 22, 2010. In addition to the sampling activities, well redevelopment activities will be performed for wells in LL12 identified as having excessive sediment accumulation. Additional well redevelopment activities for wells not sampled during the July 2010 event will be conducted in August 2010 prior to the October 2010 sampling event. The list of wells to be sampled during the July event is attached to this letter.

If you have any questions, please call me at (513) 825-7500, or Mr. Mark Nichter of the USACE at (502) 315-6375.

Sincerely,

ENVIRONMENTAL QUALITY MANAGEMENT, INC.

John M. Miller, CHMM
Project Manager

cc: M. Nichter – USACE
M. Patterson - RVAAP (BRAC)

Well ID	Location
SCFmw-001	Sharon Deep Wells
SCFmw-002	Sharon Deep Wells
SCFmw-003	Sharon Deep Wells
SCFmw-004	Sharon Deep Wells
SCFmw-005	Sharon Deep Wells
SCFmw-006	Sharon Deep Wells

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

June 29, 2010

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plan
8451 State Route 5
Ravenna, OH 44266

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, NOTICE OF DOCUMENT, RETRACTION, DRAFT QUALITY CONTROL PLAN FOR THE GEOCHEMICAL, EVALUATION OF METALS IN GROUNDWATER

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received the June 15, 2010 request from Shaw to retract the document entitled "Draft Quality Control Plan for the Geochemical Evaluation of Metals in Groundwater at Ravenna Army Ammunition Plant, Ravenna, Ohio (RVAAP)" dated April 12, 2010. The letter states this document was not intended for Ohio EPA review. Ohio EPA reviewed this document and provided comments in an April 14, 2010 letter.

Please destroy the Ohio EPA comment letter dated April 14, 2010 regarding this document. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD:ddw

Enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DERR, NEDO
David Cobb, Shaw
ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED
30 Jun 2010

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487 0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

July 13, 2010

RE: RAVENNA ARMY AMMUNITION PLANT,
PORTAGE/TRUMBULL COUNTIES,
FINAL, FWGWMP, JANUARY 2010
SAMPLING EVENT REPORT

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2162

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Final, Facility Wide Groundwater Monitoring Program (FWGWMP) January 2010 Sampling Event" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) on July 7, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036.

The document is approved. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
John Miller, EQM
Mark Nichter, USACE Louisville
Conni McCambridge, Ohio EPA, DDAGW, NEDO

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED
15 Jul 2010

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

August 12, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, DRAFT, INVESTIGATION DERIVED WASTE AND DISPOSAL PLAN, FWGWMP, JULY 2010 SAMPLING EVENT

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2254

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft, Investigation-Derived Waste Characterization and Disposal Plan (IDW), for the Facility-Wide Groundwater Monitoring Program, July 2010 Sampling Event, at the Ravenna Army Ammunition Plant, Ravenna, OH" document. This document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on August 10, 2010, and is dated August 9, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036.

The report is approved and Ohio EPA concurs that the IDW (groundwater and decontamination fluids) from the July 2010 Sampling Event may be disposed of as contaminated, non-hazardous waste and that it be sent off-site for disposal to a permitted water treatment facility.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

RECEIVED 16 Aug 2010

VD/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Katie Elgin, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
John Miller, EQM
Maj. Ed Meade, OHARNG RTLS
Mark Nichter, USACE Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.oh o gov

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

September 16, 2010

RE: # 267000859036
RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, FWGWMP, DRAFT, GEOCHEMICAL EVALUATION OF METALS IN GROUNDWATER, AUG. 2, 2010 REPORT

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2377

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft, Geochemical Evaluation of Metals in Groundwater at the Ravenna Army Ammunition Plant" document. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) on August 4, 2010, and is dated August 2, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Shaw Environmental & Infrastructure, Inc. under contract no. W912QR-08-D-0013. This document was reviewed by Ohio EPA personnel in NEDO/DERR, Central Office (CO)/DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW).

Enclosed are Ohio EPA's comments. The bulk of the comments are in table form, while the statistics comments, too lengthy to include in table form, are also enclosed and include a colored graph.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

enclosures

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Maj. Ed Meade, OHARNG RTLS
Mark Nichter, USACE Louisville
Tim Christman, DERR, CO
Conni McCambridge, Ohio EPA, DDAGW, NEDO
Katie Tait, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
David Cobb, Shaw Environmental

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Comment Response Table
RVAAP
Report: Draft, Geochemical Evaluation of Metals in Groundwater, Dated August 2, 2010
Reviewers: Ohio EPA: Conni McCambridge, Tim Christman, and Vicki Deppisch
(September 16, 2010)

No.	Location	Reviewer Comment	Reviewer Recommendation	Response
1.	General	The screening results identified some metals as potential contaminants. Metals with elemental ratios reflecting natural processes were eliminated. Some of the eliminated metals have MCLs and SMCLs and concentrations above their corresponding MCLs and SMCLs from various wells/areas. The Guard has indicated they plan on using the groundwater for potable use. There is no reference to or discussion/integration of MCLs or SMCLs in the draft report. There is also no discussion regarding CUGs.	Please discuss.	
2.	Page 2-1, Section 2.0, Line 3	Section 2.0 indicates that data was obtained from 234 monitoring wells. However, the January 2010 Geochemical Work Plan indicates that "237" monitoring wells were to be sampled during the evaluation (Section 2.0, pg. 2-1).	Please provide clarification on the total number of monitoring wells that were sampled during the October 2009 event, the wells that were not sampled, and the rationale for excluding them.	

3.	Page 2-1, Section 2.0, Line 12	Section 2.0 discusses the review of data from each individual well with respect to potential current and/or historical impacts. It is unclear whether the October 2009 data from each well was compared to its historic range(s) for that metal as a part of the overall geochemical evaluation.	Please provide a brief explanation if and how the October 2009 concentrations compare to historical concentrations reported from the same well.	
4.	General	The work plan stated, "The approach is based on screening and evaluating Army-provided laboratory analytical results from previously conducted comprehensive site-wide groundwater sampling events involving at least 237 wells." The Geochem analysis is based on only one sampling event conducted Oct 2009.	Please discuss and provide rationale for using data from only one sampling event.	
5.	Page 3-1, Section 3.1	Duplicates: It is unclear how the duplicate samples compared to the original samples.	Please discuss.	

6.	Page 3-2, Lines 1-14	It is unclear how "J" values were evaluated and all other lab qualifiers.	Please discuss and clarify.	
7.	Page 6-1, Section 6.1	The report states the pH of 0.09 was rejected. EQM indicated this pH should be 7.09.	Please incorporate in the report.	
8.	Page 6-1, Sections 6.1.1 and 6.1.2	The report indicates 234 wells were field measured for pH and 233 wells for redox conditions, but 231 were used in the report.	Please discuss and clarify the basis for these numbers.	
9.	Pages 6-2 and 6-3 and Page 6-7, Line 21-25 (arsenic)	Regarding reducing conditions: report attributes reducing conditions from coal seams (Winslow and White, 1966). There does not appear to be any comparison to site well logs or well construction details.	Please discuss and compare.	
10.	Page 6-6, Section 6.2.2, Line 7.	Reference EPRI, 1984 could not be located or ordered.	Please provide a copy of this reference.	
11.	Page 6-7, Line 3 and other areas	Reference to "unity" in multiple places. "Unity" is not defined.	As this report is a public document, please define "unity."	

12.	Page 6-7, Lines 18-20 referring to arsenic herbicide.	Referring to arsenic herbicide: Several pesticides have been detected in the groundwater above the MCL. Do any of the detected pesticides contain arsenic? Could any of the elevated levels of arsenic be associated with pesticides?	Please discuss.	
13.	Page 6-13, Line 24 and 25	Reference Thorbjornsen and Myers, 2007.	Please provide a copy of this reference to Ohio EPA.	
14.	Page 6-17, Section 6.2.22 Vanadium	Report states, "These four samples have been removed from the candidate background data set."	Please clarify and indicate if the data suggests possible contamination.	
15.	Page 6-17, Section 6.2.23 Zinc	Reports states, "These 52 samples have been removed from the candidate background data set."	Please clarify and indicate if the data suggests possible contamination.	
16.	Section 7.4, Line Page 7-5, 23	Section 7.4 discusses remedial alternatives based on the geochemical evaluation. Was this suppose to be included as part of the Geochemical evaluation?	Please provide a brief explanation concerning the inclusion of the "remedial alternatives" in this submittal or delete.	

17.	Figures	(1) All lines on all graphs should be labeled. (2) Some of the metals do not show a clear, concise trend as some of the others, which questions the interpretation of the data, especially cadmium (3) Barium graphs, pre-screen and post screen—should these state "unfiltered" aluminum? "Unfiltered" was not indicated. (4) Chromium-was total chromium quantified? (5) Not all metals were evaluated the same. Many metals were evaluated with a metal ratio (i.e., Sb/Fe, Al/Fe, Cr/Al, etc.), but some were evaluated between their filtered/unfiltered ratio, such as Arsenic, which was compared to (a) Al Pre Screen, (b) filtered/unfiltered ration (c) Al Post Screen, which is confusing.	(1) Please label. (2) Please discuss. (3) Please clarify. (4) Please verify. (5) Please summarize and discuss in more detail all the figures/graphs for each metal, ratios used, and rationale/justification for the different approaches.	

18.	Table 7-3	Ohio EPA noted that some metals had high levels of non-detects and, therefore, the interpretation was based on a few numbers of detects, such as Selenium, which had a 98.8% nondetect percentage with 3 detects, two of which were "J" values.	Response not requested.	
19.	Statistics	Comments, including a graph, are attached.	Please clarify.	

Draft, Geochemical Evaluation of Metals in Groundwater, August 2, 2010
RVAAP

Ohio EPA Statistics Comments
Tim Christman, Ohio EPA, DERR/CO
(September 16, 2010)

The geochemical analysis relies on a process of comparing concentrations of lower concentration elements, like copper or beryllium, with major concentration elements like aluminum or iron. The principle of this analysis is that the major and minor elements should generally follow a correlation, especially if they are sorbed on particulates. A major deviation of the minor element from the overall ratio of minor to major element probably indicates contamination or an outlier. Ohio EPA has no technical objection to this process, even though it may wrongly exclude a few high values. The end result of this procedure is to eliminate the higher values from the background set, reducing the background value. From a regulatory standpoint, that approach is protective of the environment.

However, the process for determining the natural ratios of major and minor elements is unclear. Consider the comparisons for chromium and aluminum (see Figures 6-26 to 6-28 in the report). How was the natural Cr/Al ratio determined and what was the cutoff ratio for excluding a Cr value? It would be helpful to include the background ratio line on any plot of major/minor element values (like Figure 6-26). It would also be helpful to include the cutoff value line on the same plot. That would be the line above which the minor element is excluded. Again, both lines should have a statistically sound basis explained. For example, how was the value for the red dashed line in Figure 6-27 developed?

For some elements, such as cadmium, there appears to be no basis for a background correlation line (see figure 6-20). That plot shows no obvious background trend. Thus, the basis for the exclusion ratio for cadmium is not clear. In the same manner, the plots for antimony, arsenic, barium, cobalt, and iron are also unclear as to the natural background ratios and the cutoff ratios. All of the plots should be amended with lines for natural ratios and critical values for exclusion.

Ohio EPA also has a major concern with the statistical analysis that follows this screening process. Section 3.2 states that nondetect values were replaced with values equal to the method detection limit. Ohio EPA suggests that there are better methods for dealing with nondetects. One of the most acceptable methods is that of regression-on-statistics (ROS). That method works on the simple principle that if the data above the detection limit show a clear statistical trend, then that trend can be extended below the detection limit. Data points below the detection limit are assigned the values they would have if the trend of the higher valued points continued into the nondetect range.

To test the applicability of the ROS method to these data, Ohio EPA re-evaluated the data for four elements – arsenic, chromium, nickel, and vanadium – that all had about

30 percent nondetects. In all four cases, these data sets were originally judged to follow nonparametric statistical distribution, using the method detection limit as the nondetect value (see Table 7-3). However, when the ROS method is used to generate the nondetect values, all four follow excellent lognormal distributions. The figure below shows a plot of the arsenic data on log-probability axes (the vertical axis is the natural log of the value and the horizontal axis is the number of standard deviations from the mean). Data from a lognormal distribution should plot as a straight line on these axes. The values above the detection limit are shown as blue points while the ROS generated values for points below the detection limit are given in red (Ohio EPA used ProUCL to develop this plot).

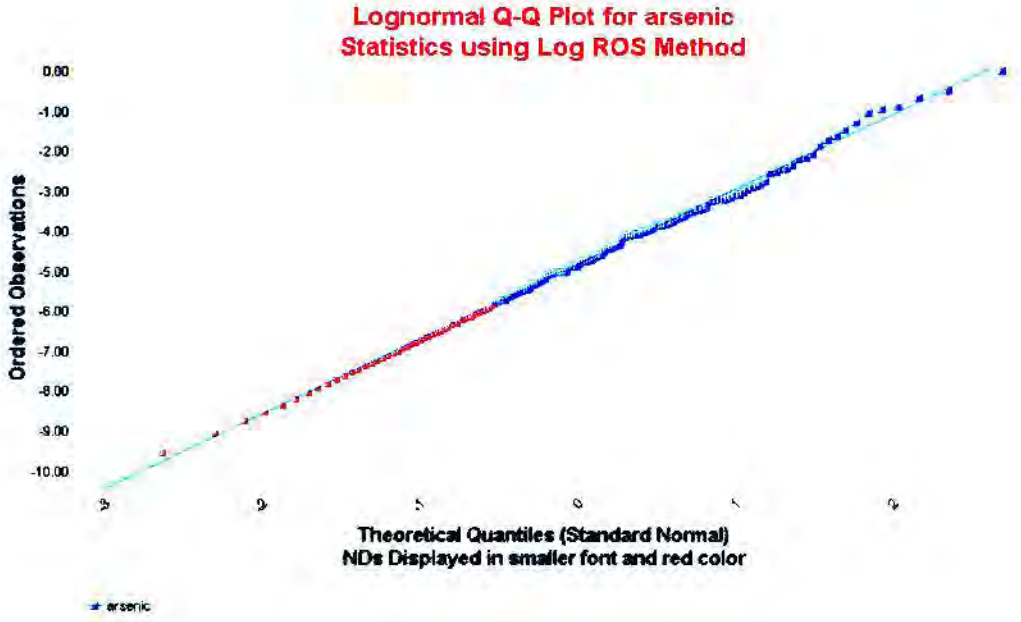


FIGURE 1. LOG-PROBABILITY PLOT OF ARSENIC DATA WITH ROS VALUES FOR NONDECTS.

The plot shows that values above the detection limit clearly follow a lognormal distribution. Thus, it is reasonable to assume that values below the detection limit also follow the same distribution.

Ohio EPA ran an analyses for arsenic, chromium, nickel, and vanadium using ROS generated values for the nondetect samples. The resulting values for 95 percent UTL

and 95 percent UCL are essentially the same as when the method detection limit was used for the nondetect values. That is because these sample distributions followed very wide lognormal distributions. The values of the nondetect specimens are very low compared with the rest of the distributions regardless of the method used to assign their values. Thus, the choice of ROS values or an arbitrary value (MDL) had little impact on the mean and UTL of the distribution. Ohio EPA repeated the same process with cobalt and lead, both of which have nondetect rates of about 50 percent, and got similar results. Ohio EPA would caution that other samples collected at Ravenna might not have such wide distributions and that the effects of substituting the detection limit for ROS generated values might be greater. Thus, in the future, Ohio EPA suggests using ROS generated values for a proper comparison with analyses based on using the detection limit for nondetect values.

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

November 9, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, DRAFT, INVESTIGATION DERIVED WASTE AND DISPOSAL PLAN, FWGWMP, OCTOBER 2010 SAMPLING EVENT

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7010 1060 0000 0089 6691

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft, Investigation-Derived Waste Characterization and Disposal Plan (IDW), for the Facility-Wide Groundwater Monitoring Program, October 2010 Sampling Event, at the Ravenna Army Ammunition Plant, Ravenna, OH" document. This document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on November 8, 2010, and is dated November 5, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036.

The report is approved and Ohio EPA concurs that the IDW (groundwater and decontamination fluids) from the October 2010 Sampling Event may be disposed of as contaminated, non-hazardous waste and that it be sent off-site for disposal to a permitted water treatment facility.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Katie Tait, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Krivansky, AEC
John Miller, EQM
Maj. Ed Meade, OHARNG RTLS
Mark Nichter, USACE Louisville
Justin Burke, Ohio EPA, CO, DERR

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

November 18, 2010

RE: RAVENNA ARMY AMMUNITION PLANT,
PORTAGE/TRUMBULL COUNTIES,
FWGWMP, DRAFT, JULY 2010
SAMPLING EVENT REPORT
(# 267000859036)

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 9789

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft, Facility-Wide Ground Water Monitoring Program (FWGWMP) July 2010 Sampling Event, Ravenna Army Ammunition Plant, Ravenna, Ohio" document. The "Investigative Derived Waste and Characterization and Disposal Plan" (IDW) has been included as Appendix E. The document was dated and received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) on October 25, 2010. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by Environmental Quality Management, Inc. (EQM), under contract no. W912QR-04-D-0036. This document was reviewed by Ohio EPA personnel in NEDO, DERR, and NEDO's Division of Drinking and Ground Waters (DDAGW).

This monitoring event was completed under the FWGWMP. Fifty-one wells were sampled during a six-day sampling event on July 8, 9, and 12 through July 15, 2010.

The IDW plan, Appendix E, was approved in an August 12, 2010 letter from Ohio EPA. Enclosed are Ohio EPA's comments that need to be addressed before the entire document can be approved.

The Director's Final Findings and Orders require that the responses to comments (RTCs) be received within fifteen (15) days of the Army's receipt of Ohio EPA's correspondence, and that the revised document be submitted within thirty (30) days of the Army's receipt of Agency correspondence.

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch
Project Coordinator
Division of Emergency and Remedial Response

VD/kss

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
John Miller, EQM
Katie Tait, OHARNG RTLS
Maj. Ed Meade, OHARNG RTLS
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Justin Burke, Ohio EPA, DERR, CO
Mark Krivansky, AEC
Conni McCambridge, Ohio EPA, DERR, NEDO

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO
Bob Guthrie, Management Solutions

RVAAP
FWGWMP
Draft July 2010 Groundwater Sampling Event Report
Comment Response Table
Ohio EPA Reviewers: Conni McCambridge, DDAGW/NEDO, and Vicki Deppisch, DERR, NEDO

No.	Location	Reviewer Comment	Reviewer Recommendation	Preparer Response
1.	Section 2.1, pg. 7	The text indicated that *"...the ground water elevations from the new Sharon Conglomerate wells were evaluated and determined not to be representative of either the Homewood or the Sharon aquifers, therefore, they were not used to determine the potentiometric contours."* The submittal noted that the January 2010 ground water elevation data from the six Sharon Conglomerate wells were not used to construct potentiometric maps (Section 2.1, pg. 7). It is unclear how the ground water elevations for the Sharon Conglomerate wells will be utilized in the future.	Please provide an explanation as to how the ground water elevation data from these wells will be utilized in the FWGWMP in the future. This issue has previously been noted and needs to be resolved.	
2.	Section 2.2, pg. 8, and Section 3.1.1, pg. 13	Well purge logs reported high turbidity values in several Load Line 12 wells (i.e., LL12mw-113, LL12mw-128, LL12mw-243, and LL12mw-244) that utilized low-flow purging and sampling techniques. While the text discusses that three of these four wells were redeveloped in July 2010, it is unclear whether these observed turbidity values are related to well design issues and how this possibility was ruled out.	Please provide an explanation as to whether these high turbidity values are/are not related to well design and how the turbidity issue for Load Line 12 wells will be resolved.	
3.	Data Tables	It was noted that some of the wells in LL-12 continue to have elevated levels of nitrate, including some above the MCL. LL-12mw-113 also had an elevated arsenic level.	No response required.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

March 4, 2010

RE: RAVENNA ARMY AMMUNITION PLANT,
PORTAGE/TRUMBULL COUNTIES,
RVAAP-67 FACILITY-WIDE SEWERS,
REVISED FIELD CHANGE REQUEST
FWS-01

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 9932

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled "Field Change Request FWS-01 (Rev.1) for the Final Sampling and Analysis Plan for the Remedial Investigation of RVAAP-67 Facility-Wide Sewers Addendum No.1 at the Ravenna Army Ammunition Plant, Ravenna, Ohio." This document, originally dated November 16, 2009 and revised on February 4, 2010, was prepared for the U.S. Army Corps of Engineers Louisville District, by SAIC Engineering of Ohio, Inc.

All the comments have been adequately addressed in the final version of the change request and Ohio EPA has found no further deficiencies. As a result, the "Field Change Request FWS-01 (Rev.1) for the Final Sampling and Analysis Plan for the Remedial Investigation of RVAAP-67 Facility-Wide Sewers Addendum No.1" has been accepted, filed, and is enclosed.

In addition, during the sampling conducted December 1st through the 3rd, Ohio EPA noted an access point to a potential sewer line, located at Load Line 2 at former building DB-4A, at the eastern corner. On December 18th, Ohio EPA placed a flagged stake at this location and noted an oil sheen on the surface. Ohio EPA requests that this location be evaluated and, if possible, a water and sediment sample be collected, and a full-scan analysis be conducted.

If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1249.

Sincerely,

Andrew C. Kocher, Site Coordinator
Division of Emergency and Remedial Response

ACK/kss

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG
Jed Thomas, P.E., SAIC
MaryAnn Bogucki, SAIC
Nick Stolte, USACE Louisville
Glen Beckham, USACE Louisville
Nathaniel Peters, USACE Louisville
Mark Krivansky, USAEC

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

FIELD CHANGE REQUEST (FCR)

FCR NO. **FWS-01 (Rev. 1)** DATE INITIATED **16 November 2009** (revised 4 Feb. 2010)

PROJECT: Remedial Investigation of RVAAP-67 Facility-Wide Sewers
CONTRACT NO. Contract No. W912QR-04-D-0028, Delivery Order No. 0001, Task No. 4

REQUESTOR IDENTIFICATION

NAME MaryAnn Bogucki ORGANIZATION SAIC PHONE 865-481-4719

TITLE Task Manager SIGNATURE M.T. Bogucki

BASELINE IDENTIFICATION

BASELINE(S) AFFECTED ☐ Cost ☐ Scope ☐ Milestone ☒ Method of Accomplishment

AFFECTED DOCUMENT (TITLE, NUMBER AND SECTION)

Sampling and Analysis Plan for the Remedial Investigation of RVAAP-67 Facility-Wide Sewers, Addendum No. 1.

"Summary of Proposed Sampling Locations" Tables and Figures in Appendices A through Q. Maps for the Administration and Depot Administration Area have been revised to include the storm sewer networks as based on historical drawings obtained subsequent to the Final SAP. Additionally, the sanitary system on the Depot Administration Area has also been revised as per the historical drawings. Copies of these updated maps are appended to this FCR for reference.

DESCRIPTION OF CHANGE:

The attached table (**Table 1**) lists the specific recommendations to address Tier 1 sewer sediment or water sampling locations that could not be sampled. The proposed changes are summarized as follows:

- **Recommend alternative sampling location (30 samples).** The recommended alternate locations are all verified intact and accessible by the visual survey.
- **No alternative sampling location proposed (67 samples).** Although the sample location proposed in the SAP could not be sampled, either an adjacent sample was collected that will provide representative data, or no potentially representative alternates exist.
- **Reassessment proposed (6 samples).** These are locations that were either not found or could not be accessed during the first sampling attempt, and will be reassessed.
- **Excavate to expose line/dig out infilled structure(s) to collect accumulated sediment at bottom of drop inlet (8 samples).** As per the sampling approach presented in the SAP, excavation will be used at locations where the surficial sewer structures (i.e.: manholes and drop inlets) have been destroyed/damaged but the associated subsurface pipeline is assumed to be intact.
- **Add hexavalent chromium to analytical suite (1 sample).** Addition to analytical suite at a location downstream of an area with high chromium in historical sample results.

This FCR predominantly addresses sediment only, unless otherwise stated in the accompanying table. Although a number of water samples could not be collected as proposed (i.e., location was dry), no additional attempts will be made to collect these samples. Numerous locations that were found to be dry at the time of the first sampling attempt were subsequently revisited (i.e.; after a rainfall event) and were still found to contain insufficient flow for sample collection.

Revision 1: At the request of OhioEPA, an additional table (Table 2) is attached listing the 67 locations where originally no alterative sampling recommendation was proposed and containing a reevaluation of these locations with respect to the data objectives presented in the SAP.

FIELD CHANGE REQUEST (FCR)

Where historical or Tier 1 data was found to be insufficient, additional data collection under either Tier 1 (sediment sampling or video survey) or Tier 2 (soil borings) was recommended to meet data needs for these locations.

Based on the results of this reassessment of the 67 locations originally recommended for no alternate sampling, the following actions are proposed:

- **No alternative sampling location proposed, based on sufficient data availability (54 samples). Although the sample location proposed in the SAP could not be sampled, data collected historically or under Tier 1 (either already sampled or proposed under this FCR) satisfies the data objective presented in the SAP for this location.**
- **No alternative sampling location proposed, based on assessment of operational history and lack of potential alternates (6 samples). Although the sample location proposed in the SAP could not be sampled and no potential alternate is available, an evaluation of operational/historical data indicates that these 6 locations are not within or downstream of a likely potential source area.**
- **Excavate to expose line/dig out infilled structure(s) to collect accumulated sediment at bottom of drop inlet (3 samples). As per the sampling approach presented in the SAP, excavation will be used at locations where the surficial sewer structures (i.e.: manholes and drop inlets) have been destroyed/damaged but the associated subsurface pipeline is assumed to be intact.**
- **Recommend alternative Tier 1 sediment sampling location (3 samples). The recommended alternate locations are all verified intact and accessible by the visual survey.**
- **Recommend alternative Tier 2 sediment sampling location (1 sample). No alternative Tier 1 sampling locations are available, historical data is insufficient, and operational history indicates that this is a location of interest. Therefore, under Tier 2 of the investigation, borings will be advanced and samples of the bedding material of the pipeline will be collected.**

JUSTIFICATION:

During the Tier 1 investigation, samples could not be collected at a number of sewer structures which had been proposed as sample locations in the SAP, for a variety of reasons (e.g.; no sediment or water present, structure had been demolished or obscured by demolition work).

The table appended to this FCR summarizes these locations, presents the reason that the primary sample and its alternates could not be collected, and provides the recommendation for subsequent action.

IMPACT OF NOT IMPLEMENTING REQUEST:

The recommendations presented in this FCR are necessary for providing adequate characterization of areas which have precluded sample collection predominantly due to adverse conditions encountered in the field.

PARTICIPANTS AFFECTED BY IMPLEMENTING REQUEST:

Field Sampler(s)

COST ESTIMATE ($) NA ESTIMATOR SIGNATURE NA

PHONE ___ DATE ___

FWS-01 (Rev. 1)

FIELD CHANGE REQUEST (FCR)

PREVIOUS FCR AFFECTED ☐ YES ☒ NO; IF YES, FCR NO. ___

CLIENT PROJECT MANAGER *[See attached approval notice]* DATE 5 Feb. 2010

OHIO EPA PROJECT MANAGER _____ DATE 3/4/10

SAIC H&S MANGER SIGNATURE (IF APPLICABLE): NA DATE NA

Bogucki, Maryann T.

From: Stolte, Nicholas J LRL [Nicholas.J.Stolte@usace.army.mil]
Sent: Friday, February 05, 2010 12:43 PM
To: Bogucki, Maryann T.
Subject: RE: RVAAP Facility Wide Sewers - Field Change Request FWS-01 (revised)

USACE approves the subject field change request. Please forward to Ohio EPA for review and approval.

Nick Stolte, EIT
Civil Engineer
Environmental Branch
Louisville District
US Army Corps of Engineers
502-315-6348
502-315-6309 (Fax)
nicholas.j.stolte@usace.army.mil

Comments on our Environmental Services are invited:
http://ice.disa.mil/index.cfm?fa=card&site_id=915&service_provider_id=115446

-----Original Message-----
From: Bogucki, Maryann T. [mailto:MARYANN.T.BOGUCKI@saic.com]
Sent: Thursday, February 04, 2010 3:54 PM
To: Stolte, Nicholas J LRL
Cc: Nichter, Mark W LRL; Peters, Nathaniel II LRL; Jago, William K.; Thomas, Jed H.
Subject: RVAAP Facility Wide Sewers - Field Change Request FWS-01 (revised)

Attached is the revised Field Change Request FWS-01 to the Final Sampling and Analysis Plan for the Remedial Investigation of RVAAP-67 Facility-Wide Sewers at the Ravenna Army Ammunition Plant, Ravenna, Ohio for the 2008 Performance-Based Contract for Environmental Investigation and Remediation.

As per OhioEPA request, an additional table (Table 2) is incorporated which summarizes the reassessment of the sixty-seven locations where no alternative sampling recommendation was proposed under the original FCR (Table 1). A comprehensive reevaluation of these locations was conducted relative to the data objectives presented in the SAP, and where historical or Tier 1 data was found to be insufficient, additional data collection under either Tier 1 (sediment sampling or video survey) or Tier 2 (soil borings) was recommended to meet data needs for these locations.

Please review the attached FCR form and provide your concurrence or comments.

Thank you,

MaryAnn Bogucki

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963-1200 FAX: (330) 487 0769
www.epa.state.oh.us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

May 26, 2010

CERTIFIED MAIL
7009 1680 0001 9552 2131

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Re: Comments for the Technical Memorandum for Tier 2 Sampling Under the Remedial Investigation RVAAP-67 Facility-Wide Sewers, Ravenna Army Ammunition Plant, Ravenna, Ohio

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Technical Memorandum for Tier 2 Sampling Under the Remedial Investigation RVAAP-67 Facility-Wide Sewers, Ravenna Army Ammunition Plant, Ravenna, Ohio." This document, dated April 14, 2010 and received at Ohio EPA on April 16, 2010, was prepared for the U.S. Army Corps of Engineers (USACE), Louisville District, by SAIC Engineering of Ohio, Inc.

Comments on the document from Ohio EPA, NEDO, DERR are provided in the enclosed table. Please provide responses to the enclosed comments at your earliest convenience, and advise Ohio EPA as to when a revised draft report might be expected.

If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1249.

Sincerely,

Andrew C. Kocher
Site Coordinator
Division of Emergency and Remedial Response

RECEIVED 25 Jun 2010

ACK/kss

enclosure

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG
Jed Thomas, P.E., SAIC
MaryAnn Bogucki, SAIC
Nick Stolte, USACE Louisville
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville
Mark Krivansky, USAEC

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

COMMENTS FOR THE TECHNICAL MEMORANDUM FOR TIER 2 SAMPLING
UNDER THE RI RVAAP-67 FACILITY-WIDE SEWERS
OHIO EPA COMMENTS - REVIEWER: ANDREW KOCHER
(May 26, 2010)

Cmt. No.	Page # Line #	Comment	Recommendation	Response
1	General	Lack of description concerning investigative derived waste (IDW).	Please include a section describing the procedures on the handling of IDW. Include a contingency plan, if visually contaminated material is encountered during excavation and/or sampling.	
2	General	During the conference call last week, we discussed collecting and/or sampling the sewer pipe for analyze of asbestos containing material (ACM).	Please add a section discussing the details and procedure for collecting samples of the sewer pipe and sampling and/or analyzing for ACM.	
3	Attachment A & B	No key or legend was included for the figures in these attachments.	Please add a key or legend to these figures. Note: The key/legend could be at the beginning of each attachment and cover all the figures in that attachment.	
4	General	The Tier 1 video survey was referenced in the Technical Memorandum; however, it was not attached to the document.	Please include a copy of the video survey for the few segments that are referenced in the Tech Memo.	
5	General	The Tech Memo did not mention the collection of physical soil characterization data (e.g., logging cores).	Please include a description of how the soil characterization will be logged and by what standard.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

July 21, 2010

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, RVAAP-67 FACILITY-WIDE SEWERS, REVISED TECHNICAL MEMORANDUM FOR TIER 2 SAMPLING UNDER THE REMEDIAL INVESTIGATION

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2209

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled "Revised Technical Memorandum for Tier 2 Sampling Under the Remedial Investigation at RVAAP-67 Facility-Wide Sewers at the Ravenna Army Ammunition Plant, Ravenna, Ohio." This document, dated July 2, 2010 and received at Ohio EPA on July 2, 2010, was prepared for the U.S. Army Corps of Engineers Louisville District, by SAIC Engineering of Ohio, Inc.

On May 26, 2010, Ohio EPA sent comments on the draft of this document. All the comments have been adequately addressed in the revised version of the report, and Ohio EPA has found no further deficiencies. As a result, the "Revised Technical Memorandum for Tier 2 Sampling Under the Remedial Investigation at RVAAP-67 Facility-Wide Sewers" has been accepted and filed.

If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1249.

Sincerely,

Andrew C. Kocher
Site Coordinator
Division of Emergency and Remedial Response

ACK/kss

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Katie Elgin, OHARNG
Jed Thomas, P.E., SAIC
MaryAnn Bogucki, SAIC
Nick Stolte, USACE Louisville
Glen Beckham, USACE Louisville
Nathaniel Peters, USACE Louisville
Mark Krivansky, USAEC

ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO

RECEIVED
9 Aug 2010

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

December 13, 2010

CERTIFIED MAIL
7008 3230 0003 5419 9727

Mr. Mark Patterson, Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Re: **Approval for the "Facility-wide Sewer Investigation Field Work - Characterization and Disposal Letter Report for Soil Cuttings and Decontamination Fluids at the Ravenna Army Ammunition Plant, Ravenna, Ohio," Dated November 18, 2010, Work Activity No. 267000859087**

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled, "Facility-wide Sewer Investigation Field Work - Characterization and Disposal Letter Report for Soil Cuttings and Decontamination Fluids at the Ravenna Army Ammunition Plant, Ravenna, Ohio," dated November 18, 2010. This document, received by Ohio EPA's NEDO on November 18, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District, by SAIC Engineering of Ohio, Inc.

Ohio EPA has reviewed this documentation and has found no significant deficiencies. As a result, the "Facility-wide Sewer Investigation Field Work - Characterization and Disposal Letter Report for Soil Cuttings and Decontamination Fluids" has been approved.

If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1249.

Sincerely,

RECEIVED
12-20-10

Andrew C. Kocher, Site Coordinator
Division of Emergency and Remedial Response

Scanned
By:
Date: 12-20-10

ACK/kss

cc: Amanda Trenton, SAIC

ec: Eileen Mohr, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO
Mike Eberle, Ohio EPA, DERR, NEDO
MaryAnn Bogucki, SAIC
Kevin Jago, SAIC
Jed Thomas, P.E., SAIC
Mark Nichter, USACE Louisville
Glen Beckham, USACE Louisville
Eric Cheng, USACE Louisville
Mark Krivansky, USAEC
Katie Tait, OHARNG

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

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

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

August 17, 2010

RE: RVAAP – SITE MG #: 267000859059
RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
PROJECT MANAGEMENT PLAN
2010 PHASE I RI 9 AOCS CR SITES

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 9888

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Draft, Project Management Plan for the 2010 Phase I Remedial Investigation Services at Compliance Restoration Sites (9 Areas of Concern) Revision 0, Ravenna Army Ammunition Plant, Ravenna, OH. This document, dated and received on July 2, 2010 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District, by Science Applications International Corporation (SAIC), under contract number W912QR-08-D-0008, delivery order No. 0019. This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). Ohio EPA comments have been enclosed with this correspondence.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
Todd.Fisher@epa.state.oh.us

TRF/kss

enclosure

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Kevin Jago, SAIC, Oak Ridge
Corey Pacer, SAIC, Twinsburg
Glen Beckham, USACE, Louisville
Thomas Chanda, USACE, Louisville
Joan Cullen, USACE, Louisville
MAJ Ed Meade, RTLS
Katie Tait, RTLS
Derek Kinder, USACE, Louisville
Mark Krivansky, AEC
Mark Nichter, USACE, Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

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

RECEIVED 8/20/10

DOCUMENT: **Draft, Project Management Plan for the 2010 Phase I Remedial Investigation at Compliance Restoration Sites Ravenna Army Ammunition Plant, Ravenna, OH Dated, July 2, 2010, Revision 0**

REVIEWER: **Todd R. Fisher, Ohio EPA, NEDO, DERR**

DATE: **August 17, 2010**

CMT #	PAGE #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
1	Document Distribution	Katie Elgin has changed her last name.	Please change "Elgin" to "Tait."	
2	General	This plan states that SAIC has been contracted to conduct Phase I Remedial Investigation services for the nine (9) Areas of Concern Compliance Restoration Sites. Ohio EPA questions whether this project should be called a "Remedial Investigation," since no sampling is planned and the nature, rate, and extent of contamination will not be determined. Why not call this project a "Site Investigation?"	Please provide discussion.	
3	Page 2-2, Section 2.2.2 CC-RVAAP-69 Bldg 1048	There is no mention of a possible release of carbon tetrachloride from old fire extinguishers that is suspected to have occurred at this location. Also, the OHARNG staged soil at this location over the former building footprint. The soil was taken from the "bull pen" parking area located outside the main gate.	Please provide mention of carbon tetrachloride release in description.	
4	Page 2-4 Section 2.2.7 CC-RVAAP-75 George Road SWTP	There is no mention of the mercury release that occurred at this location. The extent of mercury contamination has not been identified.	Please provide mention of mercury release in description.	

Ohio Environmental Protection Agency

[illegible], Governor
[illegible], Lt. Governor
[illegible], Director

August 17, 2010

RE: RVAAP – SITE MG #: 267000859059
RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
SITE SAFETY AND HEALTH PLAN
2010 PHASE I RI 9 AOCS CR SITES

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2278

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Draft, Site Safety and Health Plan for the 2010 Phase I Remedial Investigation Services at Compliance Restoration Sites (9 Areas of Concern) Addendum No.1, Ravenna Army Ammunition Plant, Ravenna, OH. This document, dated and received on July 2, 2010 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District, by Science Applications International Corporation (SAIC), under contract number W912QR-08-D-0008, delivery order No. 0019. This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). No comments were generated upon completion of this review.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
Todd.Fisher@epa.state.oh.us

TRF/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Kevin Jago, SAIC, Oak Ridge
Jed Thomas, SAIC, Twinsburg
Glen Beckham, USACE, Louisville
Thomas Chanda, USACE, Louisville
MAJ Ed Meade, RTLS
Katie Tait, RTLS
Derek Kinder, USACE, Louisville
Mark Krivansky, AEC

ec: Mike Eberle, Ohio EPA, NEDO, DERR

RECEIVED 8/19/10

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

Scanned
By: 10-5-10
Date: [illegible]

September 29, 2010

RE: RVAAP - SITEMG - 267000859059
RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL PROJECT MANAGEMENT PLAN
COMPLIANCE RESTORATION (9 AOCs)
APPROVAL

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2452

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Project Management Plan for the 2010 Phase I Remedial Investigation Services at Compliance Restoration Sites (9 Areas of Concern) Revision 0, Ravenna Army Ammunition Plant, Ravenna, Ohio. This document, dated and received on September 10, 2010 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District, by Science Applications International Corporation (SAIC), under contract number W912QR-08-D-0008, delivery order number 0019.

This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). Ohio EPA has determined that all required text changes have been made to this document and considers it to be final and approved, providing there are no additional comments from the Army or Ohio Army National Guard.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
tfisher@epa.ohio.gov

RECEIVED
23 Sept 2010

TRF/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Kevin Jago, SAIC, Oak Ridge
Corey Pacer, SAIC, Twinsburg
Glen Beckham, USACE, Louisville
Thomas Chanda, USACE, Louisville
MAJ Ed Meade, RTLS
Katie Tait, RTLS
Derek Kinder, USACE, Louisville
Mark Krivansky, AEC
Joan Cullen, USACE, Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

September 29, 2010

RE: RVAAP - SITEMG - 267000859059
RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL SITE SAFETY AND HEALTH PLAN
COMPLIANCE RESTORATION (9 AOCs)
APPROVAL

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2445

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Final, Site Safety and Health Plan for the 2010 Phase I Remedial Investigation Services at Compliance Restoration Sites (9 Areas of Concern) Addendum No.1. This document, dated and received on September 10, 2010 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District, by Science Applications International Corporation (SAIC), under contract number W912QR-08-D-0008, delivery order number 0019.

This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). Ohio EPA has determined that all required text changes have been made to this document and considers it to be final and approved, providing there are no additional comments from the Army or Ohio Army National Guard.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
Todd.Fisher@epa.state.oh.us

TRF/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Kevin Jago, SAIC, Oak Ridge
Corey Pacer, SAIC, Twinsburg
Glen Beckham, USACE, Louisville
Thomas Chanda, USACE, Louisville
MAJ Ed Meade, RTLS
Katie Tait, RTLS
Derek Kinder, USACE, Louisville
Mark Krivansky, AEC
Joan Cullen, USACE, Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

DEPARTMENT OF THE ARMY
US ARMY DEFENSE AMMUNITION CENTER
1 C TREE ROAD
MCALESTER OK 74501-9053

SJMAC-ESM

26 January 2010

MEMORANDUM FOR Ravenna Army Ammunition Plant, Mr. Mark Patterson, Facility Manager, 8451 State Route 5, Ravenna, Ohio 44266-9297

SUBJECT: Interim Approval for Fort Wingate Depot Activity, FWDA, Explosives Safety Submission, Building Decontamination and Demolition, Septic Tank Removal and Ancillary Tanks

1. References:

a. Memorandum, Fort Wingate, BRAC Environmental Coordinator (Mr. Mark Patterson), 20 January 2010, Subject: Review of ESS for Building Decontamination and Demolition, Septic Tank Removal and Ancillary Tanks at Fort Wingate Depot Activity.

b. Memorandum, USATCES, JMAC-ESM, 26 January 2010, Subject: Request for Approval of Fort Wingate Depot Activity, FWDA, Explosives Safety Submission, Building Decontamination and Demolition, Septic Tank Removal and Ancillary Tanks

c. DOD 6055.9-STD, Ammunition and Explosives Safety Standards, 29 February 2008, with Change 2, 21 August 2009.

2. This office has reviewed the subject submission as requested by reference 1.a, granted Army level approval and forwarded it via reference 1.b. to the DDESB for final approval. You may implement the submission upon receipt of this memorandum, without waiting for final approval, in accordance with paragraph C12.5.1.2 of reference 1.c, which allows a munitions response to proceed prior to final approval if circumstances dictate. This interim approval is based on a scheduled project start date of 01 February 2010. Bear in mind that by implementing the ESS prior to the DDESB final approval, the Army is accepting responsibility for any additional requirements that the DDESB may impose.

3. The POC is Mr. Cliff Doyle, SJMAC-ESM, DSN 956-8731, or COMML (918) 420-8741, email clifford.doyle@us.army.mil.

FOR THE DIRECTOR:

DOYLE.CLIFFORD.H.1230381662

Digitally signed by DOYLE.CLIFFORD.H.1230381662
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=DOYLE.CLIFFORD.H.1230381662
Date: 2010.01.26 15:04:42 -06'00'

CLIFFORD H. DOYLE
MEC Team Leader
Explosives Safety Knowledge, OE and

Chemical Division
US Army Technical Center for Explosives Safety

CF:
Office of the Director of Army Safety (DACS-SF/Mr. Patton), 223 23rd Street, Crystal Plaza 5, Suite 980, Arlington, VA 22202
Office of the Deputy Assistant Secretary of the Army for Environment, Safety, and Occupational Health, Special Assistant for Munitions, (DASA-DESOH/Mr. King), 110 Army Pentagon, Washington, DC 20310-0110
Office of the Assistant Chief of Staff for Installation Management, Base Realignment and Closure Office (DAIM-BD/Mr. Haughs), 600 Army Pentagon, Washington, DC 20310-0600
U.S. Army Engineering Support Center, Huntsville, (CEHNC-CX-MM/Mr. Becker or Mr. Zange), Corps of Engineers, P.O. Box 1600, Huntsville, Alabama 35807-4301
U.S. Army Engineer District, Louisville, (CELRL-CD-I/Mr. Donald Peterson), Clock Tower Building, Rock Island, Illinois 61204-2004

Ohio Environmental Protection Agency

[illegible], Governor
[illegible], Lt. Governor
[illegible], Director

April 30, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL FW CLEANUP GOALS APPROVAL

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2018

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Final, Facility-Wide Human Health Cleanup Goals for the Ravenna Army Ammunition Plant, Ravenna, OH." This document, dated and received at Ohio EPA on March 23, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by SAIC Engineering of Ohio, Inc., under contract number W912QR-04-D-0019, delivery order number 008. Ohio EPA approves this document, pending any additional comments from the U.S. Army or Ohio Army National Guard.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher
Project Coordinator
Division of Emergency and Remedial Response

TRF/kss

cc: Mark Krivansky, AEC
Katie Elgin, OHARNG Camp Ravenna
Nat Peters, USACE Louisville
Jed Thomas, SAIC, Twinsburg
Eileen Mohr, Ohio EPA, NEDO, DERR
Tia Rutledge, SAIC, Twinsburg
LTC Ed Meade, OHARNG
Glen Beckham, USACE Louisville
Tom Chanda, USACE Louisville
Kevin Jago, SAIC, Oakridge
Derek Kinder, USACE Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

RECEIVED
May 5 2010

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Ohio **Environmental Protection Agency**

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

December 28, 2010

RE: RVAAP – SITE MG #: 267000859059
RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FACILITY-WIDE SAFETY AND HEALTH
DRAFT PLAN

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
2008 3230 0003 5419 9642

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Draft, Facility-Wide Safety and Health Plan for Environmental Investigations, Revision 0. This document, dated November 11, 2010 and received on November 12, 2010 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District, by Science Applications International Corporation (SAIC), under contract number W912QR-08-D-0008, delivery order No. 0016. This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). Ohio EPA's comments are enclosed with this correspondence.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

FOR

RECEIVED
3 JAN 2011

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
Todd.Fisher@epa.state.oh.us

Scanned
By:
Date: 1-3-11

TRF/kss

enclosure

ec: Eileen Mohr, Ohio EPA, NEDO, DERR
Kevin Jago, SAIC, Oak Ridge
Heather Miller, SAIC, Twinsburg
Glen Beckham, USACE, Louisville
Thomas Chanda, USACE, Louisville
Mike Eberle, Ohio EPA, NEDO, DERR
MAJ Ed Meade, RTLS
Katie Tait, RTLS
Derek Kinder, USACE, Louisville
Mark Krivansky, AEC
Mark Nichter, USACE, Louisville

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

DOCUMENT: **Draft, Facility-Wide Safety and Health Plan for Environmental Investigations, Revision 0 Ravenna Army Ammunition Plant, Ravenna, OH, Dated November 11, 2010**
REVIEWER: **Todd R. Fisher, Ohio EPA, NEDO, DERR**
DATE: **December 28, 2010**

CMT #	PAGE #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
1	Table 3-1, Hazards Inventory	When sampling surface water and sediment by boat or along shore, there is a potential risk for drowning.	Please add drowning hazard to Table 3-1 Hazards Inventory.	
2	Table 3-2, Activity Hazard Analysis, Pages 3-4; 3-7; 3-9; 3-12; 3-15; 3-18; 3-21; 3-23; 3-26; 3-29; 3-32	Poisonous plants have not been identified under biological hazards.	In parentheses, next to biological hazards under the Hazards column, please add the words "poisonous plants."	
3	Table 3-2, Activity Hazard Analysis, Page 3-5	Under the column heading "Actions to Eliminate or Minimize Hazards" for General safety hazards, the text states "clean and organized work areas, keeping walkways and working areas clear.	Please add "(including snow, ice, and standing water)" to the end of the statement.	
4	Table 3-2, Activity Hazard Analysis, Page 3-5	This table lists vehicle accidents under the "Hazards" column. No mention is made of RVAAP speed limits.	Please add to Actions To Eliminate or Minimize Hazards column, "Observe and maintain posted speed limits for both day and night driving conditions." Please make this change to other sections of the table where it mentions vehicle accidents (i.e., Page 3-8).	

5	Table 3-2, Activity Hazard Analysis, Pages 3-21 and 3-23	Surface water sampling or sediment sampling using hand augers, scoops, or sediment samplers places the sampler in close proximity to a body of water. Drowning has been omitted as a possible hazard or risk.	Please add "Drowning" as a hazard in this table where sampling is occurring on a boat or by persons next to water bodies.
6	Table 3-2, Activity Hazard Analysis, Page 3-33	Exposure to chemicals is listed as a hazard when decontaminating equipment. Some of these chemicals may affect breathing, if inhaled.	Please add, "When using volatile chemicals, work should be performed under conditions of adequate ventilation."
7	Page 4-1, line 9	It may not be clear to the reader what "CIH" is.	Please change the bullet to read "Certified Industrial Hygienist (CIH)."
8	Section 4.0, Pages 4-1 through 4-4	It appears that the Contractor Site Safety and Health Officer is the only one with Stop Work Authority, if unsafe work conditions develop. Does anyone else have Stop Work Authority?	Please explain.
9	Section 5.1, Page 5-1, Lines 16 - 19	The text states that the "40-yr Hazardous Waste Site Work course is required for hazardous, toxic, and radioactive activities in the exclusion (contamination) zone, contamination reduction (buffer) zone, or other hazardous areas on-site." This should include areas of sample preparation and packaging (i.e. Building 1036).	Please add " including areas of sample preparation and packaging" to the text.
10	Section 6.2, Types of Equipment, Lines 8 and 9	The text states Level C Equipment includes full-face respirator and air-purifying cartridges capable of filtering out organic vapors, acid gasses, and radionuclides. Under what conditions would a half-faced respirator be permitted to be used if the person wearing one has been quantitatively fit tested and approved to wear one when using the appropriate cartridges?	Please clarify.
11	Section 11.5, Site Communication, Page 11-3, Lines 10 and 11	The text states that "if phone service is not immediately available on the site, the crew will be equipped with a cellular phone." What if the cellular phone reception is sporadic and not dependable.?	Please add "If cell phone reception cannot be obtained at the site, available RVAAP hand-held radios should be used."

12	Section 13.1, Potential Emergencies	There is no mention of detonations (MEC). Should detonations be included as credible potential emergencies for investigative site work?	Please explain.
13	Section 13.1.2, Spills	There is no mention of Ohio EPA's Spill Hotline number. All spills of reportable quantities should be reported to Ohio EPA spill hotline.	Please include Ohio EPA's Spill hotline number.
14	Table 13.2, Page 13-2	Ohio EPA's Spill Hotline Number has been omitted from this table.	Please include Ohio EPA's Spill hotline number.
15	Page A-2	"N," "Y," and "N/A" are missing as column headings on the inspection form.	Please add "N," "Y," and "N/A" as column headings to this form.

Ohio Environmental Protection Agency

[illegible], Governor
[illegible], Lt. Governor
[illegible], Director

September 16, 2010

RE: RVAAP – SITE MG #: 267000859059
RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
SITE SAFETY AND HEALTH PLAN
2010 PHASE I RI CC-RVAAP-78, 80

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2414

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Draft, Site Safety and Health Plan for the 2010 Phase I Remedial Investigation Services Compliance Restoration Sites CC-RVAAP-78 and CC-RVAAP 80, Ravenna Army Ammunition Plant, Ravenna, OH. This document, dated August 4, 2010 and received on August 5, 2010 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District, by Prudent Technologies, Inc., under contract number W912QR-10-P-0052. This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). The enclosed comments were generated upon completion of this review.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

RECEIVED
28 Sept.
2010

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
Todd.Fisher@epa.state.oh.us

TRF/kss

enclosure

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Katie Tait, RTLS
Derek Kinder, USACE, Louisville
Mark Krivansky, AEC
Mark Nichter, USACE, Louisville
MAJ Ed Meade, RTLS
John Jent, Prudent Technologies
Glen Beckham, USACE, Louisville
Thomas Chanda, USACE, Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Draft Site Safety & Health Plan for 2010 Phase I Remedial Investigation Services Compliance Restoration Sites CC-RVAAP-78 & CC-RVAAP 80 at the Ravenna Army Ammunition Plant, Ravenna Ohio
Comment Response Table
9/16/2010

Comment No.	Pg. No. Line No.	Comment	Recommendation	Response
O-1	Page 7-1 Table 7-1	Under airborne organics, two action level limits are specified (<5ppm and >5ppm). The action includes both Level D and Level B PPE. The table is unclear as to which action goes with which limit.	Under the Action column heading, change the action to read "Level D (< 5 ppm)" and "Level B (> 5 ppm)."	
O-2	Page 12-1 Lines 9-10	The text states that Mid-American Security will be contacted first for any emergency service.	Change the sentence to "RVAAP Post 1 will be contacted first for any emergency service."	
O-3	Page A-2 Table 1-1	Drowning is not listed as a possible hazard in this general checklist.	Due to the close proximity of Fuze and Booster Quarry Ponds, please include Drowning as a possible hazard.	
O-4	Page A-3 Table 1-2	Drowning is not included as a possible safety and health hazard for any of the proposed site activities.	Please add drowning hazard to any of the site activities where workers will be in close proximity to water (i.e., FBQ ponds).	

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

Scanned
By:
Date:

September 20, 2010

RE: RVAAP – SITE MG #: 267000859059
RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
PROJECT MANAGEMENT PLAN
2010 PHASE I RI CC-RVAAP-78, 80

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2407

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Draft, Project Management Plan for 2010 Phase I Remedial Investigation Services Compliance Restoration Sites CC-RVAAP-78 and CC-RVAAP 80, Ravenna Army Ammunition Plant, Ravenna, OH. This document, dated August 4, 2010 and received on August 5, 2010 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District, by Prudent Technologies, Inc., under contract number W912QR-10-P-0052. This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). The enclosed comments were generated upon completion of this review.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

FOR

RECEIVED 28 Sept 2010

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
Todd.Fisher@epa.state.oh.us

TRF/kss

enclosure

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Katie Tait, RTLS
Derek Kinder, USACE, Louisville
Mark Krivansky, AEC
Mark Nichter, USACE, Louisville
MAJ Ed Meade, RTLS
John Jent, Prudent Technologies
Glen Beckham, USACE, Louisville
Thomas Chanda, USACE, Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Draft Project Management Plan for 2010 Phase I Remedial Investigation Services Compliance Restoration Sites CC-RVAAP-78 & CC-RVAAP 80 at the Ravenna Army Ammunition Plant, Ravenna Ohio
Comment Response Table
09/20/2010

Comment No.	Pg. No. Line No.	Comment	Recommendation	Response
O-1	Pages 1-3, 1-4 Lines 40 -20	The text states that propellant can lids were identified on the ground surface at the southern and northern ends of former Group 2 Ammunition Storage Area. Based on the conference call held on September 20, 2010 with USACE, OHARNG, RVAAP, and Ohio EPA, it was determined that no propellant cans were ever identified in the northern area of Group 2.	Please make appropriate changes to this document, so that it is consistent with the discussions and conclusions resulting from the conference call held on 09/20/2010 between USACE, OHIO EPA, OHARNG, and RVAAP.	
O-2	Page 4-1 Figure 4-1	Ohio EPA's box shows DERR-NEDO and OFFO. OFFO no longer exists.	Please remove OFFO from this figure.	

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

October 25, 2010

RE: RVAAP - SITEMG - 267000859059
RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL SITE SAFETY & HEALTH PLAN
CC-RVAAP-78 AND CC-RVAAP-80
APPROVAL

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2506

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Final Site Safety and Health Plan Addendum for the 2010 Phase I Remedial Investigation Services at Compliance Restoration Sites CC RVAAP-78 Quarry Pond Surface Dump & CC RVAAP-80 Group 2 Propellant Can Tops, Ravenna Army Ammunition Plant, Ravenna, Ohio. This document, dated September 30, 2010 and received on October 4, 2010 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District, by Prudent Technologies, Inc., under contract number W912QR-10-P-0052.

This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). Ohio EPA has determined that all required text changes have been made to this document and considers it to be final and approved, providing there are no additional comments from the Army or Ohio Army National Guard.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
tfisher@epa.ohio.gov

TRF/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Katie Tait, RTLS
Derek Kinder, USACE, Louisville
Glen Beckham, USACE, Louisville
Thomas Chanda, USACE, Louisville
MAJ Ed Meade, RTLS
John Jent, Prudent
Mark Krivansky, AEC
Joan Cullen, USACE, Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

October 25, 2010

RE: RVAAP - SITEMG - 267000859059
RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL PROJECT MANAGEMENT PLAN
CC-RVAAP-78 AND CC-RVAAP-80
APPROVAL

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 0001 9552 2490

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the document entitled: Final Project Management Plan for the 2010 Phase I Remedial Investigation Services at Compliance Restoration Sites CC RVAAP-78 Quarry Pond Surface Dump & CC RVAAP-80 Group 2 Propellant Can Tops, Ravenna Army Ammunition Plant, Ravenna, Ohio. This document, dated September 30, 2010 and received on October 4, 2010 at Ohio EPA, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District, by Prudent Technologies, Inc., under contract number W912QR-10-P-0052.

This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR). Ohio EPA has determined that all required text changes have been made to this document and considers it to be final and approved, providing there are no additional comments from the Army or Ohio Army National Guard.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Todd R. Fisher, Project Coordinator
Division of Emergency and Remedial Response
tfisher@epa.ohio.gov

TRF/kss

cc: Eileen Mohr, Ohio EPA, NEDO, DERR
Katie Tait, RTLS
Derek Kinder, USACE, Louisville
Glen Beckham, USACE, Louisville
Thomas Chanda, USACE, Louisville
MAJ Ed Meade, RTLS
John Jent, Prudent
Mark Krivansky, AEC
Joan Cullen, USACE, Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

November 18, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
GROUP 2 PROP CAN TOPS (CC-80)
OHIO EPA ID # 267000859059

CERTIFIED MAIL

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
Building 1037
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Draft Project Management Plan for the Compliance Restoration Site CC-RVAAP-80, Group 2 Propellant Can Tops and Other Environmental Services." This document, dated October 13, 2010 and received on the same date, was prepared for the US Army Corps of Engineers (USACE) – Louisville District by PIKA International, Inc. under Contract Number W912QR-10-P-0058.

Attached to this correspondence, please find Ohio EPA's comments on the above-referenced document.

If you have any questions, do not hesitate to contact me at 330-963-1221.

Sincerely,

Mike Eberle
FOR

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

ETM:dms

attachment

ec: Justin Burke, Ohio EPA, CO, DERR
Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Mark Krivansky, AEC
Glen Beckham, USACE Louisville
Greg Moore, USACE Louisville
Mark Nichter, USACE Louisville
Jay Trumble, USACE Louisville
LTC Ed Meade, OHARNG
Katie Tait, OHARNG
Christy Esler, Army/VISTA
Brian Stockwell, PIKA
Sue Boles, PIKA

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

DOCUMENT: "DRAFT PROJECT MANAGEMENT PLAN FOR THE COMPLIANCE RESTORATION SITE CC-RVAAP-80 GROUP 2 PROPELLANT CAN TOPS AND OTHER ENVIRONMENTAL SERVICES"

REVIEWER: Eileen T. Mohr, Ohio EPA, NEDO, DERR

DATE: November 18, 2010

Cmt #	Page #/ Line #	Comment	Recommendation	Response
1	GENERAL [1/26-27; 2/7-8; 6/2; 14/26; 16/8-30; App D/pg 1; App D/pg 14; App D/pg 21]	The text in a number of places (I will try and capture all key document places in the column to the left) indicates that propellants and other MC will be looked for in the surface soils. As defined at RVAAP, this is the 0-1' bgs interval. There is no discussion in text of looking for MC in subsurface soils. To my knowledge, since we do not have historical information that indicates that (only) prop can tops were deposited on the surface (vs. the potential for burial of both tops and cans and potentially contents), we cannot eliminate the subsurface from investigation. This comment is made both with respect to MC constituents and the metallic lids/cans with respect to the proposed geophysics.	Further discussion is required.	
2	GENERAL [13/22-24; table 7-1]	The text in a number of places (I will try and capture all key document places in the column to the left) indicates that the kick-off meeting will be held to assist the contractor with the submission and approval of the workplan documents. However, the workplan has already been submitted and we haven't had a kick-off meeting as of yet.	Please clarify.	

3	GENERAL	Please clarify whether or not Baltimore USACE is involved in this project, as it is not clear in the text.	Baltimore is not listed as receiving any documents (document distribution page and pg 39); yet there is a reference to Baltimore on 33/13 as well as on 34/1-2. How can Baltimore be involved without reviewing documents and knowing the scope of work to be performed?	
4	2/10	Addition requested.	Add nitroglycerin to the list.	
5	3/13	Addition requested.	Revise text to read: "...Waste (IDW) in accordance with all applicable State, Federal, and local rules, laws, and regulations."	
6	5/13	The text references "RRD".	Spell out the acronym the first time it is used. Also add to the acronym list.	
7	5/25-27	The text describes an "emergency survey" that was conducted by USACE Louisville.	Please include a copy of the results of the survey either in the PMP or WP. The text in this section should summarize the results.	
8	5/29	The text indicates that one of the objectives of the geophysical survey is to identify the anomalies and anomalous areas.	Please clarify whether or not the chosen geophysical method will be able to determine what constitutes the various anomalies (i.e. lids vs. cans vs. MEC items etc.).	
9	6/10	The text references the excavation activities conducted at the LL2 DB-802 footprint.	Please clarify that this is actually an original excavation from the construction of the plant and is not a result of the decon/demo process.	
10	Fig 2-1	The figure needs to be updated to indicate that the installation is now known as Camp Ravenna (or use the full title).	Please revise.	
11	Fig 2-1	Check the legend on this map to make sure that it is applicable.	For example, minimally berms and buildings should be removed.	
12	Fig 2-2	Please switch out this figure with the latest AOC/MRS map prepared by USACE Louisville.	Contact USACE Louisville for a copy of this map.	

13	Fig 2-3	Addition requested.	Add in a few of the building numbers near the prop can top area for ease of orientation in the field.	
14	Fig 2-3	Confirmation requested.	Please confirm the boundary of the prop can tops site on the NW side. Make sure that it matches where the Seibert stakes are. (I am going from memory and think that these may be slightly different.)	
15	Fig 2-3	Check the legend on this map to make sure that it is applicable.	For example, at a minimum, berms should be removed.	
16	Fig 2-3	Confirmation requested.	Isn't the surface water intermittent vs. perennial in this area? Change if needed.	
17	Fig 2-4	Change requested.	Change the legend to indicate that the buildings have been removed (ex. call them building footprints vs. buildings).	
18	11/17-18	The text cites a SAIC document that bedrock has been encountered at the installation from 5.5 to 13 meters bgs.	Bedrock is found at the ground surface in parts of the installation. So, I am not sure where SAIC was coming from. Maybe the easiest thing would be to just delete his sentence.	
19	13/31-34	The sentence in this section is unclear.	Recommend revising to read: "Reports will be submitted to the RVAAP...."	
20	15/section 3.3.1; App D/pg 14	The text in this section discusses the chosen geophysical instruments.	The selection of geophysical instrumentation should be done in discussion with the regulators. The text as currently written presents the selections as a "done deal." There are a number of questions that need to resolved: a. on what basis were these instruments selected? b. what are the pros/cons of using these pieces of equipment? c. what other equipment was considered and rejected? And why? d. what is the depth of penetration?	

			e. can there be discrimination between lids, cans, MEC items? f. are you proposing to use an Instrument Verification Strip (ISV)? g. will blind seeding be utilized? h. how was grid size determined? i. how was transect spacing determined? These are not all inclusive. Discussion required.	
21	16/18-30	This portion of the text directly relates to general comment #1 above.	There needs to be discussion on several issues: a. the lack of any subsurface samples; b. how 3 samples were determined; and, c. combining designated anomaly areas into one MI sample.	
22	Section 4.0	This entire section is confusing because it is written like the work still needs to be done at DB-802 when it, in fact, has already been completed. (As per the note at the bottom of the page.)	No text change required as I recognize that this is a contractual issue. (But at some point we need to figure out other ways to handle this, since if the text isn't clear to me, it sure won't be to the general public).	
23	24/10	Clarification requested.	Is PIKA subbing some of this work?	
24	27/10 and 14	Clarification requested.	In line 10, Brian is listed as the primary POC, in line14 he is listed as an alternate POC. Please clarify.	
25	29/13	The text indicates that the SUXOS is to make sure that health and safety issues have been addressed in the SOW.	Do you mean the HASP or APP or in the field?	
26	37/4-5	Clarification requested.	Please clarify why a hard copy of the PMP is not kept on-site.	
27	App A	Revision needed.	Please provide an updated schedule.	
28	App C	Not reviewed as it is contractual in nature.	However, please note that lack of comment on this table does not imply agreement with selected geophysical instrumentation, sample numbers, analyte lists, etc.	

29	App D/pgs 2-8	This section discusses the QC organization.	The people specific to this project should be identified.	
30	App D/6/26	Revision requested.	Remove reference to off-site as there should be no reason to be off-site during the performance of this work.	
31	App D/11/8	The text indicates that corrective action will occur within 5 days.	Please specify calendar or business days.	
32	App D/13/2	The text indicates that the USACE COR will be notified as soon as practical.	How is this defined? Consider revising the text to state something to the effect of: "...as soon as practical, or no later than xx hours..." (Need to also define "xx".)	
33	Att 2	Not reviewed as contract already let.	No changes needed. However, the SOW contents may directly impact on a number of comments raised in this CRT and the subsequent workplan.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

January 22, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL PBA 2008 INVESTIGATION SAP

CERTIFIED MAIL
7009 1680 0000 6381 0766

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Final, PBA 2008 Supplemental Investigation Sampling and Analysis Plan, Addendum No.1, Volume 1 – Main Report." This document, dated and received at Ohio EPA on December 23, 2009, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by SAIC Engineering of Ohio, Inc., under contract number W912QR-04-D-0028, delivery order number 0001. Ohio EPA approves this document, pending any additional comments from the U.S. Army or Ohio Army National Guard.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

—FOR—
Todd R. Fisher
Project Coordinator
Division of Emergency and Remedial Response

TRF/kss

cc: Mark Krivansky, AEC
Katie Elgin, OHARNG RTLS
Nat Peters, USACE Louisville
Jed Thomas, SAIC, Twinsburg
Eileen Mohr, Ohio EPA, NEDO, DERR
Tia Rutledge, SAIC, Twinsburg
LTC Ed Meade, OHARNG
Glen Beckham, USACE Louisville
Tom Chanda, USACE Louisville
Kevin Jago, SAIC, Oakridge
Derek Kinder, USACE Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

RECEIVED

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

September 14, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTY
FINAL MMRP PIP
ID # 267000859085

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 9826

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Final Public Involvement Plan, Addendum for Military Munitions Response Program Remedial Investigation Environmental Services, Version 1.0, Ravenna Army Ammunition Plant." This document, dated September 01, 2010 and received at Ohio EPA's NEDO on September 03, 2010, was prepared for the U.S. Army Corps of Engineers by Shaw Environmental & Infrastructure, Inc.

This document was compared to the draft version, dated July 19, 2010, and the approved comment response table. The final document is approved.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

ETM/kss

ec: Glen Beckham, USACE Louisville
Greg Moore, USACE Louisville
Jay Trumble, USACE Louisville
Travis McCoun, USACE Baltimore
Mark Krivansky, AEC
LTC Ed Meade, OHARNG
Katie Tait, OHARNG
Christy Esler, US Army/VISTA
Dave Cobb, Shaw
Dave Crispo, Shaw
Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

SAIC
From Science to Solutions

SAIC Engineering of Ohio, Inc.
A subsidiary of Science Applications International Corporation

February 1, 2010

Mr. Mark Patterson
Ravenna Army Ammunition Plant
8451 State Route 5, Building 1037
Ravenna, Ohio 44266-9297

Reference: **Contract No. W912QR-04-D-0028, 2008 Performance-Based Acquisition (PBA) for Environmental Investigation and Remediation at the Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio**

Subject: **Notification of PBA 2008 Remedial Investigation (RI) Field Activity at Seventeen Areas of Concern (AOCs) ~ Start Date and Request for Utility Clearance for Subsurface Sample Locations**

Dear Mr. Patterson:

On February 8, 2010, SAIC anticipates starting field sampling activities associated with the PBA 2008 RI. As part of the RI, we plan to install subsurface borings using direct-push techniques at a number of AOCs within RVAAP. Currently, our drilling subcontractor is scheduled to mobilize to RVAAP on February 15, 2010, and drilling operations are planned to commence the following work day. In order to complete the work, SAIC requests utility clearance for all soil boring and geotechnical locations presented in the *PBA 2008 Supplemental Investigation Sampling and Analysis Plan Addendum No. 1* (issued Final on December 23, 2009).

The following table presents the AOCs, the number of locations requiring utility clearance, and the associated figure in the RI Sampling and Analysis Plan that illustrates soil boring and geotechnical sample locations planned for each AOC.

Area of Concern	Number of Locations	PBA 2008 RI SAP Figure
RVAAP -06 C-Block Quarry	6	Appendix A, Figure A-3
RVAAP-13 Building 1200	6	Appendix C, Figure C-3
RVAAP-19 Landfill North of Winklepeck Burning Grounds	1	Appendix D, Figure D-3
RVAAP-29 Upper and Lower Cobbs Ponds	6	Appendix E, Figure E-3
RVAAP-33 Load Line 6	6	Appendix F, Figure F-3
RVAAP-38 NACA Test Area	8	Appendix G, Figure G-3
RVAAP-39 Load Line 5	7	Appendix H, Figure H-3
RVAAP-40 Load Line 7	10	Appendix I, Figure I-3
RVAAP-41 Load Line 8	8	Appendix J, Figure J-3
RVAAP-42 Load Line 9	8	Appendix K, Figure K-3
RVAAP-43 Load Line 10	10	Appendix L, Figure L-3
RVAAP-44 Load Line 11	11	Appendix M, Figure M-3
RVAAP-45 Wet Storage Area	9	Appendix N, Figure N-3

Area of Concern	Number of Locations	PBA 2008 RI SAP Figure
RVAAP-46 Buildings F-15 and F-16	6	Appendix O, Figure O-3
RVAAP-48 Anchor Test Area	6	Appendix P, Figure P-2
RVAAP-50 Atlas Scrap Yard	21	Appendix Q, Figure Q-3

At your earliest convenience, please advise SAIC of any historical (inactive) or current (active) subsurface utilities that we should avoid or that may interfere with our subsurface investigation. It is our understanding that all sanitary and storm sewer systems within these AOCs are inactive and specific measures to avoid these particular utilities are not necessary. Our staff is available as needed to accompany RVAAP or Ohio Army National Guard representatives to locate planned soil boring locations in the field. If you have questions or comments, please feel free to contact me at (865) 481-4614 or Jed Thomas at (330) 405-5802.

Sincerely,

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

W. Kevin Jago

Kevin Jago
Project Manager

cc:

Katie Elgin OHARNG
Jim McGee – Vista Sciences
Glen Beckham – USACE
Nathaniel Peters, II – USACE
Mark Nichter – USACE

Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

August 16, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
SHAW DRAFT MMRP PIP
EPA ID # 267000859085

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 3230 0003 5419 9895

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Draft Public Involvement Plan Addendum for Military Munitions Response Program Remedial Investigation Environmental Services." This document, dated July 19, 2010 and received on July 20, 2010, was prepared for the U.S. Army Corps of Engineers (USACE), Baltimore District by Shaw E&I, under contract number W912DR-09-D-0005.

Enclosed with this correspondence, please find Ohio EPA's comments on the above-referenced document.

If you have any questions, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Eileen T. Mohr
Project Manager
Division of Emergency and Remedial Response

ETM/kss

enclosure

cc: Glen Beckham, USACE Louisville
Jay Trumble, USACE Louisville
Mark Krivansky, AEC
Katie Tait, OHARNG
Dave Crispo, Shaw
Greg Moore, USACE Louisville
Travis McCoun, USACE Baltimore
Kim Harriz, NGB
Dave Cobb, Shaw

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR
Christy Esler, RVAAP

RECEIVED 17 Aug 2010

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 ; 963 1200
330 ! 487 0769 (fax)
www.epa.ohio.gov

DOCUMENT: "Draft Public Involvement Plan Addendum for Military Munitions Response Program Remedial Investigation for Environmental Services"
DATE: August 16, 2010
REVIEWER: Eileen T. Mohr, Ohio EPA, NEDO, DERR

CMT #	PG #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
1	i/19	Change requested.	Change to Landfill North of Winklepeck Burning Grounds.	
2	ii/9	Change requested.	Change to Landfill North of Winklepeck Burning Grounds.	
3	iii/23	Change requested.	Change to Installation Restoration Program.	
4	iii/43	Clarification.	Why is Public Involvement Plan italicized?	
5	iv/9	Clarification.	Why is Record of Decision italicized?	
6	1-2/3-4	Recommendation.	Remove this sentence, as it duplicates the first sentence in Section 1.2. Then change the following sentence to read: "Stakeholders include members of the general public..."	
7	1-2/6-18	Recommendation.	Much of the language in these 2 paragraphs is redundant. Please streamline.	
8	1-2/22	Change requested.	Revise text to read: ".... Involve the community in the process."	
9	Pgs 2-1 and 2-3	Confirmation requested.	Please confirm that this is the currently accepted version of the property description.	
10	2-6/29	Change requested.	Change to Landfill North of Winklepeck Burning Grounds.	
11	2-7/31	Change requested.	Change burn to burns.	

12	2-10/3	Change requested.	Change text to read: "...and dry sediment was sampled during the..." (Otherwise it sounds like the area was NFA'ed or remediated.)	
13	2-10/3	Change requested.	Change text to read: "...and 3 potential..."	
14	2-10/22-25	Confirmation requested.	Confirm all areas to be looked at in ODA2 are listed. (For example, Burial Site # 1 is not mentioned.)	
15	2-12/5-6	Change requested.	End sentence on line 14 after CB-14. Remove the rest of the sentence on lines 5-6, as it is confusing.	
16	2-12/6-7	Change requested.	Change sentence to read: "This MRS is located within the...."	
17	2-12/7	Revision requested.	Change acreage to correct size.	
18	2-12/31	Addition requested.	Investigate the submerged portion of the middle pond.	
19	2-12/35	Change requested.	Change text to read: "It accepted general plant..."	
20	2-16/31	Change requested.	Change to read: "...used for the testing of shape..."	
21	2-16/34	Addition to text requested.	Add: "... Firestone Test Facility, which has not yet been investigated."	
22	2-19/6	Change requested.	Revise text to read: "....area around, and including, the shape charge....."	
23	2-22/29	Change requested.	Change document to documented.	
24	2-24/5-24	Overarching question.	So, what is the disposition of the WWI-era ogives that are present in the wooded area? Is the proposal to just leave them there? If that is the case, discussion is needed.	

25	2-27/14-16	Revision requested.	Remove the sentence appearing in these lines. Otherwise it sounds like the purpose of the entire RI is to sample areas where we know there isn't anything so that a NFA can be achieved, which is not the case.	
26	3-4/7	Change needed? (I may have missed it.)	Is this the first time that the acronym AR is used? If so, please define.	
27	3-5/8-9	Remove text.	Remove the text referencing the ¼ newsletters, as that no longer happens. [Although, I have to admit, it might be a good idea to re-institute (if there is funding) as they were well received.]	
28	3-5/9-10	Text change or removal.	Either remove the text, since we no longer have the newsletters, or make sure that you revise the sentence to give a little more information about them… and make it past tense.	
29	3-5/20-21	Clarification requested.	Not sure what is meant by this sentence, especially with respect to the reference to other important environmental activities.	
30	3-6/23-30	Clarification/removal requested.	We do not have a formal speaker's bureau.	
31	4-3/5	Text change requested.	Change to read: "munitions response process,…."	

Ohio **Environmental Protection Agency**

Bill Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

September 10, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
SHAW DRAFT MMRP RI WP
ID # 267000859085

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7009 1680 001 9552 2360

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Draft Work Plan for Military Munitions Response Program Remedial Investigation Services, Version 1.0, Ravenna Army Ammunition Plant." This document, dated July 6, 2010 and received at Ohio EPA on July 7, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) under contract number W912DR09-D-005, by Shaw Environmental and Infrastructure, Inc.

I apologize for the longer than normal review time on this document. Enclosed with this correspondence, you will find Ohio EPA's comments on the above referenced workplan. I would recommend that Shaw try and schedule a comment resolution meeting as soon as possible, such that we may still commence some field activities this Fall.

Please note that all recipients on this correspondence are now being copied electronically. If anyone requires a hard copy of the correspondence, please let me know and one will be furnished to you. For future copies, I would like to only send out one hard copy, i.e., as required by the Directors Final Findings and Orders (DFFO) to Mark.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1221.

Sincerely,

Eileen T. Mohr, Project Manager
Division of Emergency and Remedial Response

RECEIVED 14 Sept 2010

ETM/kss

enclosure

ec: Mike Eberle, Ohio EPA, NEDO, DERR
Glen Beckham, USACE Louisville
Jay Trumble, USACE Louisville
Mark Krivansky, AEC
Katie Tait, OHARNG
Dave Cobb, Shaw
Todd Fisher, Ohio EPA, NEDO, DERR
Greg Moore, USACE Louisville
Travis McCoun, USACE Baltimore
LTC Ed Meade, OHARNG
Christy Esler, US Army/VISTA
Dave Crispo, Shaw

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www.epa.ohio.gov

DOCUMENT: DRAFT WORK PLAN FOR MILITARY MUNITIONS RESPONSE PROGRAM REMEDIAL INVESTIGATION SERVICES, VERSION 1.0, RAVENNA ARMY AMMUNITION PLANT

REVIEWER: EILEEN T. MOHR, OHIO EPA, NEDO/DERR

DATE: SEPTEMBER 10, 2010

CMT #	PAGE #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
1	General	This RI uses the U.S. EPA Uniform QAPP, as we agreed upon upfront. However, I did not realize going into it that this process made no sense to use on a site that is already well-established, like RVAAP. The review of the worksheets is cumbersome, to say the least. I can see where this process would make sense on a site that is just new and starting out; however, it does not add value to an already established project... unless we had decided to sit down and work through all of the sheets as a team. (Which would have added a lot more time to this process.)	My recommendation is to finish up what we have started, i.e., finish these 7 AOCs with the Uniform QAPP. If we can come to some agreement in terms of analytes to be tested for (etc.) in these 7 AOCs,..... we may be able to make the next 7 AOCs go much more smoothly, both in terms of production and review of the worksheets (WS). Or, perhaps after discussion, a hybrid or middle of the road approach may work as well. I would strongly recommend that we discuss, and come to a team consensus, as to whether or not we use this at RVAAP for any other projects.	
2	General	Text addition.	At an appropriate point in the revised wp, please reference the DFFO and applicability to this project.	
3	General	Addition requested.	Please add tabs to the final version of the workplan.	
4	General	For the ODA2 MRA, there should be a MRSPP for each MRS contained within. For example:	Discussion required.	

		Burial Area # 1, Rocket Ridge, Bomb Disposal Area, etc., are all individual MRSs within the ODA2, and according to guidance, each should have an applicable MRSPP. Also applies to page 1-33.		
5	General	According to MMRP RI guidance, the RI WP should contain the Memoranda for Record (MFRs) from the TPP meeting.	Clarify why these are not part of the workplan.	
6	General	For ease of reading, there should be a statement in the front part of the text that briefly walks the reader through how this work will unfold. Specifically, that there are many unknowns at this point in time, and that based upon the results of the various geophysical surveys, that decisions will be made, such as MC sample locations/numbers; that various smaller tech memos/reports will be submitted for review and approval, etc., to make the needed decision on whether the nature and extent of MEC and MC has been determined. (Also: section 1.6/pg 1-10/lines 27-30)	Please add some brief explanation to the beginning of the text to guide the reader through the envisioned RI process.	
7	General	The text in numerous spots indicates that no MEC items or donor charges will be stored on site throughout the course of this	This is not acceptable. There are ECMs that can be used for MEC and donor charge storage at RVAAP. Unless an item is unsafe to be	

		work. The text further indicates that for the most part, items will be blown at the MRS where they were discovered and that it will occur on a daily basis.	moved, it shall be blown at ODA2, as stated in the DFFO. The MEC notification procedure must be followed, which would mean there would not be enough time to prepare the information and have it to the regulators prior to the MEC being blown at the end of the day. Additionally, if ODA2 is used, there are sampling requirements that are attached to using it. I would rather see consolidated shots at the end of the project than blowing up MEC each day at ODA2. This one really isn't up for discussion, unless it is a safety issue for site workers and the item needs to be BIPed.	
8	General	The use of a geochemical study in soil is referenced numerous times in this document.	Please be advised that I do not have any issue with incorporating this information into the wp and evaluating it; but that we may not be able to use the results of the study to make any definite decisions on this project. Although I have heard some good things through the grapevine on the groundwater geochem study... we don't have anything definitive back on that yet (from the review end) and we had a lot more data going into that process than we would obtain from this RI (which could make a big difference).	
9	General	At the TPP meeting, I asked the question regarding using a puck mill on metals. There had been some thought that the use of this	Please provide this information, so we can make the decision on whether or not metals should be ground.	

		equipment would bias metals samples.		
10	General	At several places in the text, it indicates that any additional sampling that may be done will be done during remediation.	Perhaps the text meant that confirmation sampling would be done to evaluate the effectiveness of any remediation… that is correct. However, any additional sampling, if it is with respect to determining nature and extent, has to be done during an additional RI, or if a minimal amount, during the FS.	
11	General	It is clear that the analyte list does not follow the generally accepted approach here at RVAAP. I can understand limiting some constituents based upon what is expected to be found, based upon historical records…but: many of the records were destroyed and, as such, no one can state with certainty what went where; foreign munitions were brought on site, etc,.. So, while I can understand wanting to focus on what we think we know is located in a certain area, I am not willing to agree that there may not have been other munitions that were in a certain area that we do not know about. If they existed here at the installation at one MRS… they may have been in another. I am also not willing to concede that certain constituents are not going to be looked at, because the constituent "load" into the surrounding soil	SHAW: Please check and see if there was sampling of sediment from the FTF pond during the IRP… if not, then we would need a RVAAP full suite there, or it would need to be taken under another program. The following is the ***PROPOSED*** analyte list to reach the stated goals of the project (assuming we have sediment from the FTF pond). ***THIS IS A STARTING POINT, BECAUSE THE FOLLOWING 2 COMMENTS IN THIS GENERAL SECTION DISCUSS ISSUES THAT DIRECTLY RELATE BACK TO THE ANALYTICAL SUITE.*** **EXPLOSIVES:** full 8330 list for all 7 MRSs. **PROPELLANTS:** nitroglycerin, nitroguanidine, nitrocellulose for all 7 MRSs.	

		may not have been great. If it is potentially there,... it needs to be looked at. (For example... in an area where a munition may have contained mercury fulminate... while there may not be an analytical method for the mercury fulminate... you need to look for mercury.) Although I could fall back onto the typical RVAAP sampling scheme and RVAAP "full suite," I do agree with the following: firstly, we theoretically should have determined the overall nature and extent of MC at a MRS during the IRP part of the process (unless we are handling MC under the MMRP – there were some trade-offs during IAP meetings); and secondly, since we will be sampling in smaller areas around MEC based upon the geophysics results, it makes sense to tailor the MC that we look for. This only works on this project, because we have so much information. I went through the tables that Shaw compiled in the MC sampling rationale. I also looked at the constituents that were initially dropped out, due to the "load" factor issue. I also looked at the fact that we are dealing with	**SVOCs (not just PAHs):** ODA2, RQL. **PCBS:** ODA2, RQL. **WHITE PHOSPHOROUS:** ODA2, Atlas, RQL. **"MEC Metals" : [Al, Cd, Cu, Cr, Fe, Pb, Zn, Sb, Sr, Ba, Hg]:** ODA2, LNWBG, Atlas, RQL, FTF. **LL1 METALS:** Pb. **BLOCK D IGLOO:** Al, Fe, Pb, Sb. **NO VOCs.** **NO PESTICIDES.** ***NOTE TO SHAW: YOU WILL NEED TO ADD BACK IN ALL THE INFO YOU NEED FOR THE GEOCHEM STUDY. I DID NOT INCLUDE THEM IN THE ABOVE LIST, SO AS TO NOT POTENTIALLY CAUSE CONFUSION WHEN WE DISCUSS THIS.*** ***SEE 2 COMMENTS BELOW FOR RATIONALE FOR ADDING THE FOLLOWING TO THE ABOVE LIST: Cr (for all MRs except LL1).*** ***WE ALSO NEED TO DISCUSS***	

		MEC (explosives and propellants); and looked at how the MEC was disposed (ex., was it burned using an accelerant.... ex., a waste oil that may have also contained PCBs). I tried to tie this all together with the knowledge that we do not have 100% certainty on what went where; and kept in mind that the nature and extent issue with respect to MC should really have been captured in the IRP portion of the project (or will be in current and future work). Additionally, the proposal that because nitrocellulose does not have a tox value, that it should not be included was resolved years ago in the IRP program....It stays, as it is a PCOC. I am offering, in the next column, a compromise approach between the RVAAP typical MC sampling, and what is presented in this WP. I will need Shaw to go through the list and double-check that I have caught all the required metals (I developed a standard "MEC metal list" for all but 2 AOCs) mainly based upon what was already in the chart and in components. We can discuss much of the list generated in the next column, but please be advised that the State	***WHETHER OR NOT Cr6+ WILL BE ANALYZED.*** ***ALSO NEEDED FOR DISCUSSION: ANALYSIS FOR Mn., ALTHOUGH WE KNOW THAT THERE IS A LOT OF NATURALLY OCCURING Mn IN THE SOIL, IT CAN ALSO BE FOUND IN PROPELLANST, ENERGETICS, AND PYROTECHNICS (PEP) AND PAINTS/COATINGS. PLEASE BE READY TO JUSTIFY THE LACK OF Mn ANALYSIS.*** ***ALSO NEED TO DISCUSS POTENTIAL FOR ZIRCONIUM AT ODA2, ATLAS, AND LNWBG, BASED UPON PRESENCE IN HC SMOKE COMPOSITION.*** ***ALSO NEED TO DISCUSS WHETHER OR NOT SVOCs NEED TO BE ADDED TO ATLAS AND LNWBG AND WHETHER OR NOT WE HAVE CAPTURED THE NATURE AND EXTENT OF THE SVOC CONTAMINATION THERE FROM BOTH IRP AND MMRP SOURCES.***	

		will not agree to what is currently listed in the workplan. ***Additionally, please note that the following 2 comments in this section relate to the analyte list and resulted in (minimally) adding chromium to the analytical constituent list.***		
12	General	Addition requested.	Please describe in detail how the munitions list for each MRS was developed. This may result in additional analytes being added.	
13	General	With respect to the developed munitions list and the general uncertainty on all the munitions used/demilled at the facility, the locations of these, etc., Ohio has the following additional analyte request.	The information below is taken from the Army's EPCRA ("Right to Know") reporting handbook: **Chromium:** barium chromate is used in PEP compounds, and zinc chromate in casings. (Already added to the list above.) Additional justification for looking for SVOCs vs. PAHs also comes from Army EPCRA information regarding potential compounds in PEP, and possible byproducts of munitions detonation/destruction.	
14	General	I would think that once we get the analyte list nailed down and this workplan approved, we would be in a decent position to sit down and discuss how to carve LL1 out of this wp and get this MRS moving more quickly through the CERCLA process.	This may assist in turning the land over to the OHARNG more quickly.	

15	Figs 1-4, 1-5, 1-6, 1-7, 1-8	ODA2 maps/aerials.	a. Revise RRA to be smaller; b. Clarify whether current boundary includes kick-outs (can be a footnote or up where it says "MRS boundary"). c. (Already discussed via team emails is what to call the "RCRA unit.")	
16	1-17/3-5	This portion of the text discusses the 40 mm prototype test range and indicates that this is located (in majority) on the "RCRA unit."	Do not believe that this is correct. Please check and revise as needed. At any rate, the part that was not part of the "RCRA unit" needs to be investigated under this effort.	
17	Table 1-3	a. Cite the reference for the future land use in here. b. Indicate that it is the proposed future land use in the last column. c. Remove "multi-purpose training area" from the LL1 row.	Make changes as requested. FYI: We are in the process of a work-around for LL1, but until we get there, it is mounted training, no digging only.	
18	Fig 1-13	This is the boundary of the LNWBG MRS. In the following text, there is information that no geophysics will be done at this MRS, due to the influence of the landfill.	This needs to be re-thought/re-looked at. I believe that geophysics can be done at this MRS, since a bulk of the area is north of the landfill. This comment will re-appear.	
19	Fig 1-14	The figure indicates that it is the "former location of the shape-charge test pond."	The pond is still there. Please indicate as such. (Text makes it sound like it is gone.)	
20	1-27/ 7-10	The text references the OHARNG facilities that may be located within the ODA2 potential kick out areas.	Please cite the source of the information.	
21	1-27/14-19	The text indicates the future uses for the Block D igloo MRS and the area designated outside of it.	Please cite the source of the information.	

22	1-27/23	The text references a public works facility to be established at Atlas.	Please cite the source of the information. What is included in a public works facility?	
23	1-28/ 4	The text refers to a multi-purpose training area at LL1.	Remove from the text. Until we can figure out a work-around, this area is only cleaned up for mounted training/no digging.	
24	1-33/ 8	See general comment # 4 above re: MRS/MRA. Technically, we have 6 MRSs and a MRA that has a few MRSs contained within.	Discussion required on how we want to handle.	
25	1-33/ 8-16	Text addition requested.	Provide to the general reader an idea of what an overall MRS Priority ranking of 3-5 means.	
26	1-33/table 1-4	ODA2, Atlas Scrap Yard, and FTF have "N/A" listed under the HHE module rating.	Provide a footnote as to why there is no HHE for theses 3 MRSs.	
27	2-1/ 9	Text change requested.	Remove "for mitigation" from the current sentence.	
28	Schedule	FYI – not reviewed.	Will look at as part of every 2 week schedule calls.	
29	3-1/7	The text indicates that there will be no DGM for LL1 and LNWBG.	I can agree with LL1, given that we are only dealing with the propellant issue, but cannot agree with the LNWBG. I believe there are areas within the LNWBG that can be surveyed using geophysical techniques without undue influence from the landfill. Please re-think the approach to LNWBG and propose another option.	

30	3-1/9	The text indicates that MC sampling will occur when significant MEC is recovered.	How is "significant" defined? Can mean many things to many different people.	
31	3-1/29 - 31	At this point in the MMRP process, I can agree, in general, with not sampling the groundwater.	a. However, the argument regarding physical properties and mobilities of PCOCs/COCs needs to be toned down, because we have found explosives and metals in the groundwater. b. Note to Army: At some point, there needs to be a discussion of C-Block Quarry and an agreement on whether or not wells are warranted and under what program (IRP or MMRP).	
32	3-2/ 7	The text references "significant" soil contamination.	How is "significant" defined? Can mean many things to many different people.	
33	3-3/ 5-6	This portion of the text discusses the 40 mm prototype test range and indicates that this is located (in majority) on the "RCRA unit."	Do not believe that this is correct. Please check and revise as needed. At any rate, the part that was not part of the "RCRA unit" needs to be investigated under this effort.	
34	3-4/16	The text indicates that 3 MD items were identified at the LNWBG during the MMRP SI.	Having been out there in times other than the SI, I know I have seen more than 3 pieces of MD. Please check with Mark Patterson to see if his recollection is the same.	
35	3-4/34-35	The text indicates that the OHARNG would have access to MEC at LNWBG during authorized use.	That is currently true for other receptors: for example, USACE, Army, Ohio EPA. Please broaden.	
36	3-6/2-5	Acreage for ODA2 and RQL do not match what is in the MMRP SI.	Please confirm and use correct acreage.	

37	3-6/21	Acreage for D Block doesn't match acreage on pg 3-6 line 3.	Please confirm and use correct acreage.	
38	Fig 3-1	Change requested.	Add a footnote to the map describing areas 1 and 2 buffer, i.e., what are they based on? (Also: it is George Road.)	
39	3-9/1-3	The text indirectly indicates that there will be no DGM for LL1 and LNWBG.	I can agree with LL1, given that we are only dealing with the propellant issue, but cannot agree with the LNWBG. I believe there are areas within the LNWBG that can be surveyed using geophysical techniques without undue influence from the landfill. Please re-think the approach to LNWBG and propose another option.	
40	3-9/4	The text describes 100' x 100' geophysical grids.	Please provide information as to how the grid size was determined.	
41	3-9/12-13	The text references the total acreage for DGM at the 7 AOCs.	NOTE: This may change based upon LNWBG.	
42	3-9/27	Clarification requested.	Please clarify that the trenches that are to be completed perpendicular to selected trenches is based upon the historical aerial photos, which delineate orientation as well as the geophysics.	
43	Fig 3-5	ODA2 maps/aerials.	a. Revise RRA to be smaller; b. Clarify whether current boundary includes kick-outs (can be a footnote or up where it says MRS boundary); c. (Already discussed via team emails is what to call the "RCRA	

			unit.") d. Minimally a portion of the 40 mm prototype test range will need to be investigated... revise to indicate this.	
44	Section 3.3.1 on pg s 3-13 and 3-14	Clarification requested.	Please clarify why the GPO that was constructed in the fuze and booster area will not be used for this effort.	
45	3-18/35 to 3-19/7	This section of the text discusses what to do in the event of an electrical storm. The HASP may have more information in it,... but what is in here makes me a little uncomfortable from an H&S perspective.	a. Cite Shaw's SOP. b. Any lightning detectors to be used? (Right now just going on observation.) c. You need to minimally stand down for an additional 30 minutes after last lightning strike or thunderclap.	
46	3-20/2	Define third order horizontal accuracy.	Add to text. (This also appears on 3-40/8,... but only needs to be explained once.)	
47	3-20/8	Define 1D transects and 2D grids.	Add to text.	
48	3-20/35-36	The text indicates that the EM-31 will be used at ODA2.	Describe equipment selection criteria/rationale in revised text.	
49	3-21/10-21	The text indicates that the EM-61 MK2 will be used at Atlas, RQL and FTF.	Describe equipment selection criteria/rationale in revised text. Also describe why 1D and 2D were chosen for particular MRSs.	
50	3-22/32-37	The text indicates that DGM data will be collected at 4 MRSs and analog at 2 MRS.	Describe why particular MRSs have DGM vs. analog. Also... this will need revision when LNWBG is added.	
51	3-23/ Table 3-2	This table describes the DGM effort.	Please provide the basis for sensor type, positioning, methodology, acreage and % coverage.	

52	3-24/8	The text references a 10.5 acre DGM survey area at ODA2.	Please confirm acreage.	
53	3-24/21-22	Clarification requested.	Please clarify that the trenches that are to be completed perpendicular to selected trenches is based upon the historical aerial photos, which delineate orientation as well as the geophysics.	
54	3-24/31 to 3-25/11	This is the section regarding the FTF.	There isn't any discussion of the pond. Please add in.	
55	Pgs 3-24 to 3-25	This section talks about the DGM efforts at ODA2, FTF and RQL.	On page 3-22/33, there is a discussion that DGM will be used at 4 MRSs, but on these pages, only 3 MRSs are discussed. (Atlas is missing from the individual discussions.)	
56	3-25/16-17	UXO Estimator was referenced.	Please reference how and when UXO Estimator is used, and at what MRSs.	
57	3-25/27	The text references an accuracy of < 20%.	Please confirm if this is an "industry" standard.	
58	Figs 3-8 and 3-9/pg 3-30	Clarification requested.	Are the values presented in these figures just examples, or what is to be used on this project? And, if they are project specific, please confirm that they are in line with "industry" standard/protocol.	
59	3-31/2-3	The text references the lane spacing, blanking distance and starting coarse grid parameters.	Please confirm that they are in line with "industry" standards/protocols.	
60	Fig 3-10/pg 3-31	Clarification requested.	Are the values presented in this figure just an example, or what is to be used on this project? And, if they are project specific, please confirm that they are in line with "industry"	

			standard/protocol.	
61	3-36/17 to 3/37/38	Clarification on the performance metrics delineated in this section of the text.	Please confirm that they are in line with "industry" standards/protocols.	
62	3-36/23-25	This section of the text that discusses areas that exceed the metric is unclear.	Please provide a clarification.	
63	3-38/18-20	The text discusses how to proceed if anomaly selection criteria are modified.	The USACE and Ohio EPA need to be notified that this is a possibility, review the proposed change(s) in a field change order, and subsequently approve the change(s), prior to the changes being made.	
64	3-39/2	The text discusses backfilling the excavation.	Clarification requested: Is this in an anomaly area? Or in a perceived clean area? Normally, in an area where there is excavation done to obtain samples, etc., the materials are drummed, sampled and shipped off-site as IDW. This also appears to contradict section 3.7.	
65	3-39/9	Addition requested.	Add Ohio EPA to USACE in terms of receiving the final DGM data/maps.	
66	3-42/4-5	The text indicates that ODA2 and Block D igloo will have mag and dig surveys.	Clarify why only these 2 MRSs. Are these the kickout and "fan" are respectively for these 2 MRSs?	
67	3-42/11	This section discusses backfilling holes with the native soil. Technically this is IDW.	This needs to be discussed. For very small diameter and shallow step probe holes, this isn't an issue. However, in larger diameter borings, excavations and holes deeper than 6 inches... we need to discuss further. This also appears to contradict section 3.7.	

68	Table 3-3/ 3-45	Footnotes on the table.	Please clarify which footnote goes with which entry.	
69	Sections 3.5.11 to 3.5.12.4	This section discusses MEC storage, demolition, post demo operations, etc.	Please refer to the general comment # 7 detailed above regarding this issue.	
70	3-54/7-8	Changes requested.	a. Make sure surface water is tested for TAL metals. b. Surface water samples should not be filtered.	
71	3-54/12	FTF surface water comparisons prior to discharge.	Also, compare to background and Region 9.	
72	Section 3.10.1/3-55/6-26	Clarification.	Please note that the geochemical evaluation is still out for review and that there have been no decisions made as to if/how it will be utilized. Soil is even further behind in the process. We have no objections to it being conducted, but please indicate in the revised text that Ohio EPA has not yet bought off on this and how/if it will be used.	
73	3-56/31 thru 3-57/35	The text indicates that a number of exceptions to the approved position paper are being noted, based upon differences between the IRP and MMRP programs.	I don't think that these are exceptions. I think that it is mirroring the position paper. Please check and change line 31, if needed.	
74	Section 5.0, pgs 5-1 to 5-4	It was confirmed with the Facility Manager that MEC can be stored on site, as well as donor charges.	Please revise applicable sections as necessary.	
75	6-1	The ESP is referenced.	Please provide to Ohio EPA. Normally, we review and comment on the ESSs and ESPs for all projects at RVAAP.	

76	Section 7.0	The 2001INRMP is referenced in many places throughout this section.	Please replace this information with information from the latest (2008) INRMP provided.	
77	7-6/4-6	This section of the text is contradictory. In line 4, it states that the CRM or Range Control will collect and secure any artifacts or remains; yet, line 5 indicates that any human remains are not to be disturbed.	Please rectify the disconnect.	
78	7-6/24-25	The text indicates that there are several dumps/landfills at the facility, but none located on the MRSs.	This is misleading, as RQL is located contiguous to the quarry bottom being investigated under the MMRP and LNWBG is also contiguous to a MRS being investigated. Please revise for clarity.	
79	7-8/7-12	Clarification.	In the event that you would disturb the ground surface to the point where an NOI and a permit would be required… you would not actually need to obtain a permit, but you would need to meet the substantive requirements of the permit. (If we get to this point, we will go into detail on what is needed).	
80	11-1	Additions requested.	Add the DFFO and MEC notification procedure to the reference list.	
81	App B	FYI.	Not reviewed.	
	APP C	This section contained the APP, JSA, dive plans, etc.	Comments from Ohio PA were minor and given to Shaw for changes on 08/31/10. Overall, very well done.	
82	APP D	SEE GENERAL COMMENT # 1 ABOVE. THIS WAS VERY DIFFICULT TO REVIEW.	DISCUSSION ON USE OF UNIFORM QAPP REQUIRED.	

83	APP D	GENERAL COMMENT. NUMEROUS WORKSHEETS.	CROSS REFERENCE GENERAL COMMENTS # 11, 12, AND 13 ABOVE FOR ALMOST ALL OF THE SAP WORKSHEETS IN THIS SECTION. (MANY OF THESE WORKSHEETS DISCUSS ANALYTE SELECTION.) REVISE ALL APPLICABLE WORKSHEETS AS NEEDED.	
84	APP D	GENERAL COMMENT. NUMEROUS WORKSHEETS.	CROSS-REFERENCE GENERAL COMMENT # 8 ABOVE RE: GEOCHEM STUDY. NO CHANGES NEEDED TO THE TEXT (EXCEPT FOR BELOW), BUT BE AWARE THAT THE RESULTS MAY/MAY NOT BE USED IN THIS STUDY. THE ONLY PLACE WHERE CHANGES ARE NEEDED ARE ANY SAP WORKSHEETS, WHERE IT INDICATES UNDER PROJECT DECISION CONDITIONS THAT THE RESULTS WILL BE COMPARED TO BACKGROUND OR RESULTS OF THE GEOCHEM STUDY. (IT HAS TO BE "AND" NOT "OR,".... THERE ARE ALREADY DECISION RULES IN PLACE AT RVAAP THAT NEED TO BE FOLLOWED.)	
85	APP D	GENERAL COMMENT. NUMEROUS WORKSHEETS.	At several places in the text, it indicates that any additional sampling that may be done will be done during remediation. Perhaps the text meant that confirmation sampling would be done to evaluate	

			the effectiveness of any remediation… that is correct. However, any additional sampling, if it is with respect to nature and extent, has to be done during an additional RI, or if a minimal amount, during the FS. Make changes to all applicable worksheets.	
86	APP D	GENERAL COMMENT. NUMEROUS WORKSHEETS.	On a number of the worksheets, there is a footnote to tables that indicates that SOPS (etc.) are subject to revision and updates during duration of the project. Please revise the footnotes to indicate that any proposed changes must be run though and approved by USACE and Ohio EPA, and documented in an approved Field Change Order, prior to implementation of any change.	
87	APP D	GENERAL COMMENT. NUMEROUS WORKSHEETS.	Ensure that the laboratory methods cited on numerous worksheets mirror the methods used in the IRP program and in the MMRP TCRA projects. If they do, no changes to the worksheets are required.	
88	APP D	GENERAL COMMENT. NUMEROUS WORKSHEETS.	On several worksheets there are columns whose headers state: "Minimum Soil Project Action Limit" and "Minimum Sediment Action Limit." Please indicate what these represent. Discussion may be warranted, based upon the response.	

89	APP D	GENERAL COMMENT. NUMEROUS WORKSHEETS.	The issue of not using a puck mill to grind metals samples appears on several worksheets. Please provide supporting data mentioned at the TPP meeting to justify this position so that a determination as to grind/not grind can be made. See general comment #9 above.	
90	App D, pg 21	Text revision requested.	Under LL1, remove "and a multi-purpose training area."	
91	App D, pg 47	The text in this section discusses the potential use of the SI data in this effort.	Please discuss any potential limitations on using the data, since, to my recollection, the explosives data was collected using a triangular (limited wagon wheel) methodology.	
92	App D, pg 52	In data review tasks.	Please confirm that there will minimally be a 10% independent 3rd party validation of obtained data.	
93	App D, pg 68	In the surface sampling section, there is an indication that the M samples will be collected from a depth of 0-6" BGS. At RVAAP, surface soil is defined as 0-12" BGS.	Please clarify whether or not there will be any difficulty in getting the two data sets to mesh based upon the varying depths.	
94	App D, pg 71	This portion of the text discusses trenching operations.	We may need more discussion on this. But, minimally, the excavated soil must be placed, in one foot lifts, on 6 mil plastic with E&S controls as needed. Trenching shall be terminated upon reaching groundwater. The soil can be replaced back into the trench in reverse order from which it was excavated. However, no solid or hazardous waste should be placed back into the trench and, when	

			initially excavated, should be segregated from visually clean soil and placed in drums/roll-offs for testing and disposal. Visibly stained soil should also be segregated and drummed for testing and disposal. No MEC/MD will be replaced back into the excavation. If any corrective measures are required after the completion of the filling in of the trench, immediate action should be taken by the contractor to abate the problem.	
95	App D, pg 71	Surface water samples are not filtered.	Please make corrections in 2 places on this page. This also appears in several follow on SAP pages in WS # 18, WS #19.	
96	App D, pg 74	This section discusses the decon procedure for non-dedicated equipment and that it will be conducted at each MRS.	No issue with the procedure itself, but consider coordinating with other contractors and conducting decon at building 1036.	
97	App D, pg 80	This page indicates that the samples obtained at LL1 for explosives will be ground using a mortar and pestle.	In most other MRSs (I believe) a puck mill is to be used. Please provide an explanation for the difference in methodology.	
98	App D, pg 81	Metals samples are also traditionally cooled to 4 deg C +/- 2 deg C.	Please revise table.	
99	App D, pgs 86-87	This section of WS#20 discusses proposed sampling numbers at LNWBG. It is my guess that these sample numbers were selected because it was believed that no geophysics would be conducted at this MRS. I believe that	Further discussion is warranted.	

		geophysics may be conducted at this MRS, based upon the location of the known landfill relative to the orientation/size of the MRS .		
100	App D, pgs 89-90	This section presents the sampling rationale for IDW.	Please note that the adequacy of the numbers and analytes will be made between the generator and the disposal facility. The generator is required to be in compliance with all applicable, State, Federal, and local rules, laws and regulations.	
101	App D, pgs 102-103	Addition requested.	At the appropriate location, add in that a copy of the waybill is a part of the COC trail. These should be added to the project file and copies put in the RI report.	
102	App D, pg 109	Clarification requested.	Clarify if the selected lab notes the condition in which the samples arrived (ex., broken bottles, etc.).	
103	App D, pg 141	If the use of a backup lab is required, please notify and discuss with USACE and Ohio EPA before that occurs.	No change needed to footnote # 1.	
104	ATT D	Having this attached to the wp really helped. It is basically a nice summary of the information that is contained in the worksheets in App D.	Thanks!	
105	**ATT D**	**GENERAL COMMENT.**	THIS ENTIRE ATTACHMENT WILL NEED TO BE RE-WRITTEN BASED UPON GENERAL COMMENTS # 8 (GEOCHEM EVAL); # 9 (PUCK MILL GRINDING FOR METALS?); # 11 (ANALYTE LIST); # 12 (SOURCE OF MUNITIONS LIST); # 13 (ANALYTE LIST); # 18/29/39/100	

			(LNWBG GEOPHYSICS/SAMPLING); # 14 (PUTTING LL1 ON A FAST TRACK... INVESTIGATION/SAMPLING SCHEME CAN BE DISCSSED FURTHER AS THOSE RELEVANT DOCUMENTS ARE PREPARED.)	
106	ATT D	Text change requested in several places: D.F-31/18; D.F/33-10; D.F-35/21; D.F-39/8; D.F-41/38; D.F-44/3; D.F-47/1.	Change "input" to "approval."	
107	ATT D, D.F-47/48	Confirmation requested.	Confirm that the hierarchy of soil and sediment screening values is currently what is utilized.	
108	App E	Revision requested.	On pg 2 of 2 of Field data Sheet (E-6), please delete specific time entries.	
109	App E	Clarification requested.	On E-9, please clarify what is meant by NAS.	
110	App E	Addition requested.	Add an item to the checklist that indicates that Ohio EPA's MEC notification procedure is in place.	

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

March 11, 2010

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL PMP - 6 AOCs (PBA05)

CERTIFIED MAIL
7008 3230 0003 5419 7457

Mr. Mark Patterson
Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the document entitled: "Final Project Management Plan for the Performance-Based Acquisition of Six Environmental Areas of Concern at the Ravenna Army Ammunition Plant, Ravenna, Ohio – Revision 1." This document, dated and received at Ohio EPA on March 1, 2010, was prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by SAIC Engineering of Ohio, Inc., under contract number GS-10F-0076J, delivery order number W912QR-05-F-0033. Ohio EPA approves this document, pending any additional comments from the U.S. Army or Ohio Army National Guard.

If you have any questions concerning this correspondence, please do not hesitate to contact me at (330) 963-1148.

Sincerely,

Michael Eberle
for

Todd R. Fisher
Project Coordinator
Division of Emergency and Remedial Response

TRF/kss

cc: Mark Krivansky, AEC
Katie Elgin, OHARNG RTLS
Nat Peters, USACE Louisville
Jed Thomas, SAIC, Twinsburg
Eileen Mohr, Ohio EPA, NEDO, DERR
Tia Rutledge, SAIC, Twinsburg
LTC Ed Meade, OHARNG
Glen Beckham, USACE Louisville
Tom Chanda, USACE Louisville
Kevin Jago, SAIC, Oakridge
Derek Kinder, USACE Louisville

ec: Mike Eberle, Ohio EPA, NEDO, DERR

RECEIVED
22 March 10

Environmental
Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

October 5, 2010

RE: RVAAP – SITE MG - 267000859059
RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
2010 RVAAP SPILL CONTINGENCY PLAN

Mr. James McGee
Vista Sciences, Inc.
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL

Dear Mr. McGee:

The Ohio EPA Northeast District Office (NEDO) has been notified by your company that a 2010 Installation Spill Contingency Plan (revised) is being developed for the Ravenna Army Ammunition Plant (RVAAP). Our office no longer handles Spill Prevention, Control and Countermeasure Plans (SPCCs). Any technical questions regarding your Spill Contingency plan content should be directed to Dr. Barbara Carr (carr.barbara@epa.gov) or call (312) 886-7187 for more information. In the event of a release, Ohio EPA Emergency Response (ER) Personnel will respond as necessary, based on the circumstances of the release. The Ohio EPA Spill and Release Hotline number is 1-800-282-9378.

If you have any questions regarding this correspondence, please do not hesitate to contact me at (330) 963-1148

Sincerely,

Todd R. Fisher
Project Coordinator
Division of Emergency and Remedial Response
tfisher@epa.ohio.gov

TRF:dms

cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Justin Burke, Ohio EPA, DERR, CO
Mark Patterson, RVAAP
Debbie Dillon, Vista Sciences, Inc.

ec: Mike Eberle, Ohio EPA, DERR, NEDO

Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1924

330 | 963 1200
330 | 487 0769 (fax)
www epa.ohio.gov