

Ohio Environmental Protection Agency (OEPA)

And

Ravenna Army Ammunition Plant (RVAAP)

2003 Correspondences



June 20, 2003

RE: RAVENNA ARMY AMMUNITION
PLANT DRAFT, SCOPE OF WORK
REMEDIAL INVESTIGATION AT RQL
PORTAGE/TRUMBULL COUNTIES

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

Dear Mr. Patterson:

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, Scope of Work for the performance of a Phase I Remedial Investigation At the Ramsdell Quarry Landfill (RVAAP-01), Ravenna Army Ammunition Plant, Ravenna, OH (May 2003)." The document was prepared by United States Army Corps of Engineers, Louisville District, for the U.S. Army Joint Munitions Command (JMC) under Contract No. DAAA09-02C-0070 and received by Ohio EPA on May 16, 2003. The following comments were generated from the review:

- Comment #1: Section 1.2 Ramsdell Quarry Landfill, page 2, 2nd paragraph, 6th and 7th sentences - Please change "n" to "in." Please capitalize the word "state." Please close parentheses when citing regulations "(OAC 3745-27-10)."
- Comment #2: Section 1.2.1 Previous Environmental Investigations, page 3. The last sentence in the first paragraph "Samples exhibited" is incomplete. Please complete the sentence.
- Comment #3: Section 1.2.1 Previous Environmental Investigations, page 3, 3rd paragraph - Total organic carbon should be abbreviated "TOC" and the abbreviation "COD" should be defined as "carbon oxygen demand."
- Comment #4: Section 1.2.1 Previous Environmental Investigations, page 3, last paragraph - The text states that "samples were obtained during September 2001 and subjected to TAL metals and hexavalent chromium analysis." The results should be summarized in this paragraph. What did they find?

Mr. Mark Patterson
June 20, 2003
Page 2

- Comment #5: Section 1.4.1 General Guidance for Remedial Investigations, page 4, bulleted list - Please add "Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring, Ohio EPA, February 1995."
- Comment #6: Section 1.4.2 RVAAP Team Coordination, page 4 - Please add U.S. Army Joint Munitions Command (JMC).
- Comment #7: Section 1.4.4 Project Objectives, page 4, last paragraph - Please reference Chapter 9 of the "Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring" when dealing with monitoring well abandonment.
- Comment #8: Section 1.4.4 Project Objectives, page 5, 1st paragraph - The text refers to the ecological risk assessment and the human health risk work plans as being finalized by the end of April 2003. The ecological risk assessment work plan is final, however, the human health risk assessment work plan is not. Please make the appropriate changes.
- Comment #9: Section 1.4.4.2 Human Health and Ecological Risk Characterization, page 5, 1st paragraph - Again, the text refers to the Human Health Risk Assessment Work Plans as being finalized by April 2003. As of the date of this letter, the Human Health Risk Assessment Work Plan is not final. Please make the appropriate changes.
- Comment #10: Section 1.4.4.2 Human Health and Ecological Risk Characterization, page 5, 2nd paragraph - Please indicate that the Ecological Risk Assessment Work Plan is final.
- Comment #11: Section 1.4.4.8 Historical Document Reproduction, page 6 - To be consistent with the rest of the document, "Ravenna AAP" should be changed to "RVAAP."
- Comment #12: Section 1.6.3 Payment Monitoring Schedule, page 7 - The text states that "payment will proceed according to Table 2." Table 2 is incomplete. Please use "To Be Determined" or "TBD" in areas of the Table that are blank.
- Comment #13: Section 5.1 Scope, page 14, 2nd paragraph - The text states that the "Government shall be responsible for the location, confirmation, and disposition of any ordnance or explosive waste should material be encountered, and the Task Order modified to reflect necessary changes in field activity." Please further define "Government."

Mr. Mark Patterson
June 20, 2003
Page 3

- Comment #14: Section 6.2 Guidance on Disposition of IDW, page 14, 3rd paragraph - Please add "date" in parentheses after "labeled."
- Comment #15: Section 6.2 Guidance on Disposition of IDW, page 15, 1st paragraph - How will coring water be recovered?
- Comment #16: TABLE 1 Sample Analytical Requirements - Please add a column showing Nitrocellulose and Method 9086. Method 8330 does not analyze for Nitrocellulose.
- Comment #17: Figure 1-3 Ramsdell Quarry Site Map and Ground Water Investigation Sampling Locations - Please include proposed well locations in this figure.

If you have any questions regarding these comments, please do not hesitate to contact me at (330) 963-1148 or via e-mail at Todd.Fisher@epa.state.oh.us.

Sincerely,



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

TRF/ams

ec: Mike Eberle, Ohio EPA, NEDO, DERR

cc: Bonnie Buthker, Ohio EPA, SWDO, OFFO
Eileen Mohr, Ohio EPA, NEDO, DERR
Paul Zorko, USACE, Louisville



October 22, 2003

RE: COMMENTS ON RQL PHASE I RI
SAP ADDENDUM NO 1. AND SSHP
RAVENNA ARMY AMMUNITION PLANT
PORTAGE AND TRUMBULL COUNTIES

Mr. Mark Patterson
Environmental Program Manager
Ravenna Army Ammunition Plant
Building 1037
8451 State Route 5
Ravenna, Ohio 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 **Ramsdell Quarry Landfill (RQL)** Phase I RI Sampling and Analysis Plan (SAP) Addendum No. 1 and the RQL Phase I RI Site Safety and Health Plan. These documents, dated September 2003 and received at Ohio EPA on September 15, 2003, were prepared for the U.S. Army Corps of Engineers, Louisville District, by SAIC, Inc. under Contract Number F44650-99-D-0007 and Delivery Order CY11. The following comments were generated from Ohio EPA's review of these documents:

Sampling and Analysis Plan Addendum No. 1

- Comment # 1: Section 3.0, Scope and Objectives, page 3-1 - Please include monitoring well abandonment (of the original 5 RQLs wells) in this section.
- Comment # 2: Section 3.5, Ohio Level II Ecological Risk Assessment, page 3-7 - The text states that "terrain slope, vegetation patterns, and disturbance history at Ramsdell Quarry are very different from those observed at WBG, only the plant protection levels from WBG will be extrapolated as ecological screening values at Ramsdell Quarry." The WBG Ecotruthing report has yet to be finalized, and any extrapolation of PPLs, as ecological screening values between AOCs, must first be discussed and then mutually agreed upon by USACE, RVAAP, and Ohio EPA.
- Comment # 3: Section 4.1.6, Field Quality Control Sampling Procedures, page 4-7 - The text states that ground water split samples will be collected and submitted to the USACE contract laboratory (GPL - Gaithersburg) for independent analysis. SAIC is also set up to send their samples to GPL in Gaithersburg, MD. This is the same and only laboratory that Ohio EPA is contracted with to analyze split samples. Will USACE be collecting the split samples and sending them to another USACE approved contract laboratory? Should the splits and the regular samples go to the same laboratory?
- Comment # 4: Section 4.3.1.3, Field Quality Control Sampling Procedures, 4-9 - The text states that split samples will be collected at a frequency of 10% for each matrix



Mr. Mark Patterson
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Page 2

and that these samples will be submitted to the USACE contract laboratory (STL North Canton) for independent analysis. This contradicts with the text in Section 4.1.6, which indicates that splits will go to (GPL-Gaithersburg). Please resolve this discrepancy and make the appropriate changes to the text.

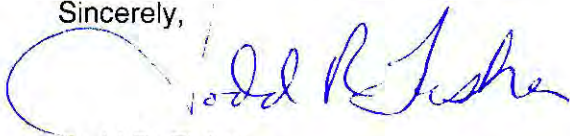
Site Safety and Health Plan

Even though Ohio EPA is not obligated to review and comment on health and safety plans, as a courtesy, we have reviewed the SSHP and have the following minor comments:

- Comment # 5: Table 2-1, Hazards Inventory - There still exists a potential drowning hazard at this AOC. Please check "yes" under "drowning hazard."
- Comment # 6: There are many references back to the Facility Wide Safety and Health Plan (FSHP). Since this is an addendum to the FSHP, please make sure that all sampling parties have a copy of the FSHP in the field (i.e., Addendum has no map to the local hospital).
- Comment # 7: Section 4.0, Training, page 4-1 - It has been brought to Ohio EPA's attention that the American Red Cross may have suspended their 43-HR First Responder Training Course. Since this was a RVAAP requirement for at least one person to be First Responder certified, the FSHP may need to be updated in the future to reflect this change.

If you have any questions or concerns 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, DERR, NEDO
Bonnie Buthker, Ohio EPA, OFFO, SWDO
Kevin Jago, SAIC, Oak Ridge
Paul Zorko, USACE, Louisville
- ec: Mike Eberle, Ohio EPA, DERR, NEDO



October 22, 2003

RE: COMMENTS ON **EBG** PHASE II RI
SAP ADDENDUM NO 1. AND SSHP
RAVENNA ARMY AMMUNITION PLANT
PORTAGE AND TRUMBULL COUNTIES

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 Erie Burning Grounds (EBG) Phase II RI Sampling and Analysis Plan (SAP) Addendum No. 1 and the EBG Phase II RI Site Safety and Health Plan. These documents, dated September 2003 and received at Ohio EPA on September 15, 2003, were prepared for the U.S. Army Corps of Engineers, Louisville District, by SAIC, Inc. under Contract Number F44650-99-D-0007 and Delivery Order CY10. The following comments were generated from Ohio EPA's review of these documents:

Sampling and Analysis Plan Addendum No. 1

- Comment # 1: Section 1.2, page 1-5, third paragraph, last sentence - What is meant by "IM lbs?" Please make the appropriate changes.
- Comment # 2: Table 2-1, Project Schedule for EBG Phase II RI - Please remove "Are we intentionally publishing a schedule that we are behind on?" from under the Table heading.
- Comment # 3: Section 3.1, Phase II Remedial Investigation Scope and Objectives, page 3-1, third paragraph (under bulleted section) - Please remove this entire paragraph, since "GFPR" and "GIS services" are not pertinent to the scope of this SAP.
- Comment # 4: Section 3.5, Ohio Level II Ecological Risk Assessment, page 3-4 - The text states that "because surface water conveyances, vegetation patterns, and disturbance history at EBG are very different from those observed at WBG reference site, only the plant protection levels from

WBG will be extrapolated as ecological screening values at EBG." The WBG Ecotruthing report has yet to be finalized, and any extrapolation of PPLs, as ecological screening values between AOCs, must first be discussed and then mutually agreed upon by USACE, RVAAP, and Ohio EPA.

- Comment # 5: Figure 4-1, Proposed Groundwater Monitoring Well Locations and Existing Proposed Surface Soil Locations, EBG Phase II RI - Please change the figure description to read, "Existing and Proposed Ground Water Monitoring Well and Surface Soil Sampling Locations." Also, it may be necessary to modify the monitoring well locations in the field, depending on drilling rig access issues.
- Comment # 6: Section 4.3.1.5, Field QC sampling procedures, page 4-14 - The text states that split samples will be collected at a frequency of 10% for each matrix and that these samples will be submitted to the USACE contract laboratory for independent analysis. SAIC is set up to send their samples to GPL in Gaithersburg, MD. This is the same and only laboratory that Ohio EPA is contracted with to analyze split samples. Will USACE be collecting the split samples and sending them to another USACE approved contract laboratory? Also, the text refers back to Section 4.2.1.5. Please indicate that Section 4.2.1.5 is found in the FSAP and not in this SAP.
- Comment # 7: Section 4.4.2.5, Field QC sampling procedures, page 4-18 - Please see comment # 6.

Site Safety and Health Plan

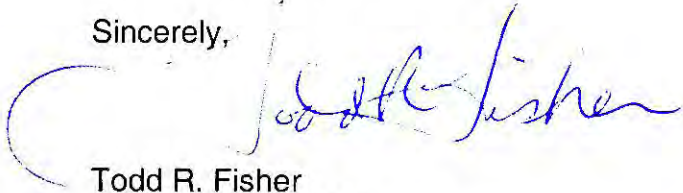
Even though Ohio EPA is not obligated to review and comment on health and safety plans, as a courtesy, we have reviewed the SSHP and have the following minor comments:

- Comment # 8: There are many references back to the Facility Wide Safety and Health Plan (FSHP). Since this is an addendum to the FSHP, please make sure that all sampling parties have a copy of the FSHP in the field (i.e., Addendum has no map to the local hospital).
- Comment # 9: Section 4.0, Training, page 4-1 - It has been brought to Ohio EPA's attention that the American Red Cross may have suspended their 43-HR First Responder Training Course. Since this was a RVAAP requirement for at least one person to be First Responder certified, the FSHP may need to be updated in the future to reflect this change.

Mr. Mark Patterson
October 22, 2003
Page 3

If you have any questions or concerns 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, DERR, NEDO
Bonnie Buthker, Ohio EPA, OFFO, SWDO
Kevin Jago, SAIC, Oak Ridge
Paul Zorko, USACE, Louisville

ec: Mike Eberle, Ohio EPA, DERR, NEDO



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Bob Taft, Governor
Christopher Jones, Director

February 7, 2003

Mark Patterson
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

RE: RAVENNA ARMY AMMUNITION PLANT (OH5-210-020-730); PORTAGE COUNTY; OPEN
DETONATION AREA 2: LABORATORY RESPONSE TO NOVEMBER 5, 2002, OHIO EPA
LETTER; DATED NOVEMBER 20, 2002; RECEIVED NOVEMBER 21, 2002; RESPONSE
TO COMMENT 1, NOVEMBER 5, 2002, OHIO EPA LETTER; DATED NOVEMBER 20,
2002; RECEIVED NOVEMBER 25, 2002; RESPONSE TO REMAINDER OF COMMENTS
INCLUDED IN THE NOVEMBER 5, 2002, OHIO EPA LETTER; DATED DECEMBER 3,
2002; RECEIVED DECEMBER 6, 2002; AND REVISIONS TO ARMY'S DECEMBER 3,
2002, RESPONSE LETTER; DATED DECEMBER 16, 2002; RECEIVED DECEMBER 19,
2002.

Dear Mr. Patterson:

The above documents have been submitted by the Ravenna Army Ammunition Plant (RVAAP), located at 8451 State Route 5, Ravenna, Ohio, to respond to comments included in a November 5, 2002, Ohio EPA letter. Ground water at the site is monitored in accordance with OAC 3745-54-90 through 3745-55-01.

All comments included in the November 5, 2003, Ohio EPA letter have been adequately addressed. No further action is required at this time concerning these comments.

If you should have any questions regarding this matter, please feel free to contact me at (330) 963-1189.

Sincerely,

Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddw

cc: Jeremy Carroll, DHWM, CO
ec: Natalie Oryshkewych, DHWM, NEDO
Diane Kurlich, DDAGW, NEDO
Eileen Mohr, DERR, NEDO
Todd Fisher, DERR, NEDO



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Bob Taft, Governor
Christopher Jones, Director

February 10, 2003

Mark Patterson
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

RE: RAVENNA ARMY AMMUNITION PLANT (OH5-210-020-730); PORTAGE COUNTY; SEPTEMBER 24, 2002, GROUND WATER SAMPLING EVENT, OPEN DETONATION AREA 2 (ODA-2); DATED NOVEMBER 27, 2002; RECEIVED DECEMBER 6, 2002

Dear Mr. Patterson:

The above report has been submitted by the Ravenna Army Ammunition Plant (RVAAP), located at 8451 State Route 5, Ravenna, Ohio, to document the ground water sampling event that was conducted at ODA-2 on September 24, 2002. Ground water at the site is monitored in accordance with OAC 3745-54-90 through 3745-55-01. Ohio EPA has the following comments regarding the document.

COMMENTS:

1. The text of the report indicates that the following statistically significant differences were observed between the concentrations of constituents in the upgradient well DET-1B and the cited downgradient wells:

arsenic in DET-2 (10 ug/L) and DET-3 (9.8 ug/L);
specific conductance in DET-4 (820 umhos/cm);
2. The compound HMX was detected at an estimated concentration of 0.12 ug/L in the field blank. This compound was not detected in any of the samples obtained from the site monitoring wells.
3. The second page of the chain-of-custody form is missing from this report and should be submitted for review and insertion into the report.
4. On page one of the laboratory case narrative, it states that the "sample trip blank was archived." On page 1 of the chain-of-custody it states, "trip blank included in cooler." However, there are no laboratory data sheets for the analysis of a trip blank. This should be clarified.

MARK PATTERSON
FEBRUARY 10, 2003
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CONCLUSIONS:

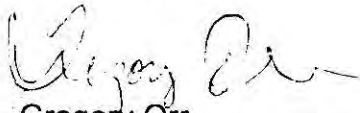
The second page of the chain-of-custody form should be submitted for review and insertion into the report.

The issues documented in comment 4 regarding the trip blank should be clarified.

Please submit the requested documentation within thirty (30) days upon receipt of this letter.

If you should have any questions regarding this matter, please feel free to contact me at (330) 963-1189.

Sincerely,



Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddw

cc: Jeremy Carroll, DHWM, CO
ec: Natalie Oryshkewych, DHWM, NEDO
Diane Kurlich, DDAGW, NEDO
Eileen Mohr, DERR, NEDO
Todd Fisher, DERR, NEDO



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Bob Taft, Governor
Christopher Jones, Director

April 1, 2003

Mark Patterson
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

RE: RAVENNA ARMY AMMUNITION PLANT (OH5-210-020-730), PORTAGE COUNTY, REVISED COMPLIANCE MONITORING PROGRAM FOR THE OPEN DEMOLITION AREA #2, DATED JANUARY 2003.

Dear Mr. Patterson:

The Open Demolition Area # 2 (OD2) at the Ravenna Army Ammunition Plant (RVAAP) has entered the compliance phase of ground water monitoring (OAC 3745-54-99) based on confirmed statistically significant differences between the concentrations of arsenic and specific conductance detected in the upgradient well (DET-1B) and downgradient wells DET-4 and DET-2, respectively. The uppermost aquifer at the site is found at the interface between glacial tills composed of clayey silt and the underlying, Pennsylvanian age, shale bedrock. In July 2001, the facility submitted a compliance ground water monitoring program plan (CMP) to the Ohio EPA for review. An October 12, 2001, letter from the Ohio EPA to the facility, documented deficiencies in the proposed plan. The current submittal is in response to the October 12, 2001, Ohio EPA comment letter. Ohio EPA has reviewed the revised proposed compliance monitoring plan (CMP) and has the following comments.

COMMENTS:

1. The Compliance Monitoring Plan, with the following modifications incorporated, should be implemented immediately at OD2.
 - a. In Section 2.1.2, a concentration limit for tetryl based upon background or risk should be established by the Army and submitted, along with supporting documentation, for Ohio EPA review, approval, and insertion into the CMP.
 - b. As per OAC 3745-54-99 (C)(1), Section 2.3.2 and the Summary section should be modified as follows. "During one semiannual sampling event each year, ground water samples for all of the site specific parameters currently included in the detection monitoring program plus any parameters that have been added based upon the results of the compliance monitoring program will be collected and analyzed. This includes: dissolved metals (aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, iron, lead, magnesium, mercury, manganese, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc) and explosives (HMX; RDX; 2,4-DNT; 2,6-DNT; 2,4,6-TNT; 1,3,5-TNB; 1,3-DNB; tetryl; and nitrobenzene). During the other semiannual sampling event, ground water samples for all of the parameters on the modified Appendix to OAC 3745-54-98 will be collected and analyzed. This includes VOCs, SVOCs, TAL metals, propellants, explosives, pesticides, and PCBs.



At each semiannual sampling event, specific conductance, pH, turbidity, and temperature will be measured in the field and recorded on the field sampling forms for the sampling event. The field sampling forms will be submitted to Ohio EPA for review."

- c. As per OAC 3745-54-99 (D), the revised text included in Section 2.3.3 of the CMP should be modified to state, "Ground water data will be statistically compared to background and established ground water protection standards, if applicable."
- d. On page 2-6, it states, "Due to the volume of historical data to perform statistical analysis, no **duplicate** samples will be taken during a semi-annual CMP sampling event." The word "duplicate" in this sentence should be changed to "replicate." Although it is acceptable not to collect replicate samples, it is expected that at least one duplicate sample will be collected and analyzed as part of the QA/QC program.

In addition, the second sentence in Section 2.5, page 25, should be removed. This sentence states that, "A sequence of four semi-annual samples will be collected during the compliance period to determine statistical significance of the results." The language included on page 2-6 has already documented that sufficient data have already been collected such that the four replicates required by OAC 3745-54-93 (F) are not needed.

- e. As per OAC 3745-55-02 (B), the following additional records that will be kept and will be available during inspections should be specifically included as bullets in Section 2.8, page 2-7: ground water elevations, ground water analytical data, annual determinations of ground water flow rate and direction, results of statistical comparisons, modifications to the ground water monitoring system, sampling and analysis plan, statistical methods, notices of intent to seek and ACL, any ACL demonstrations, any notices of intent and demonstrations to seek a source of contamination other than the regulated unit, and any engineering feasibility plans for corrective action programs.
 - f. An additional section, "Section 2.9 Annual Reporting Requirements," should be added to the CMP and should state, "As per OAC 3745-54-75 (F), a Supplementary Annual Report for Ground Water Monitoring Information will be completed in the format supplied by the Director and will be submitted by March 1 of each year."
2. The original Comment 16a concerned the data package that was submitted documenting the results of the May 2001 sampling event. It stated, "Although the Tables of Contents that accompany each set of data submitted in Appendix A indicate that the laboratory provided full QA/QC summaries, this information has been omitted from the material submitted to Ohio EPA for review. So that the data can be evaluated and its accuracy verified, all QA/QC information should be submitted for review."

MARK PATTERSON
APRIL 1, 2003
PAGE - 3 -

In response, the Army states that the data are validated using a third party data validator and that the data validation report is included in the revised CMP. The requested QA/QC information and data has not been submitted.

The Ohio EPA regularly performs its own data validation regardless of whether an independent third party data validation has been performed. Therefore, it is imperative that all QA/QC data and information be submitted to the Ohio EPA for review with each data package submitted. The originally requested QA/QC information and data should be submitted immediately.

3. It is recommended that in the future, the specific reporting and/or detection limits for each parameter in each well be documented on data summary tables such as Table 1 instead of using abbreviations such as BRL.

CONCLUSIONS:

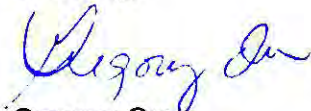
The Compliance Monitoring Plan with the above modifications incorporated should be implemented immediately at OD2.

In addition, the QA/QC information and data from the May 2001 sampling event should be submitted for review and insertion into the CMP.

In the future, the specific reporting and/or detection limits for each parameter in each well should be documented on data summary tables such as Table 1 instead of using abbreviations such as BRL.

If you should have any questions regarding this matter, please feel free to contact me at (330) 963-1189.

Sincerely,



Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddw

cc: Jeremy Carroll, DHWM, CO
ec: Natalie Oryshkewych, DHWM, NEDO
Diane Kurlich, DDAGW, NEDO
Eileen Mohr, DERR, NEDO
Todd Fisher, DERR, NEDO



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Bob Taft, Governor
Christopher Jones, Director

April 21, 2003

Mark Patterson
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

**RE: RAVENNA ARMY AMMUNITION PLANT (OH5-210-020-730); PORTAGE COUNTY;
DECEMBER 17, 2002, GROUND WATER SAMPLING EVENT, OPEN DETONATION
AREA 2 (ODA-2); DATED FEBRUARY 11, 2003; RECEIVED FEBRUARY 18, 2003**

Dear Mr. Patterson:

The above report has been submitted by the Army to document the ground water sampling event that was conducted at ODA-2 on December 17, 2002. Ground water at the site is monitored in accordance with OAC 3745-54-90 through 3745-55-01. The Ohio EPA has the following comment regarding the submittal.

COMMENT

The text of the report indicates that the following statistically significant differences were observed between the concentrations of constituents in the upgradient well DET-1B and the cited downgradient wells:

arsenic in DET-2 (11.2 ug/L) and DET-3 (10.8 ug/L);
specific conductance in DET-4 (1100 umhos/cm).

No further action is required by the Army with respect to this data submittal.

If you should have any questions regarding this matter, please feel free to contact me at (330) 963-1189.

Sincerely,


Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddw

cc: Jeremy Carroll, DHWM, CO
ec: Natalie Oryshkewych, DHWM, NEDO
Diane Kurlich, DDAGW, NEDO
Eileen Mohr, DERR, NEDO
Todd Fisher, DERR, NEDO



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Bob Taft, Governor
Christopher Jones, Director

April 21, 2003

Mark Patterson
Commander's Representative
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Ravenna, OH 44266-9297

**RE: RAVENNA ARMY AMMUNITION PLANT (OH5-210-020-730); PORTAGE COUNTY;
2002 SUPPLEMENTARY ANNUAL REPORTING FORM; DATED FEBRUARY 21, 2003;
RECEIVED FEBRUARY 26, 2003**

Dear Mr. Patterson:

The above report was submitted by the Army to document the ground water monitoring activities that were conducted at ~~ODA-2~~ during 2002 as required by OAC 3745-54-75. Ground water at the site is monitored in accordance with OAC 3745-54-90 through 3745-55-01. The Ohio EPA has the following comments regarding the report.

COMMENT

The text in the second paragraph under "Statistical Assumptions" in the introductory material indicates that only the most recent five background observations were used during the year for statistical analyses. This is incorrect. The eight most recent background concentrations for each parameter are used in the statistical analyses. A corrected page should be submitted for insertion into the annual report. Please submit the corrected page to the Ohio EPA's Northeast District Office (NEDO).

If you should have any questions regarding this matter, please feel free to contact me at (330) 963-1189.

Sincerely,

Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddw

cc: Jeremy Carroll, DHWM, CO
ec: Natalie Oryshkewych, DHWM, NEDO
Diane Kurlich, DDAGW, NEDO
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April 21, 2003

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8451 State Route 5
Ravenna, OH 44266-9297

RE: RAVENNA ARMY AMMUNITION PLANT (OH5-210-020-730), PORTAGE COUNTY, ODA #2, RESPONSE TO COMMENTS INCLUDED IN FEBRUARY 10, 2003 OHIO EPA LETTER

Dear Mr. Patterson:

The above document has been submitted by the Army to respond to comments included in a February 10, 2003, Ohio EPA letter. Ground water at the site is monitored in accordance with OAC 3745-54-90 through 3745-55-01. All comments included in the February 10, 2003, Ohio EPA letter have been adequately addressed. No further action is required at this time concerning these comments.

If you should have any questions regarding this matter, please feel free to contact me at (330) 963-1189.

Sincerely,

Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddw

cc: Jeremy Carroll, DHWM, CO
ec: Natalie Oryshkewych, DHWM, NEDO
Diane Kurlich, DDAGW, NEDO
Eileen Mohr, DERR, NEDO
Todd Fisher, DERR, NEDO





An 8(a) Certified Alaska Native Corporation (ANC)

Ravenna Army Ammunition Plant, Bldg. 1038
8451 State Route 5
Ravenna, OH 44266

330-358-1753
330-358-1754 Fax

May 6, 2003

Mr. Robert J. Matthys
Contracting Officer, Environmental Contracting Division
Department of the US Army
HQ Operations Support Command
AMSOS-CCE-D
Rock Island, IL 61299

**Reference: Contract No. DAAA09-01-G-0009, Delivery Order No. 0003:
Phase II Remedial Investigation, Demolition Area #2, Ravenna Army
Ammunition Plant**

Subject: Deliverable – April 2003 Monthly Progress Report

Dear Mr. Matthys:

Please find enclosed the Monthly Progress Report for April 2003 for the Phase II Remedial Investigation at Demolition Area #2, Ravenna Army Ammunition Plant. This monthly report includes the activities/accomplishments by task during the past month, a progress chart, percent complete summary, project deliverables listing, issues and concerns, and plans for next month.

If you have questions or comments, please contact me at (330) 358-1753.

Sincerely,

SPECPRO, INC.

A handwritten signature in black ink, appearing to read "Susan E. McCauslin".

Susan E. McCauslin
Project Manager

C: Mark Patterson, RVAAP
J. Herrmann, SpecPro



May 23, 2003

Mark Patterson
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

RE: RAVENNA ARMY AMMUNITION PLANT (OH5-210-020-730), PORTAGE COUNTY, REVISED COMPLIANCE MONITORING PROGRAM FOR THE OPEN DEMOLITION AREA #2, DATED JANUARY 2003, RECEIVED JANUARY 10, 2003

Dear Mr. Patterson:

The Open Demolition Area # 2 (OD2) at the Ravenna Army Ammunition Plant (RVAAP) has entered the compliance phase of ground water monitoring (OAC 3745-54-99) based on confirmed statistically significant differences between the concentrations of arsenic and specific conductance detected in the upgradient well (DET-1B) and downgradient wells DET-4 and DET-2, respectively. The uppermost aquifer at the site is found at the interface between glacial tills composed of clayey silt and the underlying, Pennsylvanian age, shale bedrock. In July 2001, RVAAP submitted a compliance ground water monitoring program plan (CMP) to the Ohio EPA for review. An October 12, 2001, letter from the Ohio EPA to the facility, documented deficiencies in the proposed plan. The current submittal is in response to the October 12, 2001, Ohio EPA comment letter. The Ohio EPA has reviewed the revised proposed compliance monitoring plan (CMP) and has the following comments.

COMMENTS:

1. The Compliance Monitoring Plan (CMP), with the following modifications incorporated, should be implemented immediately at OD2.
 - a. In Section 2.1.2, a concentration limit for tetryl based upon background or risk should be established by the Army and submitted, along with supporting documentation, for Ohio EPA review, approval, and insertion into the CMP.
 - b. As per OAC 3745-54-99 (C)(1), Section 2.3.2 and the Summary section should be modified as follows. "During one semiannual sampling event each year, ground water samples for all of the site specific parameters currently included in the detection monitoring program plus any parameters that have been added based upon the results of the compliance monitoring program will be collected and analyzed. This includes: dissolved metals (aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, iron, lead, magnesium, mercury, manganese, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc) and explosives (HMX; RDX; 2,4-DNT; 2,6-DNT; 2,4,6-TNT; 1,3,5-TNB; 1,3-DNB; tetryl; and nitrobenzene). During the other semiannual sampling event, ground water samples



for all of the parameters on the modified Appendix to OAC 3745-54-98 will be collected and analyzed. This includes VOCs, SVOCs, TAL metals, propellants, explosives, pesticides, and PCBs. At each semiannual sampling event, specific conductance, pH, turbidity, and temperature will be measured in the field and recorded on the field sampling forms for the sampling event. The field sampling forms will be submitted to Ohio EPA for review."

- c. As per OAC 3745-54-99 (D), the revised text included in Section 2.3.3 of the CMP should be modified to state, "Ground water data will be statistically compared to background and established ground water protection standards, if applicable."
- d. On page 2-6, it states, "Due to the volume of historical data to perform statistical analysis, no **duplicate** samples will be taken during a semi-annual CMP sampling event." The word "duplicate" in this sentence should be changed to "replicate." Although it is acceptable not to collect replicate samples, it is expected that at least one duplicate sample will be collected and analyzed as part of the QA/QC program.

In addition, the second sentence in Section 2.5, page 25, should be removed. This sentence states that, "A sequence of four semi-annual samples will be collected during the compliance period to determine statistical significance of the results." The language included on page 2-6 has already documented that sufficient data have already been collected such that the four replicates required by OAC 3745-54-93 (F) are not needed.

- e. As per OAC 3745-55-02 (B), the following additional records that will be kept and will be available during inspections should be specifically included as bullets in Section 2.8, page 2-7: ground water elevations, ground water analytical data, annual determinations of ground water flow rate and direction, results of statistical comparisons, modifications to the ground water monitoring system, sampling and analysis plan, statistical methods, notices of intent to seek and ACL, any ACL demonstrations, any notices of intent and demonstrations to seek a source of contamination other than the regulated unit, and any engineering feasibility plans for corrective action programs.
 - f. An additional section, "Section 2.9 Annual Reporting Requirements," should be added to the CMP and should state, "As per OAC 3745-54-75 (F), a Supplementary Annual Report for Ground Water Monitoring Information will be completed in the format supplied by the Director and will be submitted by March 1 of each year."
2. The original Comment 16a concerned the data package that was submitted documenting the results of the May 2001 sampling event. It stated, "Although the Tables of Contents that accompany each set of data submitted in Appendix A indicate that the laboratory provided full QA/QC summaries, this information has been omitted from the material submitted to Ohio EPA for review. So that the data can be evaluated and its accuracy verified, all QA/QC information should be submitted for review."

Mark Patterson
Ravenna Army Ammunition Plant
May 23, 2003
Page 3

In response, the Army states that the data are validated using a third party data validator and that the data validation report is included in the revised CMP. The requested QA/QC information and data has not been submitted.

The Ohio EPA regularly performs its own data validation regardless of whether an independent third party data validation has been performed. Therefore, it is imperative that all QA/QC data and information be submitted to the Ohio EPA for review with each data package submitted. The originally requested QA/QC information and data should be submitted immediately.

3. It is recommended that in the future, the specific reporting and/or detection limits for each parameter in each well be documented on data summary tables such as Table 1 instead of using abbreviations such as BRL.

CONCLUSIONS:

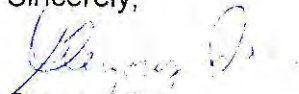
The Compliance Monitoring Plan with the above modifications incorporated should be implemented immediately at OD2.

In addition, the QA/QC information and data from the May 2001 sampling event should be submitted for review and insertion into the CMP.

In the future, the specific reporting and/or detection limits for each parameter in each well should be documented on data summary tables such as Table 1 instead of using abbreviations such as BRL.

If you should have any questions regarding this matter, please feel free to contact me at (330) 963-1189.

Sincerely,



Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:d

cc: Jeremy Carroll, DHWM, CO
ec: Natalie Oryshkewych, DHWM, NEDO
Diane Kurlich, DDAGW, NEDO
Eileen Mohr, DERR, NEDO
Todd Fisher, DERR, NEDO



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

August 11, 2003

Mark Patterson
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

**RE: RAVENNA ARMY AMMUNITION PLANT (OH5-210-020-730); PORTAGE COUNTY;
MARCH 25, 2003, GROUND WATER MONITORING WELL SAMPLING EVENT, OPEN
DETONATION AREA 2 (ODA-2); DATED MAY 15, 2003; RECEIVED MAY 21, 2003.**

Dear Mr. Patterson:

The above referenced report was submitted by the Ravenna Army Ammunition Plant (RVAAP) to document the ground water monitoring event that was conducted at ODA-2 on March 25, 2003. Ground water at the site is monitored in accordance with OAC 3745-54-90 through 3745-55-01. The Ohio EPA has the following comment regarding the document.

COMMENT:

The text of the report indicates that the following statistically significant differences were observed between the concentrations of constituents in the upgradient well DET-1B and the cited downgradient wells:

arsenic in DET-2 (12.6 ug/L);
HMX in DET-4 (1.9 ug/L); and
RDX in DET-4 (1.5 ug/L).

No further action is required by the Army with respect to this data submittal at this time.

If you should have any questions regarding this matter, please feel free to contact me at (330) 963-1189.

Sincerely,

Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddw

cc: Jeremy Carroll, DHWM, CO
ec: Natalie Oryshkewych, DHWM, NEDO
Diane Kurlich, DDAGW, NEDO
Eileen Mohr, DERR, NEDO
Todd Fisher, DERR, NEDO

MONTHLY PROGRESS REPORT FOR APRIL 2003

PHASE II REMEDIAL INVESTIGATION DEMOLITION AREA 2 RAVENNA ARMY AMMUNITION PLANT RAVENNA, OHIO

**CONTRACT NO. DAAA09-01-G-0009
DELIVERY ORDER NO. 0003**

1.0 Activities/Accomplishments During the Month

Task 1 – Project Management and Administrative Support

SpecPro, Inc. continued management and administrative support for project implementation.

Task 7 – Surface Water and Sediment Sampling

SpecPro completed the final round of surface water sampling during the month of April.

Task 10 – Draft Remedial Investigation Report

SpecPro, Inc. continued work on the Draft Remedial Investigation Report this month.

2.0 Progress Chart/Deliverables

Table 1 shows the current percent complete for each project task as set forth in the project Scope of Work. Table 2 is a listing of project deliverables showing planned and actual submittal dates. Attachment 1 is a progress chart showing the current status of the project.

3.0 Issues/Concerns

Work on the risk assessment portion of this project is currently on hold until resolution of pending issues concerning a planned sitewide approach to be followed for all RVAAP risk assessments.

4.0 Planned Activities for Next Month

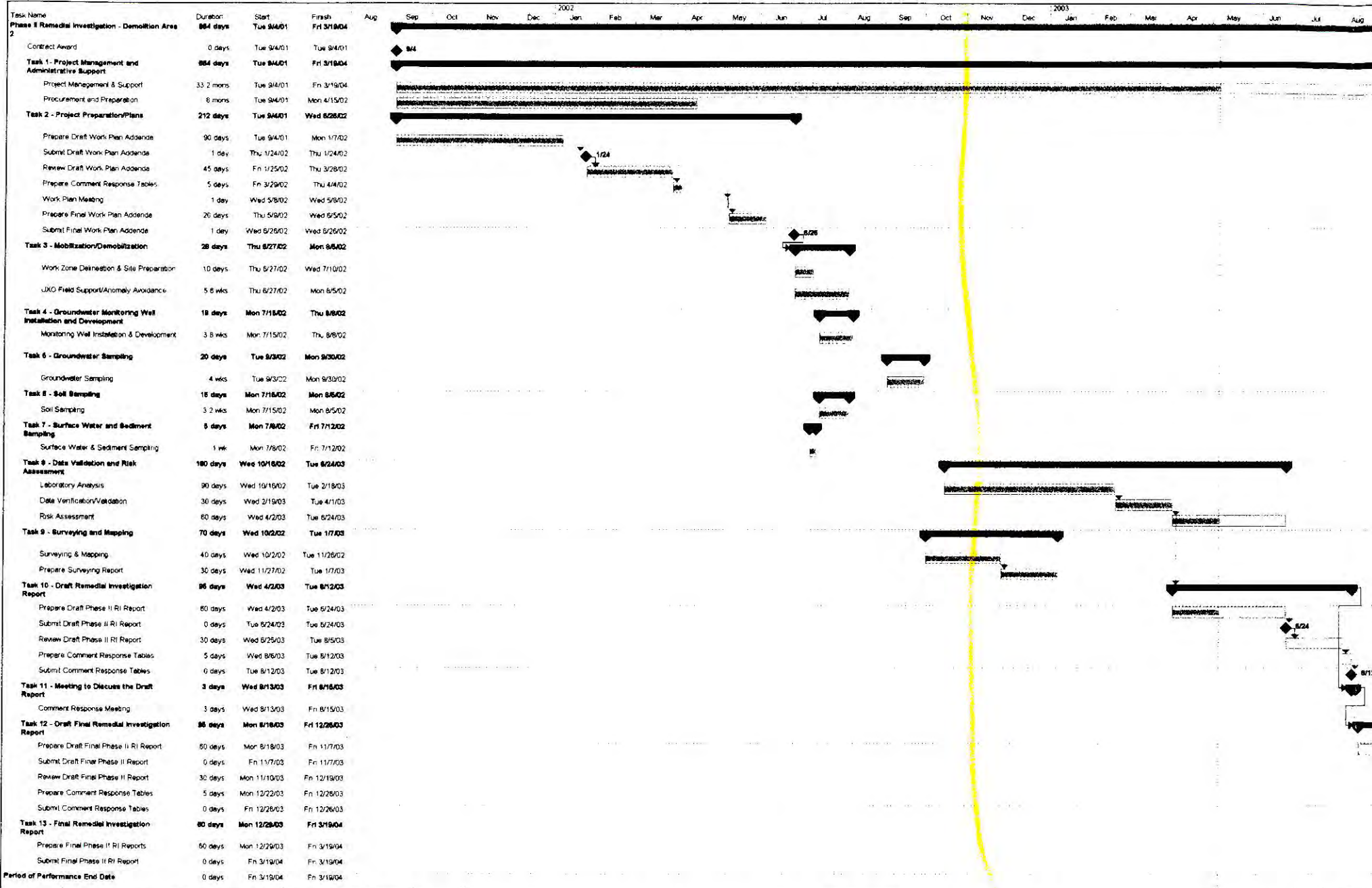
SpecPro, Inc. plans to continue working on the Draft Remedial Investigation Report.

Table 1. Percent Complete

	Task	Complete
1	Project Management and Administrative Support	70%
2	Project Preparation/Plans	100%
3	Mobilization/Demobilization	100%
4	Soil Borings and Well Development	100%
5	Groundwater Sampling	100%
6	Soil Sampling	100%
7	Surface Water and Sediment Sampling	100%
8	Data Validation and Risk Assessment	10%
9	Surveying/Mapping	100%
10	Draft Remedial Investigation Report	25%
11	Meeting to Discuss the Draft Report	0%
12	Draft Final Remedial Investigation Report	0%
13	Final Remedial Investigation Report	0%

Table 2. Project Deliverables

Deliverable	Scheduled	Actual
Monthly Progress Reports	Monthly	04/04/03
Milestone Charts/Schedules	11/01/01	11/07/01
Draft Work Plan Addenda	12/17/01	01/24/02
Final Work Plan Addenda	05/08/02	06/26/02
Draft Remedial Investigation Report	04/24/03	--
Draft Final Remedial Investigation Report-Electronic Format	06/12/03	--
Final Remedial Investigation Report	1/20/04	--



Project: Schedule
Date: Tue 5/6/03

Task Progress Milestone Summary Project Summary External Task External Milestone





September 23, 2003

Mark Patterson
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

RE: RAVENNA ARMY AMMUNITION PLANT (OH5-210-020-730); PORTAGE COUNTY; JUNE 17, 2003, GROUND WATER MONITORING WELL SAMPLING EVENT, *OPEN DETONATION AREA 2 (ODA-2)*; DATED JULY 30, 2003; RECEIVED AUGUST 6, 2003

Dear Mr. Patterson:

The abovementioned report was submitted by the Army to document the ground water monitoring event that was conducted at ODA-2 on June 17, 2003. Ground water at the site is monitored in accordance with OAC 3745-54-90 through 3745-55-01. Ohio EPA has reviewed the document and has the following comments.

COMMENTS:

1. The text of the report indicates that the following statistically significant differences were observed between the concentrations of constituents in the upgradient well DET-1B and the cited downgradient wells:

arsenic in DET-2 (10.5 ug/L) and DET-3 (9.1 ug/L);
HMX in DET-4 (5.9 ug/L); and
RDX in DET-4 (1.0 ug/L).

This is the second consecutive quarter that the concentrations of arsenic in DET-2 and HMX and RDX in DET-4 have been elevated to statistically significant levels above background.

2. In the text, it states that the Compliance Monitoring Plan in accordance with OAC 3745-54-98 has been submitted for Ohio EPA approval. This plan was approved by Ohio EPA with modifications on May 23, 2003. The compliance monitoring plan should be implemented beginning with the next sampling event. Ground water monitoring activities at ODA-2 should be conducted in accordance with the approved Compliance Monitoring Plan until the Director's Final Findings and Orders are signed **and** the Facility-wide Ground Water Monitoring Program plan is developed, approved, and implemented.

RAVENNA ARMY AMMUNITION PLANT
SEPTEMBER 23, 2003
PAGE - 2 -

3. The second line documenting the transfer of sample custody indicates that custody was relinquished at 1100 hours but it was not received by the next person until 1330 hours and 1400 hours. This represents a break in the custody chain that should be explained. Having a break in the custody chain may cause the resulting data to be considered invalid. Please submit an explanation within 30 days upon receipt of this letter.

In the future, the Army shall ensure that a complete and unbroken custody chain is maintained and documented.

If you should have any questions regarding this matter, please feel free to contact me at (330) 963-1189 or via e-mail at greg.orr@epa.state.oh.us.

Sincerely,



Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddw

cc: Jeremy Carroll, DHWM, CO
ec: Natalie Oryshkewych, DHWM, NEDO
Diane Kurlich, DDAGW, NEDO
Eileen Mohr, DERR, NEDO
Todd Fisher, DERR, NEDO



An 8(a) Certified Alaska Native Corporation (ANC)

*Ravenna Army Ammunition Plant, Bldg. 1038
8451 State Route 5
Ravenna, OH 44266*

*330-358-1753
330-358-1754 Fax*

October 13, 2003

Mr. Ernest Dixon
Contracting Officer, Environmental Contracting Division
Department of the US Army
HQ Joint Munitions Command, Bldg. 350
AMSJM-CCA-I
Rock Island, IL 61299-6000

**Reference: Contract No. DAAA09-01-G-0009, Delivery Order No. 0003:
Phase II Remedial Investigation, Demolition Area #2, Ravenna Army
Ammunition Plant**

Subject: Deliverable – September 2003 Monthly Progress Report

Dear Mr. Dixon:

Please find enclosed the Monthly Progress Report for September 2003 for the Phase II Remedial Investigation at Demolition Area #2, Ravenna Army Ammunition Plant. This monthly report includes the activities/accomplishments by task during the past month, a progress chart, percent complete summary, project deliverables listing, issues and concerns, and plans for next month.

If you have questions or comments, please contact me at (330) 358-1753.

Sincerely,

SPECPRO, INC.

L. Chantelle Carroll
Project Manager

C: Mark Patterson, RVAAP
L. Cueto, SpecPro

MONTHLY PROGRESS REPORT FOR SEPTEMBER 2003

**PHASE II REMEDIAL INVESTIGATION DEMOLITION AREA 2
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO**

**CONTRACT NO. DAAA09-01-G-0009
DELIVERY ORDER NO. 0003**

1.0 Activities/Accomplishments During the Month

Task 1 – Project Management and Administrative Support

SpecPro, Inc. continued management and administrative support for project implementation.

Task 10 – Draft Remedial Investigation Report

SpecPro, Inc. continued work on the Draft Remedial Investigation Report this month.

2.0 Progress Chart/Deliverables

Table 1 shows the current percent complete for each project task as set forth in the project Scope of Work. Table 2 is a listing of project deliverables showing planned and actual submittal dates. Attachment 1 is a progress chart showing the current status of the project.

3.0 Issues/Concerns

The Human Health risk assessment portion of this project is still currently on hold pending the Facility-wide document. However, the ecological risk assessment portion of the risk assessment is moving forward.

4.0 Planned Activities for Next Month

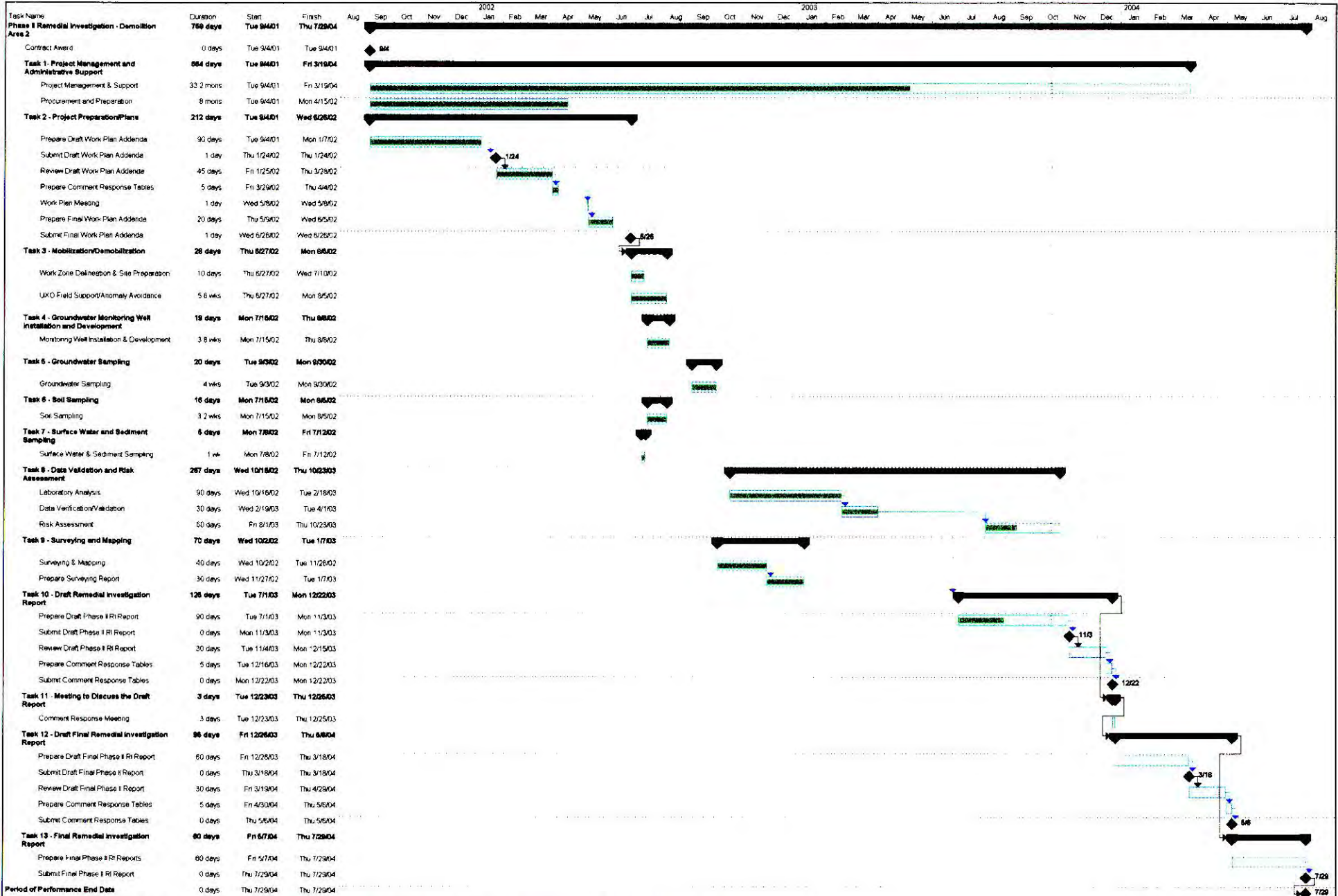
SpecPro, Inc. plans to continue working on the Draft Remedial Investigation Report.

Table 1. Percent Complete

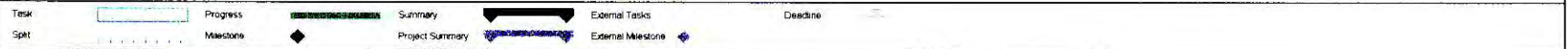
	Task	Complete
1	Project Management and Administrative Support	72%
2	Project Preparation/Plans	100%
3	Mobilization/Demobilization	100%
4	Soil Borings and Well Development	100%
5	Groundwater Sampling	100%
6	Soil Sampling	100%
7	Surface Water and Sediment Sampling	100%
8	Data Validation and Risk Assessment	25%
9	Surveying/Mapping	100%
10	Draft Remedial Investigation Report	30%
11	Meeting to Discuss the Draft Report	0%
12	Draft Final Remedial Investigation Report	0%
13	Final Remedial Investigation Report	0%

Table 2. Project Deliverables

Deliverable	Scheduled	Actual
Monthly Progress Reports	Monthly	07/10/03
Milestone Charts/Schedules	11/01/01	11/07/01
Draft Work Plan Addenda	12/17/01	01/24/02
Final Work Plan Addenda	05/08/02	06/26/02
Draft Remedial Investigation Report	10/30/03	--
Draft Final Remedial Investigation Report-Electronic Format		--
Final Remedial Investigation Report	1/20/04	--



Project Schedule
Date: Mon 10/13/03



Project Schedule For The Phase II Remedial Investigation of Demolition Area 2



November 21, 2003

Mark Patterson
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

**RE: RAVENNA ARMY AMMUNITION PLANT (OH5-210-020-730), PORTAGE COUNTY,
REVISED COMPLIANCE MONITORING PROGRAM FOR THE OPEN DEMOLITION
AREA #2, DATED NOVEMBER 2003, RECEIVED NOVEMBER 7, 2003**

Dear Mr. Patterson:

The Open Demolition Area # 2 (OD2) at the Ravenna Army Ammunition Plant (RVAAP) has entered the compliance phase of ground water monitoring (OAC 3745-54-99) based on confirmed statistically significant differences between the concentrations of arsenic and specific conductance detected in the upgradient well (DET-1B) and downgradient wells DET-4 and DET-2, respectively. The uppermost aquifer at the site is found at the interface between glacial tills composed of clayey silt and the underlying, Pennsylvanian age, shale bedrock. In July 2001, the facility submitted a compliance ground water monitoring program plan (CMP) to the Ohio EPA for review. An October 12, 2001, letter from the Ohio EPA to the facility, documented deficiencies in the proposed plan. The plan was revised, resubmitted, and approved with modifications in a May 23, 2003, Ohio EPA letter to the facility. The document currently under review is the CMP that incorporates the modifications included in the May 23, 2003, Ohio EPA letter. Ohio EPA has reviewed the revised proposed CMP and has the following comments.

COMMENTS

1. Comment 1 from the May 23, 2003, Ohio EPA letter has been adequately addressed. However, the following additional revisions are necessary so that there is consistency among all sections of the plan.
 - A. On page 2-5, Section 2.5, the third and fourth sentences should be replaced with the following, "Section 2.3.2 summarizes the parameters to be analyzed during each semi-annual sampling event."
 - B. On page 2-7, tetryl has been added to the chart, but its concentration limit, and the information concerning its detection during the May 2001 sampling event have not been included. This additional information should be added to the chart on page 2-7.

- C. Two additional bullets should be added to Section 2.8 on page 2-7.

Records of the compliance monitoring data.

Annual reports from the detection monitoring and compliance monitoring programs.

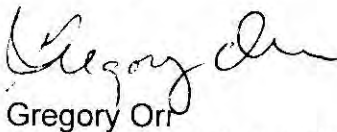
Replacement pages with the above revisions should be submitted for insertion into the CMP. The date the revisions are made should be included on the pages.

2. Comment 2 from the May 2003 Ohio EPA letter concerned the submission of the laboratory QA/QC information for the May 2001 sampling event. This information has been submitted and will be reviewed under a subsequent IOC.

The additional revisions to the CMP, documented in Comment #1 above, should be made, and the replacement pages should be submitted to the Ohio EPA's Northeast District Office, for the insertion into the CMP. The information should be submitted within thirty (30) days upon receipt of this letter.

If you should have any questions regarding this matter, please feel free to contact me at (330) 963-1189 or via e-mail at greg.orr@epa.state.oh.us.

Sincerely,



Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddw

cc: Jeremy Carroll, DHWM, CO
ec: Natalie Oryshkewych, DHWM, NEDO
Diane Kurlich, DDAGW, NEDO
Eileen Mohr, DERR, NEDO
Todd Fisher, DERR, NEDO



An 8(a) Certified Alaska Native Corporation (ANC)

*Ravenna Army Ammunition Plant, Bldg. 1038
8451 State Route 5
Ravenna, OH 44266*

*330-358-1753
330-358-1754 Fax*

December 10, 2003

Mr. Ernest Dixon
Contracting Officer, Environmental Contracting Division
Department of the US Army
HQ Joint Munitions Command, Bldg. 350
AMSJM-CCA-I
Rock Island, IL 61299-6000

**Reference: Contract No. DAAA09-01-G-0009, Delivery Order No. 0003:
Phase II Remedial Investigation, Demolition Area #2, Ravenna Army
Ammunition Plant**

Subject: Deliverable – November 2003 Monthly Progress Report

Dear Mr. Dixon:

Please find enclosed the Monthly Progress Report for November 2003 for the Phase II Remedial Investigation at Demolition Area #2, Ravenna Army Ammunition Plant. This monthly report includes the activities/accomplishments by task during the past month, a progress chart, percent complete summary, project deliverables listing, issues and concerns, and plans for next month.

If you have questions or comments, please contact me at (330) 358-1753.

Sincerely,

SPECPRO, INC.

A handwritten signature in black ink, appearing to read "L. Chantelle Carroll".

L. Chantelle Carroll
Project Manager

C: Mark Patterson, RVAAP
L. Cueto, SpecPro

MONTHLY PROGRESS REPORT FOR NOVEMBER 2003

**PHASE II REMEDIAL INVESTIGATION DEMOLITION AREA 2
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO**

**CONTRACT NO. DAAA09-01-G-0009
DELIVERY ORDER NO. 0003**

1.0 Activities/Accomplishments During the Month

Task 1 – Project Management and Administrative Support

SpecPro, Inc. continued management and administrative support for project implementation.

Task 10 – Draft Remedial Investigation Report

SpecPro, Inc. continued work on the Draft Remedial Investigation Report this month.

2.0 Progress Chart/Deliverables

Table 1 shows the current percent complete for each project task as set forth in the project Scope of Work. Table 2 is a listing of project deliverables showing planned and actual submittal dates. Attachment 1 is a progress chart showing the current status of the project.

3.0 Issues/Concerns

The Human Health risk assessment portion of this project is still currently on hold pending the Facility-wide document.

4.0 Planned Activities for Next Month

SpecPro, Inc. plans to continue working on the Draft Remedial Investigation Report.

Table 1. Percent Complete

	Task	Complete
1	Project Management and Administrative Support	72%
2	Project Preparation/Plans	100%
3	Mobilization/Demobilization	100%
4	Soil Borings and Well Development	100%
5	Groundwater Sampling	100%
6	Soil Sampling	100%
7	Surface Water and Sediment Sampling	100%
8	Data Validation and Risk Assessment	25%
9	Surveying/Mapping	100%
10	Draft Remedial Investigation Report	30%
11	Meeting to Discuss the Draft Report	0%
12	Draft Final Remedial Investigation Report	0%
13	Final Remedial Investigation Report	0%

Table 2. Project Deliverables

Deliverable	Scheduled	Actual
Monthly Progress Reports	Monthly	07/10/03
Milestone Charts/Schedules	11/01/01	11/07/01
Draft Work Plan Addenda	12/17/01	01/24/02
Final Work Plan Addenda	05/08/02	06/26/02
Draft Remedial Investigation Report	02/15/04	--
Draft Final Remedial Investigation Report-Electronic Format		--
Final Remedial Investigation Report	--	--



State of Ohio Environmental Protection Agency

Northeast District Office

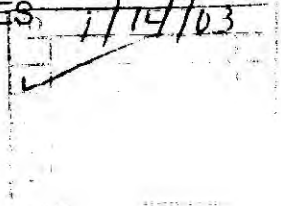
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

January 13, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
WBG PHASE II RI REVISED ES



Mr. Paul Zorko
U.S. Army Corps of Engineers
Louisville District
P.O. Box 59
Louisville, KY 40202

Dear Mr. Zorko:

The Ohio Environmental Protection Agency (Ohio EPA), Central Office (CO), Division of Emergency and Remedial Response (DERR), has received and reviewed the proposed revisions to the Winklepeck Burning Grounds (WBG), Phase II Remedial Investigation (RI) report, Executive Summary (ES). The proposed revisions were received via e-mail on October 18, 2002, in response to previous Ohio EPA comments, dated August 27, 2002.

The Agency has the following comments on the proposed revisions:

1. The revised ES contains several new tables that identify the hazard and risk values for the various burning pads of interest. The tables are confusing and it is not clear what pads for the various receptor scenarios are specific to the cited pad identification (ID) numbers. In addition, the information does not appear to be correct in some instances. For example, the table which describes potential risks and hazards via exposure to groundwater indicates that the National Guard (it is assumed that the trainee is being discussed) receptor has multiple pads with estimated cancer risks that fall within the 1E-4 to 1E-6 risk range, and the subsistence farmer has zero pads that fall within this category. This would not generally be correct, as the subsistence farmer has much greater exposure (two times the ingestion rate, greater exposure frequency and duration than the National Guard trainee) to groundwater. Please correct the tables given in the ES or clarify how they are to be interpreted.
2. The discussion given in the conclusion section of the ES did not revise the text as requested in several previous comments. The media discussions in the conclusion section have not been revised. Please see comment # 1 of the 08/27/02 Ohio EPA comments entitled, "Final WBG Phase II Report" for details regarding the use of hazard quotient (HQ) or hazard index (HI) values >1 for listing significant chemicals of concern.





State of Ohio Environmental Protection Agency
Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

April 24, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE AND TRUMBULL COUNTIES
PROJECT ORDERS: SITEWIDE ECO WP
AND WBG FIELD TRUTHING REPORT

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

Dear Mr. Patterson:

The purpose of this correspondence is to acknowledge the receipt of the following documents:

1. "Final, Report on the Biological Field - Truthing Effort at Winklepeck Burning Grounds at Ravenna Army Ammunition Plant," which was prepared cooperatively by the U.S. Army Corps of Engineers (USACE) - Louisville District, and Science Applications International Corporation (SAIC).
2. "Final, RVAAP Facility Wide Ecological Risk Workplan," which was prepared by USACE Louisville.

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

Sincerely,

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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Laurie Eggert, Ohio EPA, OFFO, SWDO
Brian Tucker, Ohio EPA, DERR, CO
Glen Beckham, USACE Louisville
John Jent, USACE Louisville
Paul Zorko, USACE Louisville
Elizabeth Ferguson, USACE Louisville
David Brancato, USACE Louisville
LTC Tadsen, RVAAP

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



State of Ohio Environmental Protection Agency

Northeast District Office

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TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

December 16, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL **WBG** ECO TRUTHING REPORT

Mr. Mark Patterson
Environmental Program 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); and Central Office (CO), Division of Emergency and Remedial Response (DERR); and Southwest District Office (SWDO), Office of Federal Facilities Oversight (OFFO), have received and reviewed the document entitled: "Final, Report on the Ecological Field-Truthing Effort at Winklepeck Burning Grounds at Ravenna Army Ammunition Plant, Ravenna, Ohio." This document was cooperatively prepared by the U.S. Army Corps of Engineers (USACE) - Louisville District, and Science Applications International Corporation (SAIC), under contract number F44650-99-D-007, delivery order number CY06. The document, dated March 2003, was received by Ohio EPA on April 09, 2003. The delay in reviewing this report was due to a number of other projects, which were determined by Ravenna Army Ammunition Plant (RVAAP) and USACE personnel to have a higher priority.

This document was reviewed with respect to the previous draft of the document (dated November 2002), as well as previous Ohio EPA correspondence, dated December 12, 2002. This correspondence represents a compilation of comments from all reviewers.

1. Please see the enclosure with this correspondence, which details the language that is to be inserted into the Executive Summary (ES), pages xviii - xvix. This language is to be inserted verbatim.
2. **Ohio EPA reply to Comment Response # 22** - (Section 4.3.6, page 4-12 to 4-13) The comment response states that the word "statisticaily" was added before the word "significant" in this section, in order to clarify that the results are "statistically significant." This clarification should be made on page 4-12.
3. **Ohio EPA reply to Comment Response # 44** - The revision was not made and the comment was not addressed. For purposes of this report, the fact that the sampling technique is destructive should be included in this table, since this information is specified in the table for the other small mammal methods.
4. **Page 1-2, second full paragraph** - The sizes of the burning pads are reported differently throughout the report. For instance, the fourth sentence states that the burning pads are 6.0 to 12.2 m (20 to 40 feet), whereas the text on page xviii states that the burning pads are 15m x 30m. The size of the burning pads was reported in the November 2002 Draft-final version (page 1-2 line 17) as 50 to 75 feet. Please evaluate, and revise the text as necessary, for consistency.



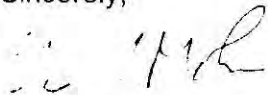
MR. MARK PATTERSON
DECEMBER 16, 2003
PAGE 2

5. **Section 4.2.1, Selection of Burning Pads, page 4-1** - The fifth sentence indicates that seven burning pads demonstrated potential for ecological risk and lists pad 32 as one of the seven. Pad 32 was not selected as part of the field truthing study, but there is no rationale presented in the text as to why it was not included. In the revised text, please add a sentence or two to detail why pad 32 was not selected for inclusion into the study.
6. **Section 4.2.2, page 4-1** - If Phase III Remedial Investigation (RI) data is used to draw conclusions for this report, then please add an appendix to this report which contains the data, rather than waiting to present it in the Feasibility Study (FS). If only Phase III sample locations and not empirical data is presented, then it is acceptable to present the data only in the FS report.

Please make the above-referenced revisions to the text of the report. Subsequent to receipt and review of the appropriate replacement pages, Ohio EPA will consider this to be a final document.

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

Sincerely,



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

ETM/kss

enclosure

- cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Laurie Eggert, Ohio EPA, OFFO, SWDO
Brian Tucker, Ohio EPA, DERR, CO
Glenn Beckham, USACE Louisville
John Jent, USACE Louisville
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David Brancato, USACE Louisville
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Barney Cornaby, SAIC
- ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO



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TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

February 6, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
DRAFT FINAL **LOAD LINE 1 PHASE II RI**

Mr. Glen Beckham
U.S. Army Corps of Engineers
Louisville District
ATTN: CELRL-PM-M
P.O. Box 59
Louisville, KY 40202-0059

Dear Mr. Beckham:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) and Division of Drinking and Ground Waters (DDAGW); and Southwest District Office (SWDO), Office of Federal Facilities Oversight (OFFO), have received and reviewed the two-volume document entitled: "Draft-Final, Phase II Remedial Investigation Report for the Load Line 1 at the Ravenna Army Ammunition Plant, Ravenna, Ohio." The draft-final report, dated December 2002 and received at Ohio EPA, NEDO, on December 24, 2002, was prepared for the U.S. Army Corps of Engineers (USACE), Louisville District, by Science Applications International Corporation (SAIC), under contract number DACA27-97-D-0025, delivery order number 0003.

This draft final document was compared to the preliminary draft version, dated May 2001, as well as the comment resolution matrix. For ease of review, the original Ohio EPA comment number will be referenced; if there is no number (i.e., "N/A" is utilized), the comment is new and based upon other revisions made to the text, or represents something that happened to be noticed in the second review. If a previous Ohio EPA comment is not referenced, it means that the response and the corresponding revision to the document is acceptable. Both page and line numbers will be referenced from the draft-final document. This correspondence represents a compilation of comments from all Ohio EPA reviewers, and follows the same general format as the document itself.

<u>Original Comment</u>	<u>Page</u>	<u>Line(s)</u>	<u>Comment/Requested Revisions</u>
11	xxix	30-32	The text in the first bullet of this section states that "...groundwater transport modeling results indicate that these contaminants will not migrate off the AOC..." The comment response matrix indicated that the text would be revised to read: "...based upon numerical modeling results, these contaminants are not anticipated to migrate off the AOC..." This was not done. Please modify the text with the agreed-upon language.

<u>Original Comment</u>	<u>Page</u>	<u>Line(s)</u>	<u>Comment/Requested Revisions</u>
12	N/A	N/A	The reference to "grey area" was adjusted in the executive summary, but not on page 6-34, lines 39-41. Please revise the text accordingly.
16	xxxii	34	The document did not incorporate the revision as requested and agreed-upon. Please revise in accordance with the original comment.
N/A	1-5	27	Please change "town" to "city."
N/A	1-8	N/A	Figure 1-4 has been completely changed and no longer reflects the cultural features at Load Line 1. As such, the reference to this figure on page 2-1 (lines 30-34) is no longer adequate. Please re-insert the original map into the revised document, or add the appropriate cultural features.
29	2-9	11-12	There has been some recent confusion as to whether or not there is a "catch and release" program in effect for RVAAP. This document indicates that there is; the recent site-wide surface water document indicates that there is not a program. This issue needs to be clarified, confirmed, and consistently reported throughout the various documents. (This comment is also applicable to page 19, lines 26-27.)
N/A	2-11	27	Change "multi" to "melt."
N/A	N/A	N/A	Throughout Section 4, please ensure that the text reads "LL1" and not "LL11." This mis-reference was especially noticed in the sediment and soil sections.
62	4-52	38	Please provide additional explanation as to why none of the proposed SVOC, VOC, pesticide and PCB samples were re-assigned to locations where there wouldn't be auger refusal. Again, the lack of sub-surface data for these constituents at the load line is a data gap that needs to be addressed.
82	4-75	N/A	In 2000, both zinc and iron were also reported at concentrations above the facility-wide backgrounds for these two metals at monitoring wells LL1mw-064 and LL1mw-065, respectively. The revised report contained a discussion of the elevated zinc concentration, however, there was no discussion of the elevated iron concentrations. Please revise the text as originally requested.

<u>Original Comment</u>	<u>Page</u>	<u>Line(s)</u>	<u>Comment/Requested Revisions</u>
N/A	4-102	10	Change "were" to "where."
98	throughout		Please change the footnote on the following tables to read: "Organic compounds were considered to be <i>non-naturally</i> occurring...": 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 4-10, 4-11, 4-12, 4-13, 4-14, 4-15, 4-16, 4-17, 4-18, 4-19, 4-20, 4-21, 4-22, 4-23, 4-24, and 4-25.
N/A	6-7	7	It has been confirmed that the Michael Kirwan Reservoir is not used as a potable water source. Please adjust the text accordingly.
N/A	6-7	13-16	Please provide a reference to the well located at the former Building T-5301.
N/A	6-7	43	Please change "hectars" to "hectares."
115	Figure 6-6		Please revise the figure to show both adult and child risk and hazard estimates, or else include a new figure, Figure 6-7, that shows the child risk and hazard estimates.
117	6-11 thru 6-18		Add a footnote to Table 6-2 in the revised report that explains the rationale for one hour exposure time selected for the security guard. This footnote should reflect/summarize the comment response.
124	6-20		Summarize the comment response in Section 6.3.2.2 to explain the basis for subsurface exposure for the OHARNG receptor and how subsurface soil exposure was evaluated.
131	6-36 6-40	28-33 and 8-12	Discussion regarding background risks in comparison to site-related risks for risk management perspective should be removed from this section and discussed in the uncertainty section. The uncertainty section is appropriate for this type of discussion.
133	6-67	24-27	Discussion regarding background risks in comparison to site related risks for purposes of providing a risk management perspective should be removed from this section and discussed in the uncertainty section. This comment should be considered for the section on "Soil" and all appropriate sections or subsections of this report where appropriate.

<u>Original Comment</u>	<u>Page</u>	<u>Line(s)</u>	<u>Comment/Requested Revisions</u>
134	6-123	3	Replace "large risks/hazards" with "unacceptable risks/hazards." Text should be revised in Table 6-20, Table 6-21 and Table 6-22.
136	6-142		Please add "footnote b" (that is mentioned in the comment response) to this table to address the comment and to provide clarification on the interpretation of information presented in the "Totals Across All Pathways."
N/A	6-29	19	Please change "hactare" to "hectare."
N/A	6-124 thru 6-128		On the key for Figures 6-2, 6-3, 6-4, 6-5, and 6-6, please clarify in the key what is meant by "H." Does this represent the hazard quotient or hazard index?
N/A	6-130	N/A	On table 6-22, please add to the key what is meant by "B," "V," and "M."
142			Please include the letters from the U.S. Fish and Wildlife Service (USFWS) and Ohio Natural Heritage Program regarding the presence of threatened and endangered (T&E) species at LL1 in the final report.
150			Please provide Ohio EPA with the Risk Assessment Methodologies for Loring AFB, in order to review the BAF's and inputs against values in SERA.
152	7-54	2-3	The text was not changed as previously discussed and agreed-upon. Please make the required change.
N/A	8-5	40	Please revise the concentration to read: "0.01 mg/kg."
N/A	8-8	24-25	Please revise the text to read: "...Resident Farmer scenarios is explosives, 4-4'-DDE, and chloroform." (Remove the parentheses as they appear in the revised document.)
N/A	Appendix H		Several of the provided chain of custody (COCs) forms were not signed by the receiving facility. These COCs were for samples sent by courier (not via FedEx) and, as such, there was no attached waybill. Please provide an explanation for the lack of signatures.
N/A	Appendix N		Please indicate the name of the UXO field technician whose logbook appears in this appendix.

MR. GLEN BECKHAM
FEBRUARY 6, 2003
PAGE 5

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

Sincerely,



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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Laurie Eggert, Ohio EPA, OFFO, SWDO
Mark Patterson, RVAAP
LTC Tadsen, RVAAP
Paul Zorko, USACE Louisville
John Jent, USACE Louisville
David Brancato, USACE Louisville
Elizabeth Ferguson, USACE Louisville
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ec: Mike Eberle, Ohio EPA, NEDO, DERR
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State of Ohio Environmental Protection Agency

Northeast District Office

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TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

July 1, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
LL1 - SUPPLEMENTAL BHHRA

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 document entitled: "Preliminary-Draft, Supplemental Baseline Human Health Risk Assessment for Load Line 1 Alternative Receptors at the Ravenna Army Ammunition Plant, Ravenna, Ohio." This document, dated May 2003 and received by Ohio EPA's Northeast District Office (NEDO) on May 8, 2003, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District by Science Applications International Corporation (SAIC) under contract number F44650-99-0007, delivery order number CY01.

This document was reviewed by personnel from Ohio EPA, NEDO; and Central Office (CO), Division of Emergency and Remedial Response (DERR); and Ohio EPA, Southwest District Office (SWDO), Office of Federal Facilities Oversight (OFFO). This correspondence represents a compilation of comments from all reviewers.

- General Comment:** One of the purposes of this supplemental baseline human health risk assessment is to extrapolate the new scenarios, assumptions made, remedial goal options (RGOs) to other areas of concern (AOCs) at the Ravenna Army Ammunition Plant (RVAAP). Provide some discussion in the appropriate portion of the text regarding how the assumptions made specifically for Load Line 1 will be translated to other AOCs. For example, what happens if groundwater wells are installed at other AOCs, or if the fish caught at other AOC ponds can be ingested (rather than just catch and release), etc.?
- General Comment:** Please be aware that there are still some outstanding comments on the draft-final Load Line 1 human health risk assessment. Much of the supplemental report identifies that the methods in the Draft Final Remedial Investigation (RI) report were used. Ohio EPA has received, but has not commenced reviewing the final report in which outstanding comments were to be resolved. Therefore, outstanding issues on the Load Line 1 RI also apply to this supplemental Baseline Human Health Risk Assessment (BHHRA).
- General Comment:** The document is identified as a supplemental report. It is assumed that the revised final RI report for Load Line 1 will include the information presented in the original report and the supplemental report. If this is incorrect, then the residential scenario is to be added to the revised document. All AOCs that are being evaluated should include a residential scenario as the evaluation of unrestricted site use and the remedial cost differences between

a restricted and an unrestricted land use will be desired. In addition, given that the CERCLA RI/FS process is being followed, a no action alternative generally based on a future or current residential receptor is routinely included in the baseline human health risk assessment. This is consistent with DERR and OFFO sites in the State of Ohio.

4. **General Comment:** The Executive Summary (ES) or report does not explain the basis for conducting this Supplemental Risk Assessment (SRA) for Load Line 1, nor does it explain the rationale for including these new receptors after the baseline risk assessment was already conducted. Basically, the report doesn't explain what changes took place after the BHHRA was conducted to prompt the evaluation of these new receptors with very specific exposure assumptions/activities (OHARNG Resident, OHARNG Dust/Fire Suppression, Recreational Hunter/Trapper and Recreational Fisher).
5. **General Comment, Executive Summary, page xi, line 4:** At this point in time, the long term future use of the site is only assumed to be appropriately evaluated for future OHARNG use and Recreational use. It is reasonable to assume that the near future reuse of this area will be for OHARNG and recreational activities. However, there are no guarantees in place to ensure that: a) this area will always be used by the OHARNG and b) that the exposure will not be greater than what we have assumed for the exposure scenarios. Prior to any additional work on this portion of the RVAAP project, Ohio EPA strongly recommends that all pertinent stakeholders meet to discuss these comments and any other pertinent issues. Given that some of the remedial goal option (RGO) values need to be recalculated based on the comments below, these recalculations could have been avoided if this type of communication had occurred earlier on in the process and prior to the issuance of this report.
6. **General Comment:** A land use control plan must be developed in order to demonstrate how exposure will be controlled, monitored and evaluated to ensure that the actual exposure following the re-use of the property is no greater than what was assumed in the risk assessment and when developing cleanup goals. This is especially necessary since the exposure assumptions and receptors that are currently presented in this SRA are very specific to certain activities.
7. **General Comment:** The scenarios used in a baseline risk assessment should be limited in number that represent a broad group of people and activities. The exposure assumptions for these few scenarios should be conservative, so that they are protective for the group of people/activities with a lesser exposure. For instance, a resident is considered to be one of the receptors with the greatest exposure to a site and is often used as the basis for developing cleanup values for unrestricted reuse. Therefore, the various OHARNG Receptors should be combined into one or, at most, a couple key OHARNG exposure scenarios. The exposure assumptions and activities should be chosen to reflect the greatest exposure, such that lesser exposures (due to various activities) will be inherently protective. In the same respect, the Hunter/Trapper and the Fisher Receptors should be combined into one recreational receptor. Often, the same person participates in all three recreational activities (hunting, trapping and fishing). As it stands, how can you determine if the person who hunts and also fishes is being protected? How will this be managed and enforced in the future? Therefore, this assessment could be limited to evaluating four potential receptors (resident, industrial worker, National Guard receptor, recreational receptor).

8. **General Comment:** It should be noted in the text that RGOs derived for the protection of human health may not be protective of ecological receptors where appropriate. In addition, surface water quality standards that are less than the RGO values would be considered ARARs and should be listed, as these levels would need to be achieved if appropriate.
9. **General Comment:** Ohio EPA would like to receive electronically the spreadsheet (Excel?) that includes the calculations and inputs for developing the RGOs presented in Section 6.0. This will help Ohio EPA review and verify the calculations, inputs, and RGOs.
10. **General Comment:** A recommendation section may be good, especially since this is a SRA.....what do we do with all this new information? How do we merge the BHHRA and SRA for Load Line 1? (See general comment above.)
11. **Table ES-1: Receptor/Medium/Exposure Unit Combinations with COCs at Load Line 1:** The table identifies risks in bold as those exceeding the 1 E-4 excess life time cancer risk level. It would be more appropriate to identify those that exceed a level of 1E-5. The citation of the 1E-4 level also implies that this levels represents a regulatory limit, which is not appropriate. Please revise the table and anywhere in the document wherever an excess lifetime cancer risk value of 1E-4 is used for risk assessment or RGO development. Also, remember that risk management discussions are not to be included in the risk assessment reports. The presentation of potential risk and hazard levels should be made without interpretation or implication of risk management.
12. **Section 1.0, Introduction:** The text on page 1-1, lines 29-30, indicate that groundwater is not being evaluated for two reasons, one being that "...if groundwater is used in the future, it will be drawn from a different aquifer than that sampled during the Load Line 1 Phase II RI." During the Phase I (1996) and II (1999) RIs at Load Line 1, 12 monitoring wells were installed. All but two of the 12 wells which were installed at this load line are screened in the Sharon Sandstone. Given that the Sharon Sandstone is a prolific aquifer in this part of the State of Ohio, please provide an explanation as to how it was determined that this aquifer would not be utilized in the future. Additionally, the Phase 2 RI report indicates that there were "isolated detections" of explosives, target analyte list (TAL) metals, and a few detects of SVOCs and PCBs/pesticides in monitoring wells primarily near the main process areas. The potential future use of the groundwater needs to be re-evaluated.

This comment is also applicable to page 3-2, lines 14-16.
13. **Section 2.0 page 2-1, line 12:** Explain the distinction between surface soil (0-1') exposure and deep surface soil exposure (0-3') for the national guard receptor. Exposure intervals used previously at RVAAP have defined surface soil as 0-1', subsurface soil as 1-3', and deep soils as 3' up to 12' for exposure to soils.
14. **Section 2.0 page 2-1, lines 27-30:** The text identifies that soil samples from the railroad bed locations were not included in the BHHRA. The data from these samples should be given and discussed in the risk assessment. Additional information on the possibility of site-related contamination of railroad associated soils may help clarify the need for the inclusion or exclusion of the data.

15. **Section 2.1.1, page 2-5, Background Screen:** The facility-wide background value for antimony should be removed. The initial document - Winklepeck Burning Grounds (WBG) RI report - identified that there were no detections of antimony in the designated background areas. Therefore, the background concentrations should be set at zero. An error has been perpetuated throughout the use of these values. Please remove the screening value for antimony.
16. **Section 2.1.1, page 2-5, Site-Related Contaminant Screening Process:** Page 2-5 indicates that the soil background screening values were taken from the RI report for the WBG. These values are correct for the surface soils (0 to 1 foot). However, the WBG subsurface background values (1 to 3 feet) are not consistent with the "deep surface soil" (0 to 3 feet) interval presented in the supplemental BHHRA report. Therefore, these values should not be used. If screening values based on background concentrations are desired for the 1 to 3 foot interval, then the values need to be calculated based on the original background data. An alternate method would be to use the original depth intervals of surface (0 to 1 foot), sub-surface (1 to 3 feet), and deep (3 to up to 12 feet) used in previous risk assessment report documents.
17. **Section 3.2.1, National Guard Land Use, page 3-2, line 26:** Please define or explain what is meant by "mounted training activities" - this includes what exactly? Explain how ground surface is defined (in line 27) ".....that extend below ground surface?" Is ground surface considered to be the first one foot interval or is ground surface considered to be the first three feet, since the 0-3' interval is considered deep "surface" soil in this SRA?
18. **Section 3.2.1, National Guard Land Use, page 3-2, line 28:** Provide the rationale for evaluating only to three feet, since page 3-2 line 28 states that exposure or damage could occur to four feet. How can you determine if future receptors will be protected if future activities by the OHARNG require exposure to depths greater than three feet (for instance, if a tank gets stuck during training and must be dug out)?
19. **Section 3.2.1, National Guard Land Use, page 3-2 lines 37-38:** Explain why the national guard resident receptor is being evaluated for Load Line1 when the proposed future use is for training and not residential dwelling. Is it reasonable to assume that if OHARNG personnel are stationed at the Ravenna Training and Logistics Site (RTL5) full time, that they will maintain two residential dwellings for a long period of time? Explain what the difference is between the standard default residential receptor and the National Guard resident receptor, and why this difference is great enough to include an additional receptor for evaluation rather than simply combining these into one receptor, a resident, for evaluation.
20. **Section 3.2.1, National Guard Land Use, page 3-2, lines 12-16:** Section 3.2.1 identifies that groundwater, if used, would not come from the sampled aquifer water. This statement cannot be defended with the present documentation. Groundwater is to be evaluated for both the National Guard trainees and the future resident scenarios.
21. **Table 3-1 page 3-3:** This table provides a good visual summary of the differences in exposure pathways among the receptors evaluated in this SRA. It also allows one to visually see where receptors and assumptions could be combined, to allow for the evaluation of fewer receptors

to be evaluated in a manner that is protective of all the receptors listed. For instance, the National Guard resident and fire suppression worker - both are exposed to the same routes/pathways and to the same media, shallow surface, therefore, these could be combined into one receptor using the more conservative assumptions. In addition, the trainee is exposed to deep surface soil, but the resident is not? This rationale is flawed, considering that residential dwellings typically are constructed in a manner that disturbs soil greater than one foot. Therefore, all three receptors could be combined into one, using the more conservative assumptions, so that lesser exposures are inherently protected.

22. **On page 3-3, table 3-1:**

1. Provide the meaning of "--" in the table's legend.
2. Provide additional documentation to support the notation that future fishing activities at the load line (and other load lines, etc., since these new scenarios are to be extrapolated to AOCs) will remain catch and release. (Also applicable to page 3-7, lines 39-40.)
3. Refer to previous groundwater usage comments in this correspondence.
4. How was it determined that the National Guard resident would not be exposed to the deep surface soil? (Also applicable to page 3-6, lines 2-3; page 5-7, lines 31-32.)

23. **Page 3-6, lines 2-6:** This text is confusing.....the text states that the National Guard resident is exposed to Load Line 1 for 24 hours a day and 250 days per year, but doesn't really reside in housing located within the boundaries of Load Line 1?

24. **National Guard Fire/Dust Suppression, page 3-6:** Explain why it is necessary to capture the exposure for this activity as a separate receptor? It is reasonable to assume that the person acting as the fire/dust suppressor is also a National Guard trainee? If so, why not combine these two receptors into one. In the future, will the National Guard troops practice handling fires (whether it be setting fires or suppressing fires) that take place in a subsurface area?

25. **Section 3.3, Quantification of Intake, page, 3-8:** Additional information/support of the exposure time is needed in the quantification of soil ingestion by the dust/fire suppression, hunter/trapper, and fisher receptors. The present soil ingestion calculations/parameters are not acceptable without justification that soil ingestion is not event driven. By using the given equation and input parameters, these receptors are apparently modeled as ingesting 17 mg, 25 mg, and 17 mg of soil respectively from the AOC. These activities can be more soil/dust intensive and, therefore, may result in greater soil/dust ingestion rates than what were used. Of the three receptors mentioned above, the dust/fire suppression receptor would appear to have the greatest exposure to soil/dust. Therefore, it is recommended that this receptor be modeled as receiving the entire 100 mg of soil/dust during the four hour exposure period. The other two receptors may be acceptable as given, with some supporting information that justifies the soil ingestion amounts. This comment is also applicable to sediment ingestion.

26. **Table 3-2, Parameters Used to Quantify Exposures for Each Medium and Receptor at Load Line 1:** The note for soil depths that were evaluated for the various receptors needs additional information. It is not clear why the resident is only exposure to soils from 0 to 1 foot. Previous discussions regarding the soils at Load Line 1 indicated that soils do not exist below 3 feet and that the greatest concentration of contaminants is identified in the 0 to 1 foot depth. If this is correct, then the soil depths are acceptable with the inclusion of the above information. If this is not correct, (soil contamination is not concentrated in the 0 to 1 foot interval) then the entire soil range (0 to 3 feet) should be employed as use of the area by the OHARNG using tracked and wheeled operations may result in maneuver damage up to (or greater than) 4 ft bgs (page 3-2).
27. **Section 5.0, Risk Characterization:** The risk assessment presented aggregated (multi-pathway) risk and hazard values. Cumulative (multi-pathway and multi-chemical) hazard and risk values were not presented. This information should be presented based on media and total exposures.
28. **Section 5.2.2, page 5.8:** The text on 5-8, lines 6-7, and the heading for table 5-6, references chemicals of concern (COCs) with "large" total hazards/risks. The term "large" is nebulous. Please specify what cut-off point was used to create table 5-6. Remove "large" and replace with "unacceptable." This comment is also applicable to page 5-8, lines 12, 13, 15 and 20.
29. **Section 5.3.1, Uncertainties Associated with Data Evaluation:** The text on page 5-10, lines 23-24, references the potential variability of the surface water data. Given that the groundwater issue in all likelihood will need to be re-evaluated, groundwater should be added to line 24.
30. **Section 6.0, Remedial Goal Options, page 6-1:** Lines 18-20 imply that the target risk level used to develop RGO's was 1E-4. If this is the case, then this is not acceptable and exceeds Ohio EPA's cumulative target risk level of 1E-5. Please clarify what target risk level was used to develop these RGO's. Information should also be provided that identifies how the individual RGOs will be adjusted to address exposures to multiple compounds and will be protective based on a cumulative target risk level of 1E-5. The adjustments will be specific to each AOC based on the list of COCs present, the exposure to multiple compounds in each medium, and exposure to multiple media where appropriate. These methods should be given in the supplemental report.
31. **Section 6.0, Remedial Goal Options and Tables:** A lot of numbers are being presented in this section without much discussion to go along with them, therefore, questions arise such as: what is the number that is protective?; what cleanup level is being proposed for Load Line 1 surface waters? For instance, Table 6-1 presents four different cleanup levels (depending on specific risk and hazard level) for five categories of receptors, resulting in a total of 20 different point values for arsenic in surface water that could all potentially be the cleanup level. This leaves the reader wondering how all this information will be applied to remediation (will one area get cleaned up to this level and another area to a different level)? Therefore, Ohio EPA recommends including a table that lists each chemical and compares the various cleanup levels for each receptor/use in a side-by-side fashion. The end column of this table could

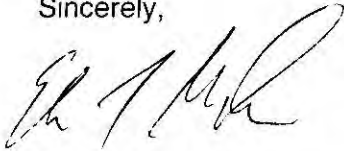
MR. MARK PATTERSON
JULY 1, 2003
PAGE 7

present the most conservative RGO's from the grouping for that chemical. This may be helpful for risk management purposes and decision making.

32. **Appendix B - Citations:** Citations need to be made to the original source. Citations, as mentioned in the past on more than one document, should be cited to the original authors. The citation of "HAZWRAP 1994" needs to be changed to the original authors of the values, or to the authors of the methods used to derive the values.

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

Sincerely,



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

ETM/kss

- cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Laurie Eggert, Ohio EPA, OFFO, SWDO
Brian Tucker, Ohio EPA, DERR, CO
LTC Tom Tadsen, RVAAP
Glen Beckham, USACE Louisville
Paul Zorko, USACE Louisville
John Jent, USACE Louisville
Dave Brancato, USACE Louisville
Kevin Jago, SAIC
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Chantelle Carroll, SpecPro
- ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO



State of Ohio Environmental Protection Agency

Northeast District Office

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TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

July 22, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL LOAD LINE 1 PHASE II RI REPORT

Mr. Mark Patterson
Environmental Program 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 two volume document entitled: "Final, Phase II Remedial Investigation Report for the Load Line 1 at the Ravenna Army Ammunition Plant, Ravenna, Ohio." This document, received at NEDO on June 16, 2003, was prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District by Science Applications International Corporation (SAIC) under contract number DACA62-00-D-0001, delivery order CY-09.

This revised document was compared to the draft-final Phase II Remedial Investigation (RI) report, received on December 24, 2002; Ohio EPA comments on the draft-final document, dated February 06, 2003; and the response to comment (RTC) matrix generated by SAIC. All Ohio EPA comments have been addressed and, as such, the Load Line 1 Phase II RI report is considered final.

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

Sincerely,

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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Laurie Eggert, Ohio EPA, OFFO, SWDO
Brian Tucker, Ohio EPA, DERR, CO
LTC Tom Tadsen, OHARNG
Glen Beckham, USACE Louisville
Paul Zorko, USACE Louisville
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JoAnn Watson, AEC

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



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TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Lt. Governor

May 29, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
DRAFT, SAFETY AND HEALTH PLAN FOR
THE REMEDIAL INVESTIGATION AT LOAD
LINES 6 & 9 PORTAGE/TRUMBULL
COUNTIES

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

Dear Mr. Patterson:

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, Safety and Health Plan for the Remedial Investigation at Load Lines 6 & 9, Ravenna Army Ammunition Plant, Ravenna, OH." The document was prepared by MKM Engineers, Inc. for the U.S. Army Joint Munitions Command (JMC) received by Ohio EPA on April 21, 2003. The following comments were generated from the review:

Comment # 1:

Section 2.0 of the SSHP should make reference to Red Cross First Responder(s) as a part of each team on-site, as required by RVAAP.

Comment # 2:

Section 3.1.1, RVAAP Location, page 9, 2nd sentence - The text refers to Ravenna as a "town." Please change the text to indicate that Ravenna is a city.

Comment # 3:

Section 3.1.2, RVAAP History, page 9 - The text states that "in May 1999, the National Guard Bureau assumed operational control of 16,164 acres of RVAAP and licensed Ohio Army National Guard to use the acreage for training and other activities." What about the latest acreage transferred to the Guard? Please update the acreage based on the latest land transfer.

Comment # 4:

Section 3.3, Site Climate, page 10, Table 1 - Please provide source(s) for Climatological Data and what city or airport it came from.

Mr. Mark Patterson
May 29, 2003
Page 2 of 5

- Comment # 5: Section 3.4.2, Hazardous Substance Contamination, page 11, Table 2, Potential Chemical Contaminants - What sources were used to develop this table? Why are there no metals listed? Also, the RI activities will occur after the completion of Thermal Decomposition. What potential chemical contaminants, not usually associated with primary load lines, may now be present as a result of the burn (i.e. products of incomplete combustion)?
- Comment # 6: Page 12 is blank. Was this done intentionally? Please remove page, or state on page that "Page was intentionally left blank."
- Comment # 7: Section 4.2.2, Risk of Exposures Task-related Chemicals, page 14 - This section explains the use of products such as methanol, hydrochloric acid, gasoline, diesel fuel, spray paints, etc. during the investigation. The text should mention that MSDSs for each chemical or product used is contained within an appendix of the SSHP.
- Comment # 8: Section 4.4, Physical Hazards, page 16, bulleted list - 5th and 10th bullets are empty. Please remove these bullets.
- Comment # 9: Section 4.5, Biological Hazards, page 16 - The following potential biological hazardous have been omitted: 1) West Nile Virus (transmitted by mosquito); 2) Hystoplasmosis (transmitted through bird droppings); 3) Lyme's Disease and Rocky Mountain Spotted Fever (transmitted by ticks); and 4) Hanta Virus (transmitted by rodents). Also, in vacant buildings, one may encounter animal feces, animal carcasses, and bird droppings that may have biological hazards associated with them. Please make the appropriate changes to the text.
- Comment # 10: Section 4.5, Biological Hazards, page 17, 2nd paragraph, last sentence - Please explain what is meant by "target hull?"
- Comment # 11: Section 4.6.4.4, Heat Syncope, page 19, 1st paragraph, 2nd sentence - Please explain what is meant by "heavy signing?"
- Comment # 12: Section 4.6.4.6, Heat Stroke, page 19 - The last sentence is incomplete. Please make the appropriate changes to the text.

- Comment # 13: Section 4.7.1, Introduction (COLD STRESS), page 20 - This section of the text refers back to Appendix C. Since Appendix C is in electronic form, prevention and treatment measures are not readily accessible in the field. See Appendix C comment # 30.
- Comment # 14: Section 4.7.3, Cold Stress Treatment and Prevention, page 21 - This section of the text refers back to SOPs included in Appendix C. Since Appendix C is in electronic form, prevention and treatment measures are not readily accessible in the field. See Appendix C comment # 30.
- Comment # 15: Section 5.2.1, Task Description, page 23 - The text states "refer to the LL 6 Ordnance Avoidance Plan in Appendix A." The Ordnance Avoidance Plan is missing from Appendix A. Please include this plan in the appendix.
- Comment # 16: Section 5.6.1, Task Description, page 27 - The text states that "once soil is placed into open drums, the soil is characterized so that it can be disposed. To characterize the soil, a hand auger will be used to sample the soil." Details of waste characterization sampling should be included here, or referenced back to the work plan.
- Comment # 17: Section 6.0, Training, pages 28 through 33 - It should be mentioned in the text that RVAAP requires that at least one Red Cross-certified First Responder be present during site investigation activities.
- Comment # 18: Section 7.5.1, Level D PPE, 5th line, page 35 - In addition to impact hazards, safety glasses should be used when preserving samples and during decontamination activities.
- Comment # 19: Section 7.7.1, General PPE Training Requirements, page 36, 2nd sentence. The word "effected" should be changed to "affected" in the text. Please make the appropriate changes.
- Comment # 20: Section 8.4.1, Pre-assignment Health Assessment, page 39, 4th bulleted item - What is meant by "micrJMCopic examination."
- Comment # 21: Section 8.5.3, Treatment of Serious Injuries, page 41 - The text states that "Robinson Memorial Hospital in Ravenna will be the

first choice for serious injuries, unless decided upon differently by the medical response personnel." Robinson Memorial Hospital is only a provisional Level III trauma center. Seriously injured persons may need to be transported to a different hospital (i.e., Life Flight, etc.), depending on the patient's condition, and severity of injury. Also, the text states that the SSHO may request ALS (advanced life support). Keep in mind that not all ambulance services in the area are ALS. Many are BLS (basic life support).

- Comment # 22: Section 12.5.4, Inclement Weather, page 52 - There are several references to "demolition operations" throughout the text and in this section. Why is "demolition operations" being referenced when this is a remedial investigation?
- Comment # 23: Table 7, Emergency Equipment Requirements, page 55, table row 6 - The table indicates that a back board will be present. However, the table does not include a cervical collar. Conditions may require use of both, simultaneously. Both should be present and stored together.
- Comment # 24: Section 12.7.3, First Aid Kit Requirements, page 55 -The text states that "two EMT-type trauma kits will be maintained on site. What equipment and supplies are included in the "EMT-type trauma kit?" Who is authorized to use these kits?
- Comment # 25: Section 12.8.3, Rescue and Response Actions, page 57 - Some of these actions (i.e. 3rd, 9th, and 11th bullets) are outside the scope of a basic first aid trained person.
- Comment # 26: Section 12.8.4, Treatment of Injured/ILL Personnel, page 58, last bullet - What about BLS? When would it be appropriate to for BLS units to be activated?
- Comment # 27: Section 12.8.5, Post-Emergency Follow-up, page, 58, 2nd bullet - What is meant by "clean?" Please change the text to indicate that equipment and supplies will be sanitized and/or disinfected.
- Comment # 28: Section 12.11.2, Spill Response, page 60 - Please indicate that the Ohio EPA Spills Hotline number (1-800-282-9378) should be utilized.

Mr. Mark Patterson
May 29, 2003
Page 5 of 5

- Comment # 29: Section 15.3.2, Safety and Health Violations, page 74, bulleted list - Please include as a bullet: "No Smoking as per RVAAP policy."
- Comment # 30: APPENDIX C, Standard Operating Procedures - Electronic copies of SOPs are not readily available for field use and would not be available in the event that emergency care is needed at the site (i.e. heat stress, heat stroke, cold stress, blood borne pathogens). Please make sure that all field copies of the SSHP include Appendix C in text form.

If you have any questions, please do not hesitate to contact me by phone at (330) 963-1148, or via e-mail at Todd.Fisher@epa.state.oh.us.

Sincerely,



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

TRF/ams

- ec: Mike Eberle, Ohio EPA, DERR, NEDO
- cc: Eileen Mohr, Ohio EPA, DERR, NEDO
Stan Levenger, MKM, RVAAP
Bonnie Buthker, OFFO, SWDO
Paul Zorko, USACE, Louisville



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Bob Taft, Governor
Christopher Jones, Director

October 3, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
LOAD LINES 2-4 TD WORK PLAN

Mr. Mark Patterson
Environmental Program 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: "Work Plan for the Thermal Decomposition and Demolition of Load Lines 2, 3, 4, Ravenna Army Ammunition Plant, Ravenna, Ohio 44266" and "Safety and Health Plan for the Thermal Decomposition and Demolition of Load Lines 2, 3, 4, Ravenna Army Ammunition Plant, Ravenna, Ohio 44266." These documents, dated August 2003 and received by Ohio EPA on September 15, 2003, were prepared by MKM Engineers, Inc. for the U.S. Operations Support Command (OSC).

Ohio EPA, NEDO, DERR, has the following comments on the work plan and health and safety plan.

General Comments:

1. The proposed scope of the thermal decomposition (TD) and demolition activities operations is clear. However, be advised that since the condition of these Areas of Concern (AOCs) subsequent to TD (and ultimately the Fixed Price Remediation with Insurance - FPRI - contract) will not meet the Ohio Army National Guard's (OHARNG's) required end state, Ohio EPA will not consider that the response is complete at these AOCs.
2. There must be substantial coordination between the TD/demolition contractor and the FPRI contractor throughout this process.
3. Please provide Ohio EPA, NEDO, DERR with a copy of the August 2002 work plan that detailed the process equipment disassembly, decontamination, and disposal at Load Lines 2 and 3. This document will not be reviewed, as most of the work has already been completed, but will be kept on file at the Agency.

Mr. Mark Patterson
October 3, 2003
Page 2

4. Please provide Ohio EPA, NEDO, DERR with a copy of the Asbestos Contractors' Work Plan and Health and Safety Plan. This document will not be reviewed, as most of the work has been already completed, but will be kept on file at the Agency.
5. Please provide TM 60A-1-1-31 for the Agency's files.
6. Please provide the Agency with a copy of the Explosives Safety Submission (ESS) that was sent to the Joint Material Command (JMC) and the Department of Defense Explosives Safety Board (DDESB). Also, please send a copy of the approval letter of the ESS from these two entities.

Workplan - Specific Comments:

7. In Section 1.1.2, please provide additional information in the text as to why certain buildings are not included in the TD process. Are there plans to re-use them, or are there potential environmental issues with the paint? (Pg 1) This comment is also applicable to Tables 2 and 4.
8. In Section 1.2 on page 2, please update the text to reference the most recent land transfer between the Army and National Guard Bureau (NGB). (Pg 2) This comment is also applicable to the third paragraph in Section 1.3 on page 3.
9. In Section 1.3, there is a paragraph devoted specifically to the history of Load Line 12. Since this section represents a history of the plant, it is recommended that this paragraph also briefly mention Load Lines 5 - 11; or reduce the emphasis on Load Line 12.
10. In Section 2.1.2 on page 7, please remove the duplicate entry of the JMC project manager.
11. On Tables 2, 3, and 4, please remove the word "limits" from the explosives/limits column, or add in the applicable limits.
12. On page 12 in item # 7, please add additional text which indicates that the data obtained from the paint sampling efforts will be submitted to Ohio EPA and the U.S. Environmental Protection Agency (U.S. EPA) for review and approval.
13. On page 16, the last bullet in Section 3.1.5, please revise the text to read: "...IAW this WP and relevant Federal and State rules, laws and regulations."
14. On page 18, Section 2.4.1.3, please remove the reference to the Wet Storage Area. (Also applicable to Section 2.15.5 on page 37 and Section 4.3.1 on page 45.)

15. On page 18, Section 2.4.3.1, please revise the text to be less definitive that the Restoration Advisory Board (RAB) meeting was about the proposed TD at Load Lines 2, 3, and 4. Although these AOCs were mentioned, the fuze and booster load lines and the Wet Storage Area were also discussed.
16. On page 19, under the emergency response and general notification section, please create a separate bullet for Kendall Moore, as he is employed by the U.S. EPA and not Ohio EPA.
17. On page 20, Section 2.5, please add ash sampling to the list of bullets detailing the operational sequence. Then add a section to the work plan which describes the sampling procedures, etc. This would also be the portion of the text in which it is stated that there are no lead lined floors and sumps at any of these load lines. As such, one composite sample for the characterization of the ash would most likely be acceptable (given that there would not be areas that would - for whatever reason - result in debris that would not pass TCLP), provided that the sampling frequency is acceptable to the disposal facility. It is the responsibility of the generator to ensure that all applicable State, Federal, and local rules, laws and regulations are adhered to during the disposal process. (This comment is also applicable to Section 2.14.5 on page 33.)
18. On Table 4 (page 22), please make the following revisions:
 - a. In the building sump and basement water row, please note that ground application of this water can only be conducted if Ohio EPA approves the analytical results, and if the previously specified conditions are followed.
 - b. In the sump/basement sludge row, please explain the reference to the RVAAP Biopad. Currently, no such area exists at RVAAP.
 - c. In the PCB ballasts (etc.) row, please ensure that lead bolts will also be removed prior to TD.
19. On page 28, Section 2.11, please note that the assumption that the sump water can be discharged to the ground surface may or may not be correct. Additionally, please add text to this section to indicate that the sumps do not contain lead or asbestos liners. Water, if approved for discharge to the ground surface, must follow the procedures that have been established for this type of activity at RVAAP.
20. In Section 2.12, on page 29, please indicate whether or not testing of the blastwall and barricade materials is included in this SOW.

21. In Section 2.13, on page 29, please provide the Load Lines 2, 3, 4 paint sampling work plan, or provide assurance that the sampling is being conducted in accordance with the work plan developed for Load Lines 6 and 9.
22. In Section 2.14.3, on page 31, please add the word "degrees" to the cited decomposition temperatures for TNT and tetryl.
23. Section 2.14.5 on page 34 indicates that disposal of the cinder block and brick debris will occur. This is contradicted by the text in the second paragraph on page 34, which indicates that it will be re-used. Please rectify the discrepancy.
24. The first sentence in Section 2.14.6, on page 34, is unclear. Please revise the sentence as appropriate.
25. Section 2.21 on page 40 indicates that a draft site specific removal report (SSRP) will be completed for each load line as part of the TD process. Please confirm that these types of reports will also be prepared for Load Lines 6 and 9 and the Wet Storage Area, which were previously subjected to TD.
26. Please provide an explanation for the references to ODA2 in Section 3.3.5, on page 42. If these references are to be kept in this section, please note that ODA2 does not have a perimeter fence.
27. On page 47, Section 5.3.2, please revise the spelling of training as it appears in the text.
28. Please revise the first sentence in Section 5.3.7, on page 48, to read: "...streams, rivers, or lakes is not authorized and shall not be permitted." (As currently written, there is the implication that some of these areas could be utilized for disposal, which is not correct.)
29. On Figures 7a, 7b, and 7c:
 - a. Please provide an explanation for what is meant by the "demolition area."
 - b. Remove the OHARNG future use reference for these AOCs, as the actions of this SOW and the subsequent FPRI contract clearly do not result in the end state needed by the OHARNG for training purposes.

Health and Safety Plan (HASP) - Specific Comments:

Although Ohio EPA does not have regulatory jurisdiction over health and safety plans, the following comments are offered for your consideration:

30. Please run the document through spell-check and grammar check.
31. The health and safety plan is dated subsequent to the completion of a good percentage of the asbestos removal, explosive cutting of pipe, etc. Please provide assurance that an applicable health and safety plan was in place for the conduct of these activities.
32. In Section 3.2.3, please revise the sentence to read: "... World War II, and from 1951 to 1957." As currently written, the text seemingly indicates that WWII occurred in the 1950s.
33. In Section 3.4.2, on page 11, please update the section detailing environmental data to include results from the preliminary-draft Phase II RIs which were released in May 2003.
34. In Section 3.4.2, on page 11 (last paragraph), please also indicate whether or not on-site personnel may be exposed to propellants due to demil activities which occurred at the AOCs.
35. On page 12, please add other explosives and propellants to Table 2.
36. On Table 3 (page 15), please add "NE" to the acronym list, or change the entry in the respirable dust/NIOSH, IDLH section to read "NA." Additionally, please clarify why there are two blank entries in the PCB row.
37. On page 16 (Section 4.4), please finish the sentence in the last bullet.
38. On page 17 in Section 4.5, please add to the second paragraph that this project will also be conducted in cold weather months.
39. In the first sentence on page 18, please clarify what is meant by the terminology "target hull."
40. In Section 4.6.4.4, on page 19, please clarify what is meant by "heavy signing."
41. In Section 4.6.4.6, on page 20, please finish the last sentence of the paragraph.
42. In Section 5.8.1, on page 29, please confirm whether or not the scoped activities for this project include the testing of the materials from the creosote blast wall removal. Additionally, please provide information as to whether or not these materials will be stockpiled on visqueen.

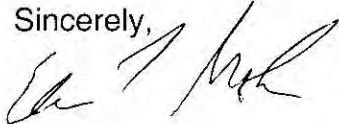
43. In Section 5.8.2, on page 29, the wrong hazard task analysis is presented for the creosote blast wall removal. Please revise.
44. In Section 5.14.1, on page 33, please add text to the revised HASP which indicates that there are no lead-lined sumps or lead floors at these AOCs.
45. In Section 5.15.1, on page 34, please describe what "regulated/hazardous" items the contractor expects to encounter during site operation.
46. On page 44, in Table 4, please change the level of personal protective equipment (PPE) for asbestos abatement to level C.
47. In Sections 8.5.1 and 8.5.2, on pages 49 and 50, please be advised that if Emergency Medical Technicians (EMTs) are dispatched to the RVAAP, they may or may not be able to provide Advanced Life Support (ALS). Many of the local squads run with two EMT-Bs, which can only provide Basic Life Support (BLS).
48. In Section 9.2, on page 51, please provide information on the frequency of the asbestos monitoring. Additionally, please confirm that the most likely releases would occur within the first five days of operations. If not, then asbestos monitoring should occur on a more long term basis.
49. In Section 11.1.3, on page 58, please confirm that the intent of the table is to indicate that a patient would be transferred from one stretcher to another as they are moved from zone B to zone D. Depending upon the nature and severity of the patient's injury, this might not be advisable.
50. In Section 12.2.3, on page 60, please remove the reference to the Commander's Representative. This is also applicable to table 6 on page 61; Section 12.6.4, on page 65; Section 12.10, on page 70; and Section 12.11.2, on page 71.
51. In table 7, on page 66, please provide an entry for the backboard in the "operation requiring specified equipment" column.
52. Pages 83 and 84 are missing from the HASP. Please provide these pages.
53. In Appendix B, please provide certificates of hazard task analysis for the loading of the load lines with fuel containers and lightly spraying the walls with fuel, as well as the actual TD operations.
54. Appendix C Standard Operating Procedures (SOPs) were not re-reviewed by the Agency, as they were reviewed previously on a different project. However, it is noted

Mr. Mark Patterson
October 3, 2003
Page 7

that page 8-4 of the hearing conservation SOP is missing. Please provide the missing page.

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

Sincerely,



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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
JoAnn Watson, AEC
LTC Tom Tadsen, RVAAP
Irv Venger, RVAAP
Rick Callahan, MKM
Brian Stockwell, MKM
MAJ Kim O'Keefe, NGB
Kendall Moore, U.S. EPA, Region 5

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

Preliminary Draft Report of the Phase II RI of LL 2, LL3, LL4 dated May 5, 2003

The following comments apply to all three reports since the issues overlap all load line reports. Please note that the load line 2 report was used as the primary report when referencing specific sections in the comments. However, all comments are applicable to the corresponding sections of the other Load Line (3 and 4) reports. Please feel free to contact me with any questions or clarification. Thanks. LM

Cmt. No.	Comment	Recommendation	Response
Reviewer Organization: OHIO EPA/OFFO (Laurie Moore)			
1	General Comment: The tables that are currently part of the main text of the report are a good start, but should also include the concentrations. Include the concentration (EPC or max value or risk estimates) in the summary tables.	This information can be summarized and presented in a table presenting both the LL2 EPC along with the LL1 EPC and the corresponding risk/hazard estimate that resulted for a specific constituent. This will give the reader actual concentrations to compare rather than providing just a list of chemicals.	
2	Section 6.2 Data Evaluation, page 6-2, lines 18-23: Since data from railroad beds samples and building samples are not presented and discussed in this report, where can reader find this information since it is mentioned in this report	Add a sentence telling the reader where the results of the railroad and building samples can be located and reviewed (if desired). In addition, a sentence should be added in the appropriate section of the report that basically reports the outcome of this effort – was it determined that the railroad bed contributed contaminants to underlying soils and if so, how was this comparison conducted?	
3	Section 6.2.2 Chemical of Potential Concern Screening, page 6-4 line 23-24: Term Chemical of Potential Concern should be defined since this is different than SRCs and is the first time this term is used in this report.	Add a second sentence that states “SRCs that exceed screening levels and potentially pose a risk to human health are called Chemicals of Potential Concern (COPCs)” (or something similar to that effect).	

Preliminary Draft Report of the Phase II RI of LL 2, LL3, LL4 dated May 5, 2003

4	<p>Section 6.3.1.1 Land Use, page 6-8, line 27-29: Make sure that the discussion on future use of the site by ONG is consistent with the MOA between the Army and the ONG. In the past, ONG has stated that they do not want restricted use of the site.</p>	<p>Make sure that the future use of the site by ONG is as specific as possible and is consistent with the MOA and most recent determination or agreements on the future use of the site by ONG. Since this MOA agreement is in writing, this should be mentioned and discussed in the report.</p> <p>Also, ONG has voiced a concern that they want little to no restrictions placed on the site dictating what kind of training activities they can or can't conduct on the land after it is transferred from the Army to ONG. Therefore, this MOA should be mentioned to some capacity within the report.</p>	
5	<p>Section 6.3.1.2 Potential Receptors, page 6-8: Issues relating to the potential receptors and future land use has been raised in comments on Load Line 1 and in the Sitewide HHRA facility wide risk assessment work plan</p>	<p>Please ensure that resolution of any outstanding issues related to risk assessment is incorporated into this report.</p> <p>Please make sure that the potential receptors and corresponding exposure assumptions are consistent with resolution of comments on the Facility Wide HHRA Work Plan and LL-1 Tech Memo and Final Report. I think these are OK, but with the ongoing comments on HHRA facility wide work plan, we must ensure consistency with the resolution of outstanding comments regarding receptors and assumptions.</p>	
6	<p>Section 6.3.3 Exposure Point Concentrations, page 6-13, line 3-4: Clarification needed. As written, the text sounds like we use the lower number for the EPC no matter what. Public perception may interpret this as we are trying to use the lowest concentrations in order to make</p>	<p>Remove the last part of the sentence that says "whichever is smaller" and replace with period to end sentence after "EU". Then, add a sentence after this period that states "If the 95% UCL is greater than the maximum detected concentration, then the default exposure point concentration is the</p>	

Preliminary Draft Report of the Phase II RI of LL 2, LL3, LL4 dated May 5, 2003

	things appear better than they are.	maximum detected concentration for that constituent.”	
7	Section 6.3.4 Quantification of Exposure, page 6-13: Text states that EPCs are used to evaluate COPCs by comparison to LL1. However, text doesn't discuss exactly how this comparison is done – are EPCs compared with EPCs from LL1 and then to the corresponding risk level? Provide a summary table that presents the LL2 [EPC] next to the LL1 [EPC].	Add more detail in report on how this comparison was conducted. Average daily doses to receptors can be calculated for LL 2 and compared with those generated for Load Line 1 constituents. This information can be summarized and presented in a table presenting both the LL2 EPC along with the LL1 EPC and the corresponding risk/hazard estimate that resulted for a specific constituent.	
8	Section 6.4 Toxicity Assessment, page 6-13: Ohio EPA has concerns that the reader is directed to reference LL1 report for information that is relevant to load line 2 risk evaluation report. Since these reports are separate, standalone documents, the information should be included in the LL2 report so that it is easily accessible to the reader.	<p>Since LL 2, 3 and 4 reports are supposed to be standalone documents, information relevant to these reports must be included in the respective report instead of providing repeated references to LL1 for the information. This should be easily done by “cut and paste” of the information from LL1 report to an appendix in the respective report (LL2, 3 or 4). At a minimum, COPCs specific to LL2 (LL3, LL4) that are not included in LL1 should be addressed in the respective report.</p> <p>If references to LL1 for additional information continue to be used in LL2, 3 and 4 reports, then you should establish a mechanism for keeping these documents linked together since so much information is housed in LL 1 report. One recommendation is to create a cross reference guide or sheet that could be added to beginning of report near table of contents that outlines what information is applicable to the evaluation/understanding of LL2</p>	

Preliminary Draft Report of the Phase II RI of LL 2, LL3, LL4 dated May 5, 2003

		information, but is actually found within the LL1 report.	
9	Section 6.5 Risk Characterization, page 6-14, line 5-6: The term “substantially different” is not defined.	<p>The discussion should be expanded to clearly state how you determine if additional risk characterization is needed (if there are 13 COPCs at one area and only 12 COPCs at another area, these are different – what do you do?)</p> <p>If the media that a receptor is potentially exposed to differs between load lines (for instance, if sediment is present at one Load Line but not at another load line) how is the media evaluated?</p> <p>If the COPCs are the same as those at LL1, but present in differing media (chemical A is present in soil but at LL1 versus the presence of Chemical A in water and not soil at LL2) how is this evaluated?</p> <p>A discussion should be included to detail what is needed is additional risk characterization is recommended – what all does this involve? Additional sampling? Risk calculations?</p>	
10	Section 6.5.1 Methodology, page 6-14 line 10-16: Text states that surface soil, subsurface soil, surface water, sediment, groundwater are the environmental media evaluated. When comparing COPCs at LL2 to COPCs and COCs at LL1, is this comparison done independently of the media where these constituents are located?	Add some text to this section to clarify that we are comparing COPCs per media – meaning comparing COPCs in surface soil at LL2 with the list of COPCs in surface soil at LL1 – The text should also discuss what determination is made if for example, lead is a COC in surface soils at LL1 but is not found in surface soils at LL2, but instead found in a different media like, surface water. What does this mean?	

Preliminary Draft Report of the Phase II RI of LL 2, LL3, LL4 dated May 5, 2003

11	Figure 6-1, COC Determination Method For Load Line 2, page 6-15: Figure needs to indicate if this is done on a media specific basis or if this is done independent of media.	Add clarifying text to indicate that this should be on a media specific basis – so that you are comparing “apples to apples” (soil to soil, water to water, etc).	
12	Figure 6-1, COC Determination Method For Load Line 2, page 6-15: If a LL2 COPC is not a COC or COPC for LL1, then it becomes a COC for LL2 (or the specific load line of interest, such as LL3, LL4) without any consideration given to the concentration that is present.	Should include a step in here directing user to develop an RGO in these situations. This will allow for a comparison of the site concentration to an RGO concentration. This may be helpful in cases where a constituent was detected at a level just above detection limits – this may not be a level of concern, but we don’t know because we are not evaluating the concentrations and are simply comparing a list of chemical constituents. Also, if you follow the flow chart and you determine that a contaminant is a COC for LL2, and no information is present for comparison to LL1, the flow chart leaves you hanging after the determination that this contaminant is a COC. We need to include a box that discusses the “what’s next” step.....this may be “Develop RGO for specific Contaminant using LL1 methodology”.	
13	Section 6.5.2 Risk Characterization Results, page 6-14 How is cumulative risk from exposure to multiple chemicals evaluated at these load lines?	Discuss how cumulative risk to each receptor from exposure to multiple contaminants is evaluated. Ohio EPA’s cumulative risk goal is 1E-5.	
14	Section 6.5.2 Risk Characterization Results Tables, page 6-14. Tables showing comparisons between Load Line 2 EPCs and LL 1 EPC and also LL2 EPC and LL1 RGO’s at two risk levels (10-6 and 10-4)	In the summary tables where appropriate, please include the concentrations for the EPC and RGO for the site under evaluation versus the LL1 concentration. This will allow conclusions to be drawn by the reader	

Preliminary Draft Report of the Phase II RI of LL 2, LL3, LL4 dated May 5, 2003

	<p>and two hazard levels (1 and 0.1) are presented. The tables only list the constituent detected and do not present the EPC or RGO concentration, which would be helpful information.</p>	<p>based on the empirical data.</p> <p>For example, In Table 6-3, concentrations could be included in the second and last columns of this table. Possibly, three sub-columns (LL 2 [EPC]; Contaminant; and LL1 [EPC]) could be added to the second and third columns so that you can compare concentrations. (this may be easier than stating “for antimony the LL2 [EPC] = ## vs. LL1 [EPC]= ### “).</p> <p>Another example, In table 6-4 the EPCs are compared to RGOs. Here, a similar approach as suggested above could be used where three additional sub-columns (LL2 [EPC]; Contaminant; LL1 [RGO]) are added under each receptor category.</p>	
<p>15</p>	<p>Section 6.5.2 Risk Characterization Results, Surface Water direct contact, page 6-17</p> <p>No table is present comparing LL2 EPC to LL1 RGO (table similar to Table 6-4). See comment # 10 above.</p> <p>This is partially explained in the text that because no toxicity information is available, RGO can't be calculated for 2 of the 4 contaminants. However, RGO's can be calculated for the other two contaminants.</p>	<p>See Recommendation to Comment #10 above. Ohio EPA recommends to calculate RGO's using the methodology outlined in LL1 for the LL2 COCs that have toxicity information available and present this in a summary table in main text and present the details of the RGO calculations in the appendix.</p>	
<p>16</p>	<p>Table 6-9 Summary of Comparison of LL2 EPC to LL1 RGOs for Surface Soil, page 6-21: This table is supposed to summarize</p>	<p>For each contaminant listed in the summary table, please list the EPC and the RGO in the table as well. See comment #15 above</p>	

Preliminary Draft Report of the Phase II RI of LL 2, LL3, LL4 dated May 5, 2003

	the EPC and RGO's yet it only list the chemicals and not the EPC and RGO values		
17	Section 6.6 Uncertainty Analysis, page 6-24, line 15 to page 6-25 line 3: RGO's should be calculated for COPCs and COC that were present at LL2 but were not present at LL1 and thus do not have RGOs already established.	Calculate RGO's for COCs that are specific to LL2 and not LL1. Follow methods used to calculate RGOs at LL1. This should be discussed and included as a separate section in this report.	
18	Section 6.7 Summary and Conclusions, page 6-25 line 14: Text states that the Residential scenario was evaluated as a worst case scenario for this site.	The Residential scenario was evaluated for unrestricted reuse of the site and to address the ONG concerns of not wanting any restrictions on the reuse of the property. Please clarify this in the text.	
19	Section 6.7.1 Groundwater, page 6-25, line 20-22: Text states that no RGOs are available for certain constituents therefore, a BHHRA may be needed.	See Comment #10 above, but Recommend developing RGOs for those constituents that are specific to LL2, in lieu of conducting a BRA, since the methodology and assumptions are already outlined in LL1 for RGO development. Another option would be to use the Region 9 PRGs in lieu of developing site specific RGOs, in order to help determine whether or not conducting a BRA (due to a few contaminants not having a RGO) is the best use of resources.	
20	Section 6.7 Summary and Conclusions, page 6-25 to 6-26: No recommendations are included.	Include a recommendations section that states whether or not remedial action is necessary based on the information provided.	
21	General Comment: In the "Risk Characterization" Section, the report does not discuss the results of LL2 comparisons to LL1 in terms of risk level.	Discuss the results of LL2 in terms of the expected risk level. If the EPC for a specific chemical at LL1 resulted in a risk level of E-6 for instance, then the results for LL2 should be discussed in terms of whether or not the respective risk level is anticipated to be higher or lower than a E-6	

Preliminary Draft Report of the Phase II RI of LL 2, LL3, LL4 dated May 5, 2003

		<p>risk level.</p> <p>Additional sentences should be added to the text (where appropriate) making qualitative comparisons of the risk levels. An example of what I am looking for follows:</p> <p>For example, (hypothetically speaking) the For chemical A, the EPC at LL1 was 5.0 ppm which corresponds to a risk level of 1E-6. The EPC for Checmical A at LL2 was 3.0ppm, therefore it is likely that the corresponding risk estimate for this contaminant at LL2 is less than 1E-6.</p>	
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State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

April 21, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL BIOREMEDIATION PILOT
STUDY WORK PLAN

Mr. Mark Patterson
Environmental Program 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 revisions for the document entitled: "Work Plan and Sampling and Analysis Plan for the Bioremediation Pilot Study for Soils from Former Building FJ 904 at **Load Line 12 (AOC 12)**, Ravenna Army Ammunition Plant, Ravenna Ohio." The revisions to this document were prepared by MKM Engineers, and were received at Ohio EPA, NEDO, DERR on April 14, 2003.

The revisions were compared to the original document, dated March 2000 (received at NEDO on April 03, 2000); previous Ohio EPA comments, dated April 14, 2000; and MKM's response to comment matrix, dated May 09, 2000 (received at NEDO on June 06, 2000). The revisions are acceptable to Ohio EPA, and the work plan is considered final.

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

Sincerely,

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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
LTC Tom Tadsen, OHARNG
Dr. Srinu Neralla, MKM Sacramento
Rick Callahan, MKM RVAAP

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



State of Ohio Environmental Protection Agency

Northeast District Office

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TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

April 28, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL BIOREMEDIATION PILOT
STUDY REPORT

Mr. Mark Patterson
Environmental Program 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 revisions for the document entitled: "Draft - Final Completion Report for the Bioremediation Pilot Study for Soils from Former Building FJ 904 at **Load Line 12 (AOC 12)**, Ravenna Army Ammunition Plant, Ravenna Ohio." The revisions to this document were prepared by MKM Engineers, and were received at Ohio EPA, NEDO, DERR, on April 14, 2003.

The revisions were compared to the original document, dated May 2001 (received at NEDO on May 29, 2001), previous Ohio EPA comments, dated November 13, 2001, and MKM's response to comment matrix, dated June 19, 2002 (received at NEDO on the same date). The revisions are acceptable to Ohio EPA and the report is considered final.

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

Sincerely,

Kathy S. Schellio
-FOR-

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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
LTC Tom Tadsen, OHARNG
Dr. Srinu Neralla, MKM, Sacramento
Rick Callahan, MKM, RVAAP

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





An 8(a) Certified Alaska Native Corporation (ANC)

*Ravenna Army Ammunition Plant, Bldg. 1038
8451 State Route 5
Ravenna, OH 44266*

*330-358-1753
330-358-1754 Fax*

May 6, 2003

Mr. Robert J. Matthys
Contracting Officer, Environmental Contracting Division
Department of the US Army
HQ Operations Support Command
AMSOS-CCE-D
Rock Island, IL 61299

**Reference: Contract No. DAAA09-01-G-0009, Delivery Order No. 0012:
Phase I/II Remedial Investigation, Fuse & Booster Quarry Landfill/Ponds,
Ravenna Army Ammunition Plant**

Subject: Deliverable – April 2003 Monthly Progress Report

Dear Mr. Matthys:

Please find enclosed the Monthly Progress Report for April 2003 for the Phase I/II Remedial Investigation at the Fuse & Booster Quarry Landfill/Ponds, Ravenna Army Ammunition Plant. This monthly report includes the activities and accomplishments by task during the past month, a progress chart, percent complete summary, project deliverables listing, issues and concerns, and plans for next month.

If you have questions or comments, please contact me at (330) 358-1753.

Sincerely,

SPECPRO, INC.

A handwritten signature in black ink that reads "Susan E. McCauslin".

Susan E. McCauslin
Project Manager

C: Mark Patterson, RVAAP
J. Herrmann, SpecPro

MONTHLY PROGRESS REPORT FOR APRIL 2003

PHASE I/PHASE II REMEDIAL INVESTIGATION FUSE & BOOSTER QUARRY LANDFILL/PONDS RAVENNA ARMY AMMUNITION PLANT RAVENNA, OHIO

CONTRACT NO. DAAA09-01-G-0009
DELIVERY ORDER NO. 0012

1.0 Activities/Accomplishments During the Month

Task 1 – Project Management and Administrative Support

SpecPro, Inc. continued management and administrative support activities for project implementation.

Task 10 – Development of a Conceptual Model for a Site-Wide Ground Water Monitoring Program

SpecPro, Inc. submitted the draft conceptual model to the appropriate for review on April 14.

2.0 Progress Chart/Deliverables

Table 1 shows the current percent complete for each project task as set forth in the project Scope of Work. Table 2 is a listing of project deliverables showing planned and actual submittal dates. Attachment 1 is a progress chart showing the current status of the project.

Table 1. Percent Complete

	Task	Complete
1	Project Management and Administrative Support	5%
2	Project Preparation/Plans	0%
3	Mobilization/Demobilization	0%
4	Groundwater Monitoring Well Installation and Development	0%
5	Groundwater Sampling	0%
6	Soil Sampling and Test Pits	0%
7	Surface Water and Sediment Sampling	0%
8	IDW Handling and Disposal	0%
9	Surveying/Mapping	0%
10	Development of Conceptual Model	35%

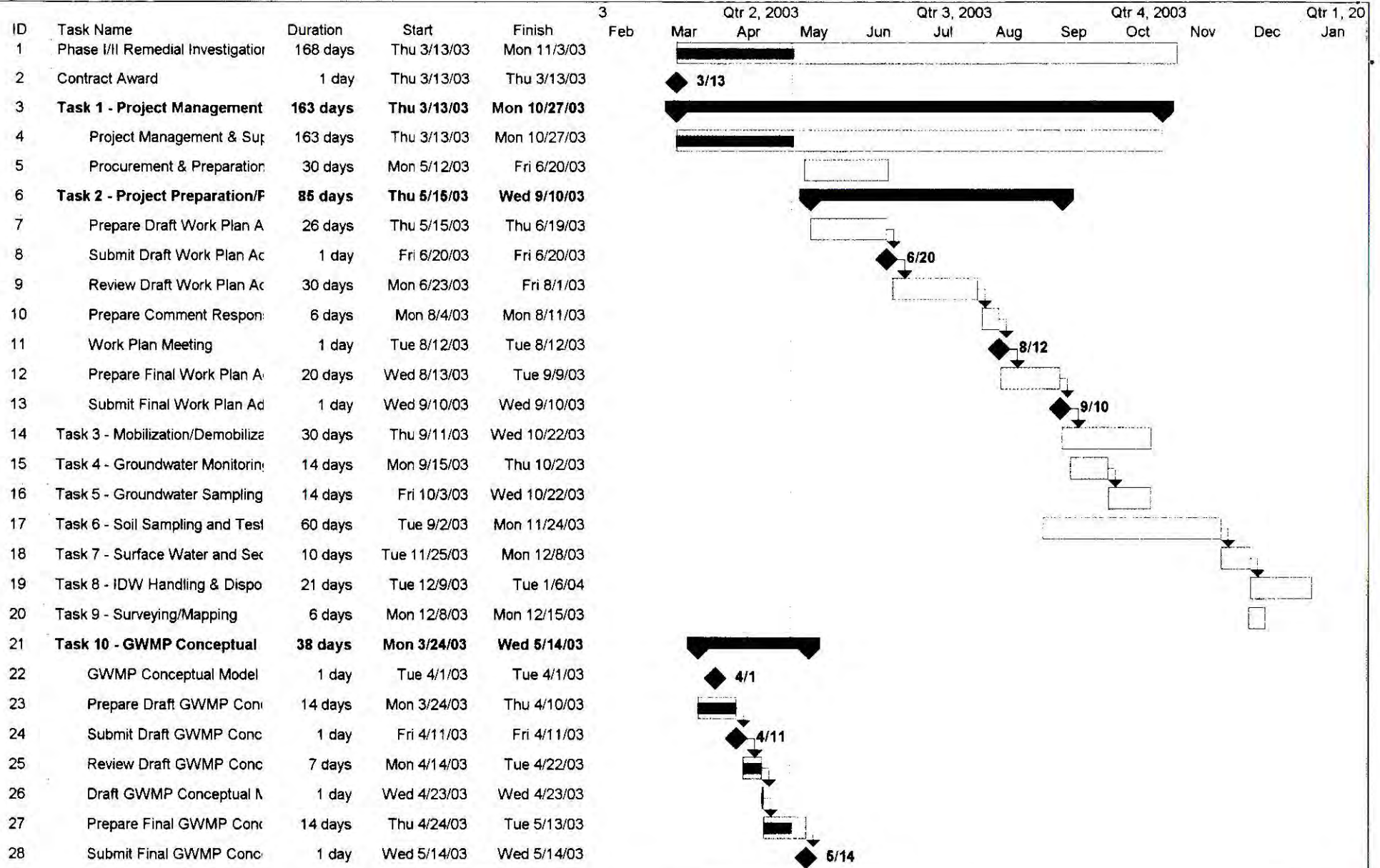
Table 2. Project Deliverables

Deliverable	Scheduled	Actual
Monthly Progress Reports	Monthly	04/04/03
Milestone Charts/Schedules	03/28/03	03/28/03
Draft Work Plan Addenda	06/20/03	--
Final Work Plan Addenda	09/10/03	--
Draft Conceptual Model	04/11/03	04/14/03
Final Conceptual Model	05/14/03	--

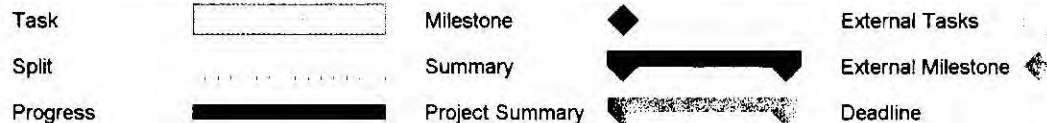
3.0 Issues/Concerns

4.0 Planned Activities for Next Month

SpecPro, Inc. plans to complete and submit the final conceptual model for the site-wide ground water monitoring program.



Project: Fuse & Booster Schedule
Date: Tue 5/6/03





An 8(a) Certified Alaska Native Corporation (ANC)

*Ravenna Army Ammunition Plant, Bldg. 1038
8451 State Route 5
Ravenna, OH 44266*

*330-358-1753
330-358-1754 Fax*

July 10, 2003

Mr. Robert J. Matthys
Contracting Officer, Environmental Contracting Division
Department of the US Army
HQ Operations Support Command
AMSOS-CCE-D
Rock Island, IL 61299

**Reference: Contract No. DAAA09-01-G-0009, Delivery Order No. 0012:
Phase I/II Remedial Investigation, Fuse & Booster Quarry Landfill/Ponds,
Ravenna Army Ammunition Plant**

Subject: Deliverable – June 2003 Monthly Progress Report

Dear Mr. Matthys:

Please find enclosed the Monthly Progress Report for June 2003 for the Phase I/II Remedial Investigation at the Fuse & Booster Quarry Landfill/Ponds, Ravenna Army Ammunition Plant. This monthly report includes the activities and accomplishments by task during the past month, a progress chart, percent complete summary, project deliverables listing, issues and concerns, and plans for next month.

If you have questions or comments, please contact me at (330) 358-1753.

Sincerely,

SPECPRO, INC.

A handwritten signature in black ink that reads "L. Chantelle Carroll". The signature is written in a cursive, flowing style.

L. Chantelle Carroll
Project Manager

C: Mark Patterson, RVAAP
L. Cueto, SpecPro

MONTHLY PROGRESS REPORT FOR JULY 2003

PHASE I/PHASE II REMEDIAL INVESTIGATION FUSE & BOOSTER QUARRY LANDFILL/PONDS RAVENNA ARMY AMMUNITION PLANT RAVENNA, OHIO

**CONTRACT NO. DAAA09-01-G-0009
DELIVERY ORDER NO. 0012**

1.0 Activities/Accomplishments During the Month

Task 1 – Project Management and Administrative Support

SpecPro, Inc. continued management and administrative support activities for project implementation.

Task 2 – Project Preparation

SpecPro, Inc is completing and submitting the Draft Sampling and Analysis Plan for review and comment to all appropriate parties on July 11, 2003.

Task 10 – Development of a Conceptual Model for a Site-Wide Ground Water Monitoring Program

SpecPro, Inc. submitted the draft conceptual model to the appropriate partners for review and responded to their comments. A comment resolution meeting was held to address all of the comments and their resolutions. SpecPro, Inc is addressing the new comments from the meeting and will present the document again with new changes.

2.0 Progress Chart/Deliverables

Table 1 shows the current percent complete for each project task as set forth in the project Scope of Work. Table 2 is a listing of project deliverables showing planned and actual submittal dates. Attachment 1 is a progress chart showing the current status of the project.

Table 1. Percent Complete

	Task	Complete
1	Project Management and Administrative Support	8%
2	Project Preparation/Plans	40%
3	Mobilization/Demobilization	0%
4	Groundwater Monitoring Well Installation and Development	0%
5	Groundwater Sampling	0%
6	Soil Sampling and Test Pits	0%
7	Surface Water and Sediment Sampling	0%
8	IDW Handling and Disposal	0%
9	Surveying/Mapping	0%
10	Development of Conceptual Model	91%

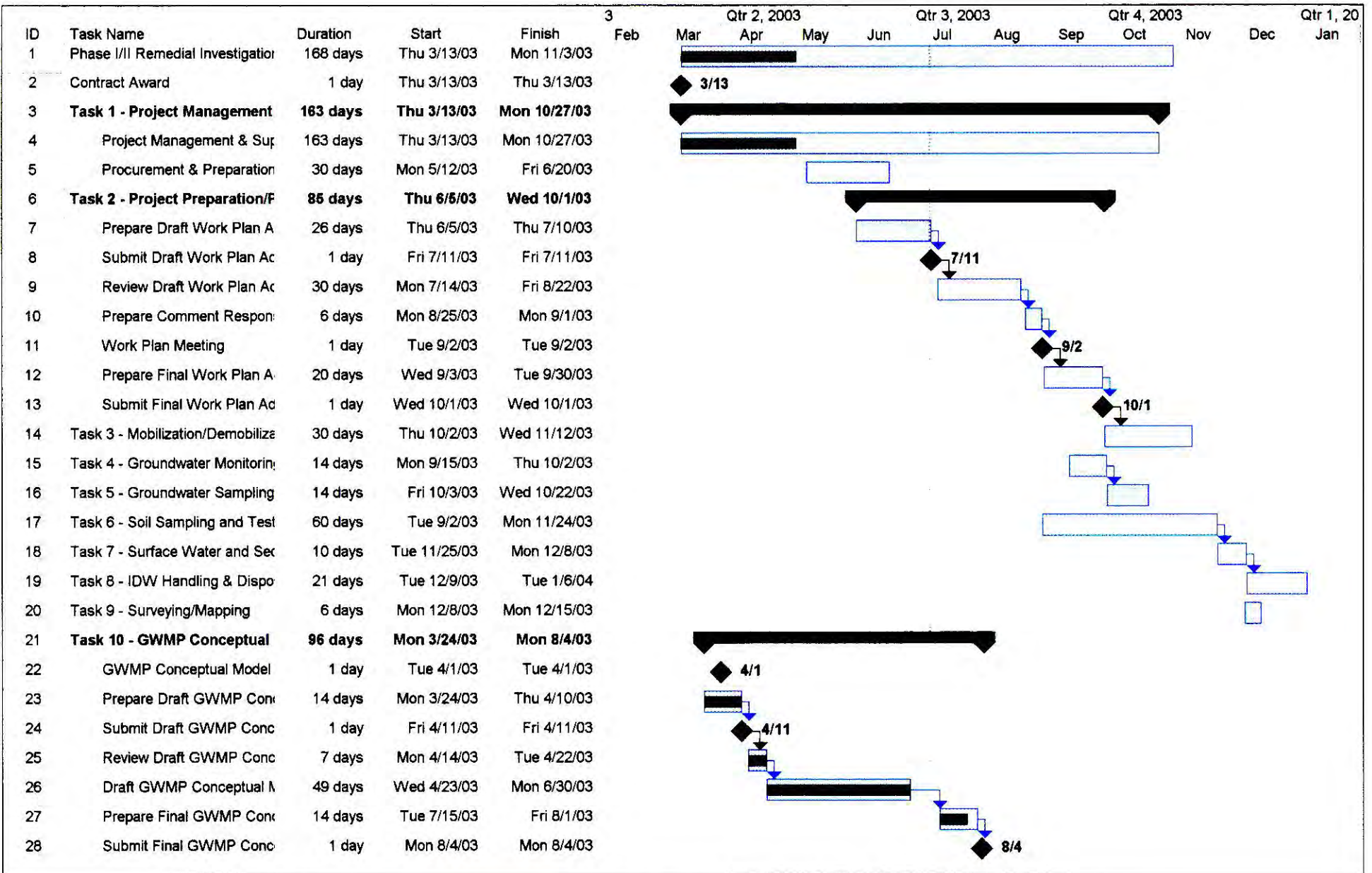
Table 2. Project Deliverables

Deliverable	Scheduled	Actual
Monthly Progress Reports	Monthly	07/10/03
Milestone Charts/Schedules	03/28/03	03/28/03
Draft Work Plan Addenda	07/11/03	--
Final Work Plan Addenda	09/10/03	--
Draft Conceptual Model	04/11/03	04/14/03
Final Conceptual Model	08/30/03	--

3.0 Issues/Concerns

4.0 Planned Activities for Next Month

SpecPro, Inc. plans to finalize the final conceptual model for the site-wide ground water monitoring program and resolve draft work plans comments.



Project: Schedule FuzeBooster Date: Thu 7/10/03	Task		Milestone		External Tasks	
	Split		Summary		External Milestone	
	Progress		Project Summary		Deadline	



State of Ohio Environmental Protection Agency

Northeast District Office

VVGGP 112

2110 E. Aurora Road
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TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

August 14, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FUZE AND BOOSTER QUARRY
LANDFILL/PONDS PHASE I/II RI

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

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), has received and reviewed the document entitled: "Draft, Work Plan and Sampling and Analysis Plan Addenda for the Phase I/Phase II Remedial Investigation of the Fuze and Booster Quarry Landfill/Ponds at the Ravenna Army Ammunition Plant, Ravenna, Ohio."

This document, dated June 2003 and received at Ohio EPA, NEDO, on July 14, 2003, was prepared for the U.S. Army Operations Support Command by SpecPro, under contract number DAAA09-01-G-0009, delivery order number 0012.

This document was reviewed by personnel from Ohio EPA's Division of Emergency and Remedial Response (DERR) and Division of Drinking and Ground Waters (DDAGW). The enclosed comment table represents a compilation of comments from both reviewers.

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

Sincerely,

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

enclosure

cc: Bonnie Buttker, Ohio EPA, SWDO, OFFO
Laurie Eggert, Ohio EPA, SWDO, OFFO
Connie McCambridge, Ohio EPA, NEDO, DDAGW
Paul Zorko, USACE Louisville
Chantelle Carroll, SpecPro

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



DRAFT, WORKPLAN AND SAMPLING AND ANALYSIS PLAN, QUALITY ASSURANCE PROJECT PLAN AND HEALTH AND SAFETY PLAN FOR THE PHASE I/PHASE II RI AT THE FUZE AND BOOSTER QUARRY PITS

OHIO EPA REVIEWERS: EILEEN MOHR AND CONNI McCAMBRIDGE - AUGUST 14, 2003

WORKPLAN (WP)/FIELD SAMPLING PLAN (FSP)

Cmt. #	Page # Line #	Comment	Requested Revision	Response
1	General Comment	The term "fuse" appears in numerous places in the text.	Replace all references to "fuse" with "fuze."	
2	General Comment	When referring specifically to the Fuze and Booster Quarry Landfill/Ponds, they should be referenced as an AOC, not a site. For example on page 1, line 9, the text indicates "... media resulting from activities at this site."	Replace all references to "site" with AOC.	
3	General Comment	This Phase I/Phase II RI is primarily being conducted at the Fuze and Booster Quarry Landfill/Ponds, however, some additional samples will be used for the 40mm AOC. (For example, the third bullet on pg 9 line 21 is unclear as to whether or not "identifying the sources of contamination" is specific to the Fuze and Booster AOC, or if it also refers to the 40 mm AOC.	The fact that additional samples will be collected at the 40mm range needs to be clarified/stated at an appropriate place in the revised text.	

4	General Comment	It was Ohio EPA's understanding that incremental sampling was going to be utilized during this project.	If this is correct, please add a discussion of incremental sampling to the revised text; describe what media will be sampled incrementally; describe how the media will be sampled; and, provide a number of samples that will be obtained using this methodology.	
5	General Comment	Several subsection headings (i.e., sections 3.2.1.1, 3.2.1.2 and 3.2.1.3) use different font styles and sizes.	Please correct all section headings to maintain consistent font styles and sizes throughout the entire text.	
6	General Comment	Subheadings in various sections are either underlined (i.e., sections 4.1.2.2 and 4.1.2.4) while other subheadings are not (i.e., section 4.1.2.1).	Please correct all section subheadings to maintain consistent underlining styles throughout the entire text.	
7	pg 2	The header indicates that this is a final workplan.	Change "final" to draft.	
8	pg 3	The header indicates that this is a final workplan.	Change "final" to draft.	
9	Table of Contents	<p><u>Issue 1:</u> Incorrect page numbers are listed for Sections 6.0, 7.0, 8.0, Appendix A and Appendix B.</p> <p><u>Issue 2:</u> The Ordnance and Explosives (OE) Avoidance Plan was not included in Appendix B.</p>	<p><u>Issue 1:</u> Please correct page numbering for the corresponding sections.</p> <p><u>Issue 2:</u> Please provide the OE Avoidance Plan.</p>	

10	pg 9, line 10	The text references that a baseline risk assessment will be performed for this AOC.	Are screening assessments being performed, or are baseline human health and ecological risk assessments proposed? Specify what will be conducted in the revised text. (Details do not need to be added at this point in time.)	
11	pg 9, line 12	Please confirm that site investigations were performed at this AOC in 1989 and 1993.	If this is correct, please add the SI citations to the reference list. If not, please remove this reference from the revised text.	
12	pg 9, lines 18-19	The text indicates that one of the objectives of the investigation is to "determine the boundaries of the AOC at..."	Revise the language to read: "determine the boundaries of the Fuze and Booster Quarry Landfill/Ponds AOC."	
13	pg 9, lines 24-25	Are both ecological and human health baseline risk assessments being proposed?	Please clarify in the revised text.	
14	pg 10, lines 22-26	The text as currently written seemingly indicates that the 40 mm range was expanded to include other shallow settling ponds and a couple debris piles. The Fuze and Booster AOC was the one that was expanded.	Please re-arrange the text so that it is clear which AOC was expanded. This can be accomplished by taking the sentence in lines 22-24 and putting it the end of the paragraph.	
15	section 1.2, pg 10	The draft workplan does not include a map of the Fuze and Booster AOC in this section of the workplan.	Please provide a map of the Fuze and Booster AOC in this section, or reference the sample location maps found in section 4..	

16	pg 10, line 33	The text indicates that, " <i>a summary of the previous investigations is provided below.</i> " A summary was not provided in this section.	Please provide a summary of the previous investigations in the revised workplan.	
17	figure 1-2	The AOC map presented in the draft workplan does not identify the AOCs by number, nor does it contain a list of the AOCs in an accompanying legend.	Please revise the figure so that it mirrors the installation maps found in other RVAAP workplans and reports.	
18	figure 1-2	The scale for the map is incorrect.	Please revise the scale so that it is accurate.	
19	pg 13, lines 14-16	The text, as written, is not clear.	Please remove the word "Coordinator" from line 15.	
20	pg 14, figure 2-1	The figure indicates that the USACE QA lab is yet to be determined. (This also contradicts pg 30 which indicates that STL is the QA lab.)	Please confirm that the USACE will be conducting the 10% split.	
21	pg 16, line 10	The text references that a baseline risk assessment will be performed for this AOC.	Are screening assessments being performed, or are baseline human health and ecological risk assessments being proposed? Specify what will be conducted in the revised text.	
22	pg 16, lines 15-16	The first bullet indicates that one of the objectives of the investigation is to "determine the boundaries of the AOC at..."	Revise the language to read: "determine the boundaries of the Fuze and Booster Quarry Landfill/Ponds AOC."	

23	section 3.1, pg 16	The bulleted text does not include the objective to assess the risk posed to human health and the environment.	Please include this objective in the bulleted text.	
24	pg 16, line 31	The text indicates that geophysical data will be obtained during the investigative effort.	Please specify in the revised workplan which geophysical technique(s) will be utilized. If geophysical investigations will not be conducted, please remove this reference in the revised text.	
25	pg 18, lines 25-28	The text in this sentence is unclear.	Please revise the latter portion to read: "... primarily in the southern portion of the AOC, the southern-most pond which contains an overflow pipe."	
26	pg 18, lines 35-36	Currently, there is no hydrogeologic information for the Fuze and Booster AOC.	Revise the text to read: "No hydrogeologic and analytical data exist..."	
27	pg 18, line 43	Subject-verb agreement.	Please change "has" to "have."	
28	pg 19, lines 9-11	The text is apparently repetitive without the addition of the term "boundaries."	Change the text in line 10 to read: "...close proximity to the former landfill/ponds boundaries to determine..."	
29	pg 19, lines 16-17	The text in this sentence is contradictory.	Please revise the text to indicate whether the contaminants are known to be present, or may be present.	

30	pg 19, line 23	The Fuze and Booster AOC is not a RCRA unit.	Revise the text to read:...."Landfill/Ponds AOC is currently unknown."	
31	pg 19, line 25	The indicates that SESOIL modeling will be performed. Typically AT123D modeling is also utilized.	Please confirm that AT123D modeling will also be performed.	
32	section 3.2.6, pg 20	The text states that " <i>Phase I data were not sufficient to fully define the nature and extent of contamination...</i> " No Phase I RI has been conducted at this AOC.	Please remove the sentence that spans lines 9-11. Additionally, revise line 12 to indicate that the purpose of the Phase I/Phase II RI is to ..."determine the presence..."	
33	pg 20, line 31	The text references a Phase I RI at this AOC. No Phase I RI has been conducted.	Remove the reference to the Phase I RI.	
34	pg 22, line 19	Facility-wide background was determined during the Phase II RI at WBG.	Remove the reference to the Phase I RI.	
35	pg 22, line 30	The text seemingly indicates that no soil samples will be collected from well borings after a 4 foot depth interval. This is not correct.	Samples from monitor well installation are logged every two feet from the top of the boring until termination. Additionally, at RVAAP, if wells are installed in bedrock, coring must occur. Please make the necessary revisions to the text.	
36	pg 23, lines 5- 6	The Fuze and Booster Quarry Landfill/Ponds is not a RCRA unit. Additionally, there is currently no hydrogeologic data for this AOC.	Revise the text to read: " No hydrogeologic data exists for the Fuze and Booster Quarry Landfills/Ponds AOC."	

37	pg 23, line 7	The text is unclear.	Revise the text to read: "...to shallow groundwater and to evaluate potential..."	
38	pg 23, lines 12-15	The text indicates that monitoring wells will be placed to "the west of the site..." This sentence does not accurately convey the monitoring well network configuration.	Remove the phrase " to the west of the site and" from line 13.	
39	pg 23, lines 25-26	The text references existing monitoring well information from the RCRA wells. This is incorrect.	Revise the text to read: "...and 9.1 meters (30 feet) bgs based upon site topographic data."	
40	section 4.1.1.1, pg 23, line 31	The meaning of the symbol "~" is unclear in Line 31.	Please use the word "approximately" in lieu of the symbol "~" in Line 31.	
41	table 4-1, pg 25	In the column labeled "principal suspected contaminants", the contingency samples have a "TBD" as the potential contaminants.	In the revised figure, please reference what constituents of concern are expected, not what analyses will be conducted on the samples.	
42	table 4-1, pg 25	In the ditch and pond row and the monitoring row, information regarding the proposed analytical suite appears along with the suspected potential contaminants.	Remove the references to the analytical suites to be performed on these samples. Or add another column that details this information for all areas proposed for sampling. (See the comment # 44).	

43	table 4-1, pg 25	The table text does not indicate whether any monitoring well(s) will characterize the upgradient (background) groundwater at the AOC. This is also not clarified in any other portion of the text.	Please provide additional details concerning this issue.	
44	table 4-1, pg 25	If an additional column is added that details the analyses to be performed, then the "full-suite" listing under the figure needs to be adjusted for groundwater.	Does the groundwater full suite contain cyanide, nitrate/nitrite, and sulfide analyses? Please clarify.	
45	pg 26, line 3	The text indicates that USACE will be split sampling.	Please confirm that the USACE will be conducting the 10% split.	
46	pg 27, line 8	The text references that the approximate depth to the water table is based upon existing information.	Please describe the "existing information" in the revised text. If it is solely based upon the AOC topography, please state that in the revised text.	
47	section 4.1.2.3 on page 28	The text does not discuss the potential for bedrock coring.	After line 5, please discuss the potential for coring, coring methods, how/where cores will be stored, etc..	
48	pg 28, line 39	The text references nephelometric units of turbidity.	Please revise to read "nephelometric" units.	
49	section 4.1.4.2, pg 29, line 41,	The meaning of the first sentence in this section is unclear.	Please revise sentence to read, <i>"Filtered ground water samples will be collected for dissolved TAL metals analyses only as per Section 4.3.5 of the facility-wide SAP"</i> .	

50	pg 30, lines 15-16	The text indicates that split samples will be submitted to STL.	Please confirm that the USACE will be conducting the 10% split. If this is not the case, please be advised that Ohio EPA cannot use STL, as GPL is our contract lab.	
51	section 4.1.9, pg 31, line 35	The text indicates that <i>"an OE avoidance plan is contained in Appendix C."</i> However, the Table of Contents lists the OE plan as appearing in Appendix B. No OE avoidance plan was found in Appendix B or C.	Please revise the sentence to correspond to the Table of Contents and include a copy of the OE Avoidance Plan in the revised document.	
52	section 4.2.1.1, pg 32, line 18	The sentence indicates that <i>"subsurface soils samples will be collected from 100 soil stations and from the 12 monitoring wells borings if feasible."</i> The meaning of <i>"if feasible"</i> is unclear.	Please clarify the meaning of <i>"if feasible"</i> .	
53	pg 32, lines 18-19	The text indicates that sub-surface soil samples will be obtained from a 1-3' interval.	No text change is required, but be advised that if contamination is determined in the 1-3 foot interval, and no additional samples are obtained at a greater depth, the position of the Ohio EPA will be that the vertical extent of contamination has not been determined.	

54	pg 32, lines 19-21	The text seemingly indicates that no soil samples will be collected from well borings after a 4 foot depth interval. This is not correct.	Samples from monitor well installation are logged every two feet from the top of the boring until the termination. Additionally, at RVAAP, if wells are installed in bedrock, coring must occur. Please make the necessary revisions to the text.	
55	section 4.2.1.3, pg 33, line 5	The sentence reads, "...the remaining chemical analyses to be performed...may include, VOCs, SVOC,..."	Please change the word "SVOC" to read "SVOCs".	
56	pg 34, lines 30-31	The text indicates that one of the two Shelby tube samples obtained from the drilling of each monitoring well will be additionally analyzed for grain size and hydraulic conductivity.	Add text to the revised report detailing how it will be determined which sample is selected for analysis.	
57	pgs 34-35, lines 37-9	This section of the text references the installation of test pits.	In the revised text, insert the trenching protocols that were initially developed for the Load Line 12 Phase II RI.	
58	pg 35, line 4	The text indicates the possibility for test pits to be left open overnight.	It is unclear as to why this situation might occur. Provide clarification in the revised text. What safety requirements will be put in place?	
59	pg 35, lines 19-22	This portion of the text discusses obtaining sub-surface samples for the full suite of analyses.	In the revised text, please describe how it will be determined which sub-surface samples are selected for full-suite analyses.	

60	pg 35, lines 21-22	The text indicates that the full suite analyses will be conducted "...on samples collected from the same station and at the same depths." Is the intent of this text to indicate that a "full-suite" can not be obtained by (for example) analyzing for explosives and metals in sample # 1, VOCs, SVOC, TAL metals in sample #2, pesticides/PCBs in sample #3?	Please provide clarification.	
61	section 4.2.2.5, pg 35, line 21	The text does not indicate whether nitrate/nitrite, and sulfide will also be analyzed from the collected subsurface soil samples.	Please clarify this issue.	
62	section 4.2.2.5, pg 35, line 27	The text indicates that subsurface soil sampling numbers can be found in Table 5-2 and 5-4. This is not the case. Table 5-2 details sediment sampling information while Table 5-4 details monitoring well sampling information.	Please correct the text.	
63	pg 35, lines 35-36	The text indicates that efforts will be made to ensure proper cooling of samples en-route to the off-site lab.	Unless, the samples are hand-delivered or couriered on the same day to STL (in North Canton), the cooler temperature upon arrival at the lab should be 4 degrees C.	
64	pg 36, line 3	The text references an OE avoidance plan in Appendix B. The plan is not included in Appendix B.	In the revised workplan, provide the OE avoidance plan.	

65	pg 36, lines 40- 42	The text indicates that surface soil sample locations will be biased to known or suspected hotspots. Given that a Phase I has not been conducted at this AOC, it is unlikely that there will be "known" hotspots (unless it is determined through visual observation).	Please remove "known" from the revised text.	
66	pg 37, line 1	The text indicates that sediment sample locations will be biased to confirmed or suspected source areas. Given that a Phase I has not been conducted at this AOC, it is unlikely that there will be "confirmed" source areas (unless it is determined through visual observation).	Please remove "confirmed" from the revised text.	
67	pg 39, line 17	The text indicates that USACE will be split sampling.	Please confirm that the USACE will be conducting the 10% split.	
68	pg 40, lines 10- 12	The text indicates that the VOC containers will be filled immediately with the <u>first materials</u> obtained. This contradicts the decision-making process on page 38, lines 18-21.	In the revised text, please indicate that if an obvious zone of contamination is observed that this is the portion of the 0-1' interval that will be obtained.	

69	section 4.3.3, pg 42, line 34	The text indicates that the OE avoidance plan is found in Appendix C. However, the Table of Contents lists the OE plan as appearing in Appendix B. No OE avoidance plan was found in Appendix B or C.	Please revise the sentence to correspond to the Table of Contents and include a copy of the OE Avoidance Plan.	
70	pgs 43-44, lines 43-3	The text in this section, i.e. that surface water samples will be analyzed for a full suite of constituents, does not match the information provided in table 4-1.	Correct the discrepancy.	
71	pg 44, lines 17-18	The text indicates that USACE will be split sampling.	Please confirm that the USACE will be conducting the 10% split.	
72	fig 4-1	The scale on the map is in error.	Please correct the map scale.	
73	fig 4-1	The map does not identify either the monitoring wells or test pit locations by number.	Please add the designated location numbers to the figure in the revised text.	
74	fig 4-1	The symbol "⊙" is illustrated on the figure but no description is provided in the legend.	Please provide a description for this symbol in the legend or revise the figure.	

75	fig 4-1	In several areas, there are overlapping symbols for monitoring wells with monitoring wells and also with test pits. This makes it appear (for example) that there are to be 15 monitoring wells installed, or that nested wells will be drilled.	Please remove extraneous symbols from the revised figure.	
76	pg 49, line 25	The text references a site investigation that was conducted at this AOC.	Please confirm that a SI was conducted at this AOC and add the reference to the references cited list. If this is not correct, remove the text reference.	
77	section 5.3, pg 49, line 28	The text indicates that " <i>sample station numbers...will commence with station no. FBQ-007...</i> " However, in Figures 4-2 and 4-3 the proposed station numbers are listed as " <i>FB</i> " stations and commence with " <i>FB-001.</i> "	Please correct the figures and text accordingly.	
78	table 5-1, pg 53	This part of the table details the analyses to be conducted on the soil samples. This particular page does not indicate that TAL metals will be collected.	Please revise the table to indicate that TAL metals will be analyzed for at sample stations FBQ-014 through FBQ-028.	
79	table 5-1, pg 60	In the summary portion of this table, there is the indication that the 10% sampling for full suite analyses would be 10 samples each for the surface and sub-surface soil samples.	Please revise the number to read 15 in each case.	

80	table 5-2, pgs 61-62	Sediment samples will also be analyzed for grain size.	Add another column to the revised table with grain size included for each sample location.	
81	table 5-3, pg 63	The table detailing the surface water samples does not contain sample station numbers or portions of the sample ID numbers.	Revise the table such that station numbers and the missing portions of the sample numbers are added.	
82	table 5-4, pg 64	The first column of the table is not legible.	Please correct the first column of Table 5-4.	
83	table 5-4, pg 64	Table 5-4 does not list cyanide, nitrate/nitrite, and sulfide analyses.	Please correct Table 5-4 to include these constituents.	
84	table 5-4, pgs 64-65	The table indicates that all Shelby tube samples will be analyzed for grain size and hydraulic conductivity. This does not match the text on page 34 lines 30-31.	Please rectify the discrepancy.	
85	table 5-4, pg 64-65	This table indicates that TOC samples will be obtained from the Shelby tube samples obtained from the installation of the AOC monitoring wells.	Please remove the TOC column from this table.	
86	table 5-4, pg 64-65	The table indicates that none of the soil samples obtained from the installation of the monitoring wells will be analyzed for chemical constituents. (Cross-reference comment # 52 above.)	Please confirm.	

87	table 5-4, pgs 65-66	The table indicates that all test pit samples will be analyzed for grain size and hydraulic conductivity. This does not match the text on page 34.	Please rectify the discrepancy.	
88	pg 67, lines 21-22	The text indicates that USACE will be split sampling.	Please confirm that the USACE will be conducting the 10% split.	
89	pg 67, lines 45-64	The text indicates that it is anticipated that 7 types of IDW will be generated and that each will be containerized separately, The text then indicates that excess soil, sediment and soil/rock cuttings will be contained in 10 cu yd roll-off.	Please rectify the apparent discrepancy.	
90	pg 76	The cover page for Appendix B indicates that the OE avoidance plan is included in this workplan.	Please include the OE avoidance plan in the revised document.	

QUALITY ASSURANCE PROJECT PLAN (QAPP)

91	General comment	Lines are not numbered.	In the future, please number each line entry in the draft documents.	
92	table 1-1, pg 7	For soil and sediment, the table indicates that for certain analyses that 66 primary samples will be obtained and that 6 field duplicate samples will be collected.	Duplicates are to be collected at a frequency of 10%. Please revise these numbers upward to 7.	

93	table 1-1, pg 7	The chart details the number of geotech samples that are to be obtained during this field effort.	Please refer to FSP comments detailed above (especially with respect to grain size, TOC, hydraulic conductivity, etc.) And make sure that the correct sample numbers are in this table.	
94	pg 9	The text indicates that USACE will be split sampling.	Please confirm that the USACE will be conducting the 10% split.	
95	table 4-1, pg 14	Holding times are not specified for sulfide, nitrate/nitrite and hex chrome in soils/sediments.	Provide this information in the revised QAPP.	

HEALTH AND SAFETY PLAN (HASP)

Although the Ohio EPA does not have regulatory jurisdiction over health and safety plans, the following comments are offered for your consideration.

96	General Comment	The title page for the HASP indicates that it is final. This is not correct, and also contradicts the title that appears on page 2 of the document.	Subsequent to revisions made to this version of the HASP, it will be considered final. Currently the HASP is in draft form.	
97	General comment	Lines are not numbered.	In the future, please number each line entry in the draft documents.	
98	General comment	Fuze is spelled incorrectly in portions of the text.	Change "fuse" to read "fuze" in the revised HASP.	

99	pg 7, 1st paragraph	The text indicates that : "These plans are driven by requirements contained in the...."	The text does not specify the document types, for example, are they Engineering Manuals? Please provide this information in the revised text.	
100	pg 7, 2nd paragraph	The text does not specifically indicate that the AOC-specific HASP cannot be implemented without the facility-wide HASP.	Please add verbiage in the revised text which indicates this fact.	
101	pg 7, 2nd paragraph	The text indicates that this is a Phase I/Phase II RI.	Please revise Phase II to read Phase I.	
102	pg 7, 4 th paragraph	The sentence: "It was found to have most of the RCRA metal in both sediment and surface water samples taken" is unclear.	Please change this sentence in the revised HASP such that the intent is clear.	
103	pg 9, last paragraph	The text as currently written seemingly indicates that the 40 mm range was expanded to include other shallow settling ponds and a couple debris piles. The Fuze and Booster AOC was the one that was expanded.	Please re-arrange the text so that it is clear which AOC was expanded.	
104	table 1-2	The table does not indicate the potential presence of nitroglycerine at this AOC.	Please add nitroglycerine to the revised table.	
105	table 2-1	The biological hazard inventory does not include the West Nile virus or histoplasmosis.	Please add these to the revised table. Or, indicate that the examples are not all inclusive.	

106	table 2-2, pg 14	In the civil survey section (contact with OE), there is no notification provision detailed if OE/suspected OE is identified.	Please add this in the revised HASP.	
107	table 2-2, pg 14	In the civil survey section (exposure to chemicals), there is no provision made for having a PID on-site, or for 40 hour training.	Please add these provisions to the revised HASP.	
108	table 2-2, pg 14	In the civil survey section (biological hazards), there is no indication that there should be avoidance of dead birds.	Please add this into the controls portion of the text.	
109	table 2-2, pg 14	In the groundwater section in the general safety hazards discussion, there is a typo.	Please change "slops" to "slips" in the revised text.	
110	table 2-2, pg 15	In the noise section (for potential groundwater hazards), there is a significant potential for the noise in the immediate vicinity of the drill rig to reach or exceed 85dBA.	Please revise this section, and the monitoring requirements section accordingly.	
111	table 2-2, pg 15	In the fire section (for potential groundwater hazards), the sentence regarding the necessity for metal to metal contact is unclear.	Please revise this sentence to mirror that of other sections.	

112	table 2-2, pg 15	In the groundwater section (exposure to chemicals), there is no provision made for having a PID on-site, or for 40 hour training.	Please add these provisions to the revised HASP.	
113	table 2-2, pg 15	In the soil boring section under general safety hazards, the monitoring requirements specify weekly drill rig inspections.	Please confirm that weekly inspections are adequate.	
114	table 2-2, pg 15	In the soil boring section under general safety hazards (control section), there is a typo.	Please change "skill" to "kill."	
115	table 2-2, pg 16	In the soil boring section (contact with OE), there is no notification provision detailed if OE/suspected OE is identified.	Please add this in the revised HASP.	
116	table 2-2, pg 16	In the soil boring section (exposure to chemicals), there is no indication of PID monitoring frequency.	Please add this to the revised HASP.	
117	table 2-2, pg 16	In the soil boring section (biological hazards), there is no indication that there should be avoidance of dead birds.	Please add this into the controls portion of the text.	
118	table 2-2, pg 17	In the soil sampling section, the text indicates that sampling will be performed by OE techs if soil is known or suspected to contain > 10% explosives.	If this occurs, please confirm that the OE techs will be briefed regarding the proper sampling protocol.	

119	table 2-2, pg 17	In the soil sampling section (contact with OE), there is no notification provision detailed if OE/suspected OE is identified.	Please add this in the revised HASP.	
120	table 2-2, pg 17	In the soil sampling section (exposure to chemicals), there is no indication of PID monitoring frequency.	Please add this to the revised HASP.	
121	table 2-2, pg 17	In the soil sampling section (biological hazards), there is no indication that there should be avoidance of dead birds.	Please add this into the controls portion of the text.	
122	table 2-2, pg 18	In the surface water sampling section, the text indicates that sampling will be performed by OE techs if soil is known or suspected to contain > 10% explosives.	If this occurs, please confirm that the OE techs will be briefed regarding the proper sampling protocol.	
123	table 2-2, pg 18	In the surface water sampling section (exposure to chemicals), there is no indication of PID monitoring frequency.	Please add this to the revised HASP.	
124	table 2-2, pg 18	In the surface water sampling section (biological hazards), there is no indication that there should be avoidance of dead birds.	Please add this into the controls portion of the text.	
125	table 2-2, pg 19	In the vegetation clearing section (contact with OE), there is no notification provision detailed if OE/suspected OE is identified.	Please add this in the revised HASP.	

126	table 2-2, pg 19	In the vegetation clearing section (exposure to chemicals), there is no indication of PID monitoring frequency.	Please add this to the revised HASP.	
127	table 2-2, pg 19	In the vegetation clearing section (biological hazards), there is no indication that there should be avoidance of dead birds.	Please add this into the controls portion of the text.	
128	table 2-2, pg 20	In the IDW section (exposure to chemicals), there is no indication of PID monitoring frequency.	Please add this to the revised HASP.	
129	table 2-2, pg 20	In the IDW section (biological hazards), there is no indication that there should be avoidance of dead birds.	Please add this into the controls portion of the text.	
130	table 2-2, pg 21	There is no section in this version of the HASP that discusses trenching operations.	Please add this section to the revised HASP with all the necessary safety and health hazards, controls, and monitoring requirements.	
131	pg 25, section 6.0	The text indicates that medical surveillance requirements are listed in table 2-2 of this HASP; however, they are not presented.	Please add this information to the revised HASP.	
132	pg 25, section 7.0	The first bullet in this section indicates that work may be performed in abandoned buildings.	Please confirm this, and if incorrect, remove from the revised HASP.	

133	pg 25, section 7.0	The third bullet indicates that white phosphorous is a probable contaminant of concern.	Please confirm this, and if incorrect, remove from the revised HASP.	
134	table 7-1, pg 26	The airborne organics section indicates that the limit for organic vapors is 5 ppm; however, it is not detailed how long this level needs to be sustained prior to withdrawing and evaluating.	This information should be added to the revised text.	
135	pg 27, section 10.0	The text infers that the Fuze and Booster AOC is fenced. This is not correct.	Please remove this reference in the revised text. (Or make it clear that the entire installation is fenced.)	



October 3, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL PHASE I/II **FUZE AND BOOSTER**
QUARRY LANDFILL PONDS

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 the revised document entitled, "Draft, Work Plan and Sampling and Analysis Plan for the Phase I/Phase II Remedial Investigation of the Fuze and Booster Quarry Landfill Ponds at the Ravenna Army Ammunition Plant, Ravenna, Ohio. This document, dated July 2003 and received on October 2, 2003, was prepared by SpecPro for the U.S. Joint Munitions Command (JMC), under contract number DAAA09-01-G-0009, Delivery Order Number 0012.

Subsequent to the revision and receipt of following requested replacement pages, the report will be considered final. Please provide the replacement pages to all recipients of the draft work plan at your earliest opportunity.

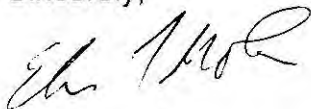
1. Provide a new binder cover sheet, work plan and sampling and analysis plan cover sheets and health and safety plan cover sheets, which indicate that this work plan is now final. Additionally, please change the date of the report to October 2003, unless there are issues with this being completed in a different federal fiscal year (FFY).
2. On page 14, Figure 2-1, please revise the chart, such that it is clear that the U.S. Army Corps of Engineers (USACE), Quality Assurance (QA) Lab, is Severn-Trent Laboratories.
3. Please provide Figure 2-2, which is the project schedule.
4. On page 23, line 15, please revise the text to indicate that no hydrogeologic data exists for this Area of Concern (AOC).
5. On page 25, Table 4-1, please revise the entry for the monitoring well sampling rationale to read as follows: "Identify possible contamination at or downgradient of the AOC and determine AOC background water quality."
6. On page 32, revise line 27, please revise the text to read: "...subsurface soil samples from the installation of monitoring wells will be collected..."

Mr. Mark Patterson
October 3, 2003
Page 2

7. On page 36, remove the sentence that spans lines 16 and 17.
8. On page 37, revise the text on line 9 to read: "...for environmental samples will be..."
9. On page 67, table 5-4, remove TOC from the Shelby tube samples.
10. It is my understanding that concerns have been raised regarding potential safety issues during sampling at the 40 mm range. These questions include whether or not there has been documented clearance of this range. If the unexploded ordnance (UXO) personnel on this project make the determination that there could be health and safety issues, then sampling should not occur. The entire Ravenna Army Ammunition Plant (RVAAP) team has consistently made safety our top priority. If sampling at the 40 mm range does not occur because of safety concerns, Ohio EPA will not require a revision of this work plan, but only a notation in the RI report as to why the sampling did not occur. Discussions can be held as to the disposition of the unused environmental samples. (No text change required.)

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

Sincerely,



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

ETM/kss

- cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Conni McCambridge, Ohio EPA, NEDO, DDAGW
Laurie Eggert, Ohio EPA, OFFO, SWDO
LTC Tom Tadsen, OHARNG
Joann Watson, AEC
Chantelle Carroll, SpecPro
Mark Deering, SpecPro
- ec: Mike Eberle, Ohio EPA, DERR, NEDO
Todd Fisher, Ohio EPA, DERR, NEDO



An 8(a) Certified Alaska Native Corporation (ANC)

*Ravenna Army Ammunition Plant, Bldg. 1038
8451 State Route 5
Ravenna, OH 44266*

*330-358-1753
330-358-1754 Fax*

October 13, 2003

Mr. Robert J. Matthys
Contracting Officer, Environmental Contracting Division
Department of the US Army
HQ Joint Munitions Command, Bldg. 350
AMSJM-CCA-I
Rock Island, IL 61299-6000

**Reference: Contract No. DAAA09-01-G-0009, Delivery Order No. 0012:
Phase I/II Remedial Investigation, Fuse & Booster Quarry Landfill/Ponds,
Ravenna Army Ammunition Plant**

Subject: Deliverable – September 2003 Monthly Progress Report

Dear Mr. Matthys:

Please find enclosed the Monthly Progress Report for September 2003 for the Phase I/II Remedial Investigation at the Fuse & Booster Quarry Landfill/Ponds, Ravenna Army Ammunition Plant. This monthly report includes the activities and accomplishments by task during the past month, a progress chart, percent complete summary, project deliverables listing, issues and concerns, and plans for next month.

If you have questions or comments, please contact me at (330) 358-1753.

Sincerely,

SPECPRO, INC.

L. Chantelle Carroll
Project Manager

C: Mark Patterson, RVAAP
L. Cueto, SpecPro

MONTHLY PROGRESS REPORT FOR SEPTEMBER 2003

PHASE I/PHASE II REMEDIAL INVESTIGATION FUSE & BOOSTER QUARRY LANDFILL/PONDS RAVENNA ARMY AMMUNITION PLANT RAVENNA, OHIO

CONTRACT NO. DAAA09-01-G-0009
DELIVERY ORDER NO. 0012

1.0 Activities/Accomplishments During the Month

Task 1 – Project Management and Administrative Support

SpecPro, Inc. continued management and administrative support activities for project implementation.

Task 2 – Project Preparation

SpecPro, Inc addressed comments from EPA and re-submitted the Draft Sampling and Analysis Plan for review. Minor comments were left to be addressed however; field work was started August 29, 2003 after EPA approval.

Task 3 – Mobilization/Demobilization

SpecPro, Inc assembled field workers and gathered all necessary equipment to begin work August 29, 2003.

Task 4 – Groundwater Monitoring Well Installation and Development

SpecPro, Inc began installing monitoring wells on October 1, 2003. To date, seven of the twelve wells have been installed.

Task 6 – Soil Sampling and Test Pits

SpecPro, Inc completed all six test pits between August 29 and October 1, 2003. Soil sampling began October 1, 2003 and over 50% of the soil samples are completed.

2.0 Progress Chart/Deliverables

Table 1 shows the current percent complete for each project task as set forth in the project Scope of Work. Table 2 is a listing of project deliverables

showing planned and actual submittal dates. Attachment 1 is a progress chart showing the current status of the project.

Table 1. Percent Complete

	Task	Complete
1	Project Management and Administrative Support	35%
2	Project Preparation/Plans	95%
3	Mobilization/Demobilization	50%
4	Groundwater Monitoring Well Installation and Development	65%
5	Groundwater Sampling	0%
6	Soil Sampling and Test Pits	70%
7	Surface Water and Sediment Sampling	0%
8	IDW Handling and Disposal	0%
9	Surveying/Mapping	0%
10	Development of Conceptual Model	100%

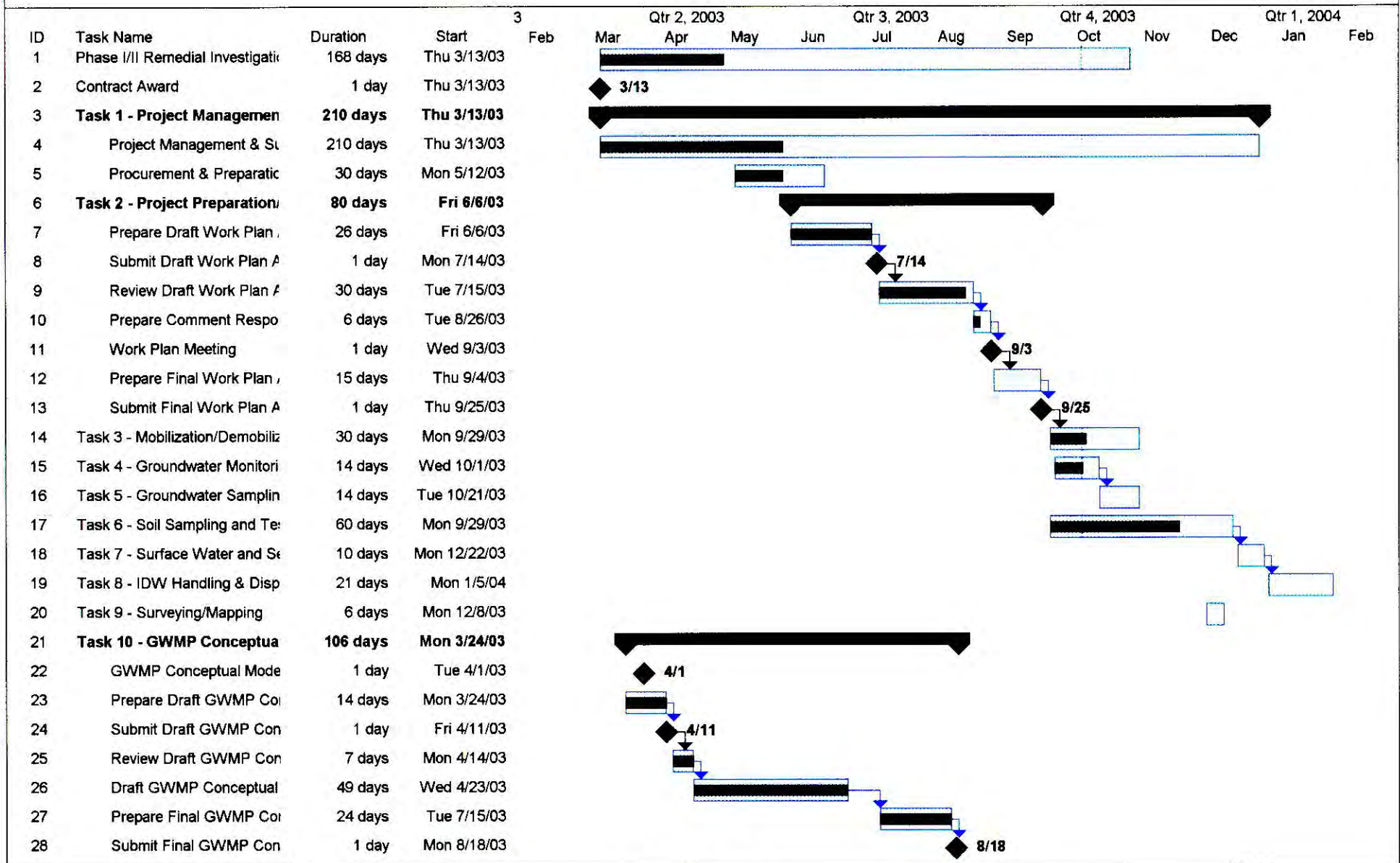
Table 2. Project Deliverables

Deliverable	Scheduled	Actual
Monthly Progress Reports	Monthly	07/10/03
Milestone Charts/Schedules	03/28/03	03/28/03
Draft Work Plan Addenda	07/11/03	07/14/03
Final Work Plan Addenda	09/10/03	10/03/03
Draft Conceptual Model	04/11/03	04/14/03
Final Conceptual Model	08/30/03	08/15/03

3.0 Issues/Concerns

4.0 Planned Activities for Next Month

SpecPro, Inc. will be continuing on Tasks 4-7 until all tasks are completed.



Project: Schedule Fuze Booster Date: Mon 10/13/03	Task		Milestone		External Tasks
	Split		Summary		External Milestone
	Progress		Project Summary		Deadline

Figure 2-2. Fuze and Booster Quarry Landfill Ponds Schedule



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

November 12, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FINAL PHASE I/II FUZE AND BOOSTER
QUARRY LANDFILL PONDS

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 the revised document entitled "Final, Work Plan and Sampling and Analysis Plan Addenda for the Phase I/Phase II Remedial Investigation of the Fuze and Booster Quarry Landfill Ponds at the Ravenna Army Ammunition Plant, Ravenna, Ohio." This document, dated October 2003 and received on October 29, 2003, was prepared by SpecPro for the U.S. Joint Munitions Command (JMC), under contract number DAAA09-01-G-0009, Delivery Order Number 0012.

The document was compared to the draft work plan, dated July 2003, and comments from Ohio EPA, NEDO, DERR, dated October 3, 2003. The work plan was revised in accordance with the October 3, 2003 Ohio EPA comments, and is considered final.

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

Sincerely,

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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Conni McCambridge, Ohio EPA, NEDO, DDAGW
Laurie Eggert, Ohio EPA, OFFO, SWDO
LTC Tom Tadsen, OHARNG
Joann Watson, AEC
Chantelle Carroll, SpecPro
Mark Deering, SpecPro

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



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*Ravenna Army Ammunition Plant, Bldg. 1038
8451 State Route 5
Ravenna, OH 44266*

*330-358-1753
330-358-1754 Fax*

December 10, 2003

Mr. Robert J. Matthys
Contracting Officer, Environmental Contracting Division
Department of the US Army
HQ Joint Munitions Command, Bldg. 350
AMSJM-CCA-I
Rock Island, IL 61299-6000

**Reference: Contract No. DAAA09-01-G-0009, Delivery Order No. 0012:
Phase I/II Remedial Investigation, Fuse & Booster Quarry Landfill/Ponds,
Ravenna Army Ammunition Plant**

Subject: Deliverable – November 2003 Monthly Progress Report

Dear Mr. Matthys:

Please find enclosed the Monthly Progress Report for November 2003 for the Phase I/II Remedial Investigation at the Fuse & Booster Quarry Landfill/Ponds, Ravenna Army Ammunition Plant. This monthly report includes the activities and accomplishments by task during the past month, a progress chart, percent complete summary, project deliverables listing, issues and concerns, and plans for next month.

If you have questions or comments, please contact me at (330) 358-1753.

Sincerely,

SPECPRO, INC.

A handwritten signature in black ink, appearing to read "L. Chantelle Carroll".

L. Chantelle Carroll
Project Manager

C: Mark Patterson, RVAAP
L. Cueto, SpecPro

MONTHLY PROGRESS REPORT FOR NOVEMBER 2003

PHASE I/PHASE II REMEDIAL INVESTIGATION FUSE & BOOSTER QUARRY LANDFILL/PONDS RAVENNA ARMY AMMUNITION PLANT RAVENNA, OHIO

CONTRACT NO. DAAA09-01-G-0009
DELIVERY ORDER NO. 0012

1.0 Activities/Accomplishments During the Month

Task 1 – Project Management and Administrative Support

SpecPro, Inc. continued management and administrative support activities for project implementation.

Task 2 – Project Preparation

SpecPro, Inc continues with IDW reporting and insuring all logbooks and data information is all correctly identified and categorized.

Task 3 – Mobilization/Demobilization

SpecPro, Inc is beginning demobilization at this time.

Task 4 – Groundwater Monitoring Well Installation and Development

SpecPro, Inc has completed this task.

Task 5 – Groundwater Sampling

SpecPro, Inc has completed all portions of this task as of this week.

Task 6 – Soil Sampling and Test Pits

SpecPro, Inc has completed this task.

Task 7 – Surface Water and Sediment Sampling

SpecPro Inc has completed all surface water and sediment sampling for this task.

Task 8 – IDW

SpecPro Inc. is in the process of completing all necessary paperwork and analysis to have all IDW waste properly disposed of.

Task 9 – Survey/Mapping

SpecPro Inc. is 30% completed with survey all sample points.

2.0 Progress Chart/Deliverables

Table 1 shows the current percent complete for each project task as set forth in the project Scope of Work. Table 2 is a listing of project deliverables showing planned and actual submittal dates. Attachment 1 is a progress chart showing the current status of the project.

Table 1. Percent Complete

	Task	Complete
1	Project Management and Administrative Support	80%
2	Project Preparation/Plans	99%
3	Mobilization/Demobilization	70%
4	Groundwater Monitoring Well Installation and Development	100%
5	Groundwater Sampling	100%
6	Soil Sampling and Test Pits	100%
7	Surface Water and Sediment Sampling	100%
8	IDW Handling and Disposal	50%
9	Surveying/Mapping	30%
10	Development of Conceptual Model	100%

Table 2. Project Deliverables

Deliverable	Scheduled	Actual
Monthly Progress Reports	Monthly	07/10/03
Milestone Charts/Schedules	03/28/03	03/28/03
Draft Work Plan Addenda	07/11/03	07/14/03
Final Work Plan Addenda	09/10/03	10/03/03
Draft Conceptual Model	04/11/03	04/14/03
Final Conceptual Model	08/30/03	08/15/03

3.0 Issues/Concerns

4.0 Planned Activities for Next Month

SpecPro, Inc. will be continuing on Tasks 8-9 until all tasks are completed.



May 23, 2003

RE: RAVENNA ARMY AMMUNITION PLANT DRAFT,
WORK PLAN FOR THE REMEDIAL
INVESTIGATION AT ~~LL-6~~ PORTAGE/TRUMBULL
COUNTIES

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

Dear Mr. Patterson:

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 The Remedial Investigation at ~~Load Line # 6~~, Ravenna Army Ammunition Plant, Ravenna, Ohio." The document was prepared by MKM Engineers, Inc. for the U.S. Army Joint Munitions Command (JMC) under Contract No. DAAA09-02C-0036 and received by Ohio EPA on April 14, 2003. The following comments were generated from the review:

- Comment # 1: Ohio Environmental Protection Agency should be abbreviated "Ohio EPA." Please change "OEPA" to "Ohio EPA" in the abbreviations section and throughout the text where needed.
- Comment # 2: Section 1.5, Regulatory Authorities, page 1-3 - Resource, Conservation, and Recovery Act should be abbreviated "RCRA" instead of "RCVRA." Please make the appropriate changes to the text.
- Comment # 3: Section 3.2, Data Quality Objectives, and Section 3.3, Conceptual Site Model - There are several inconsistencies between the stated number of samples in the Section 3.2 when compared to Section 3.3. For example, in Section 3.2, page 3-2, it is stated that 11 soil borings will be drilled and two samples from each boring will be submitted for analysis (22 samples total). But in Section 3.3, under soil samples, it states that a total of 15 borings will be performed. Please check both sections for consistency, and make the appropriate changes.
- Comment # 4: Section 5.1.5, Soil Sampling for Potential VOCs Screening Adjacent to Bldg 2F-35, page 5-5, bulleted item - Please change "THP" to "TPH" in the text.
- Comment # 5: Section 8.4, Risk Assessment, page 8-2 - The text states that "a risk assessment for the Load Line 6 will be conducted using the data collected during the RI. The methodologies, assumptions, and procedures for conduction risk assessments will be consistent with the procedures established at other areas of concern (AOCs)." This statement is incorrect. This section should be revised to state that "The methodologies,



Mr. Mark Patterson
May 23, 2003
Page 2

assumptions, and procedures for conducting risk assessments will be consistent with both the Final Facility-wide Human Health Risk Assessment Work Plan and the Final Facility-wide Ecological Risk Assessment Work Plan.

- Comment # 6: Section 9.0, Investigation-Derived Waste, page 9-1, second paragraph - The text states that "the investigation-derived waste (IDW) from the RI will generally be managed in accordance with Section 7.0 of the FW SAP." What is meant by the word "generally"? The text should be changed to read "(IDW) from the RI will be managed in accordance with Section 7.0 of the FW SAP."
- Comment # 7: Appendix B, MKM Position Paper for RI Analytical Suite at LL#6 - The text refers to Table 1 through Table 5. These tables have been omitted from the Appendix. Please include all tables and figures.

If you have any questions regarding these comments, please do not hesitate to contact me at (330) 963-1148 or via e-mail at Todd.Fisher@epa.state.oh.us.

Sincerely,



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

TRF/ams

- ec: Mike Eberle, Ohio EPA, NEDO, DERR
- cc: Bonnie Buthker, Ohio EPA, SWDO, OFFO
Eileen Mohr, Ohio EPA, NEDO, DERR
Stan Levenger, MKM, RVAAP
Paul Zorko, USACE, Louisville



May 23, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
DRAFT, WORK PLAN FOR THE
REMEDIAL INVESTIGATION AT ~~LL-9~~
PORTAGE/TRUMBULL COUNTIES

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

Dear Mr. Patterson:

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 The Remedial Investigation at Load Line # 9, Ravenna Army Ammunition Plant, Ravenna, Ohio." The document was prepared by MKM Engineers, Inc. for the U.S. Army Joint Munitions Command (JMC) under Contract No. DAAA09-02C-0070 and received by Ohio EPA on April 18, 2003. The following comments were generated from the review:

- Comment # 1: Ohio Environmental Protection Agency should be abbreviated "Ohio EPA." Please change "OEPA" to "Ohio EPA" in the abbreviations section and throughout the text where needed.
- Comment # 2: Section 3.2, Data Quality Objectives, and Section 3.3, Conceptual Site Model - There are several inconsistencies between the stated number of samples in the Section 3.2 when compared to Section 3.3. For example, in Section 3.2, page 3-2, it is stated that 15 soil borings will be drilled and two samples from each boring will be submitted for analysis (30 samples total). But in Section 3.3, under soil samples, it states that a total of 19 borings will be performed and 107 surface and subsurface soil samples will be collected. Please check both sections for consistency, and make the appropriate changes.
- Comment # 3: Section 3.7, Define the Study Boundaries, page 3-4 - The spelling of the word "Boundaries" is incorrect in the section heading. Please correct this heading in the text.
- Comment # 4: Section 5.1.5, Soil Sampling for Potential VOCs Screening Adjacent to Bldg 2F-35, page 5-5, bulleted item - Please change "THP" to "TPH" in the text.
- Comment # 5: Section 5.7, Sediment Sampling, page 5-10 - The first sentence states that "sediment samples will be collected from eleven (11) sample locations throughout Load Line 9," however; in the preceding subsections 5.7.1 though 5.7.3, the sum of all sample locations equal 17. Please check all sections dealing with sediment collection for consistency, and make the appropriate changes to the text.

Mr. Mark Patterson
May 23, 2003
Page 2

- Comment # 6: Section 8.4, Risk Assessment, page 8-2 - The text states that "a risk assessment for the Load Line 9 will be conducted using the data collected during the RI. The methodologies, assumptions, and procedures for conduction risk assessments will be consistent with the procedures established at other areas of concern (AOCs)." This statement is incorrect. This section should be revised to state that "The methodologies, assumptions, and procedures for conducting risk assessments will be consistent with both the Final Facility-wide Human Health Risk Assessment Work Plan and the Final Facility-wide Ecological Risk Assessment Work Plan.
- Comment # 7: Section 9.0, Investigation-Derived Waste, page 9-1, second paragraph - The text states that "the investigation-derived waste (IDW) from the RI will generally be managed in accordance with Section 7.0 of the FW SAP." What is meant by the word "generally"? The text should be changed to read "(IDW) from the RI will be managed in accordance with Section 7.0 of the FW SAP."
- Comment # 8: Appendix B, MKM Position Paper for RI Analytical Suite at LL # 9 - The text refers to Table 1 through Table 5. These tables have been omitted from the Appendix. Please include all tables and figures.

If you have any questions regarding these comments, please do not hesitate to contact me at (330) 963-1148 or via e-mail at Todd.Fisher@epa.state.oh.us.

Sincerely,



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

TRF/ams

- ec: Mike Eberle, Ohio EPA, NEDO, DERR
- cc: Bonnie Buthker, Ohio EPA, SWDO, OFFO
Eileen Mohr, Ohio EPA, NEDO, DERR
Stan Levenger, MKM, RVAAP
Paul Zorko, USACE, Louisville



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

September 30, 2003

Mr. Brian Stockwell
MKM Engineers, Inc.
Ravenna Army Ammunition Plant
Building 1038
8451 State Route 5
Ravenna, Ohio 44266

**Re: Paris-Windham Road Dump Technical Memorandum, Ravenna Army
Ammunition Plant, Portage County**

Dear Mr. Stockwell:

Ohio EPA received the Paris-Windham Road Dump Technical Memorandum fax on September 26th and the hard copy on September 29th. The rationale for the incremental sampling at grid # 9 and the restoration of the slope using clean hard fill / approved soil backfill is acceptable to Ohio EPA. Please proceed with the incremental sampling and slope restoration at the site. Please keep Ohio EPA informed of any technical changes to scope.

If you have any questions or concerns, 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: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Eileen Mohr, Ohio EPA, DERR, NEDO
Mark Patterson, RVAAP
Rick Callahan, MKM, RVAAP

ec: Mike Eberle, Ohio EPA, DERR, NEDO



An 8(a) Certified Alaska Native Corporation (ANC)

Ravenna Army Ammunition Plant, Bldg. 1038
8451 State Route 5
Ravenna, OH 44266

330-358-1753
330-358-1754 Fax

May 6, 2003

Mr. Robert J. Matthys
Contracting Officer, Environmental Contracting Division
Department of the US Army
HQ Operations Support Command
AMSOS-CCE-D
Rock Island, IL 61299

**Reference: Contract No. DAAA09-01-G-0009, Delivery Order No. 0009:
Assessment of Potential Contamination at the DLA Outdoor Storage Areas,
Ravenna Army Ammunition Plant**

Subject: Deliverable – April 2003 Monthly Progress Report

Dear Mr. Matthys:

Please find enclosed the Monthly Progress Report for April 2003 for the Assessment of Potential Contamination at the DLA Outdoor Storage Areas, Ravenna Army Ammunition Plant. This monthly report includes the activities/accomplishments by task during the past month, a progress chart, percent complete summary, project deliverables listing, issues and concerns, and plans for next month.

If you have questions or comments, please contact me at (330) 358-1753.

Sincerely,

SPECPRO, INC.

A handwritten signature in black ink, appearing to read "Susan E. McCauslin".

Susan E. McCauslin
Project Manager

C: Mark Patterson, RVAAP
J. Herrmann, SpecPro

MONTHLY PROGRESS REPORT FOR APRIL 2003

**ASSESSMENT OF POTENTIAL CONTAMINATION AT THE
DLA OUTDOOR STORAGE AREAS
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO**

**CONTRACT NO. DAAA09-01-G-0009
DELIVERY ORDER NO. 0009**

1.0 Activities/Accomplishments During the Month

Field sampling activities were completed during the month of April.

2.0 Progress Chart/Deliverables

Table 1 shows the current percent complete for each project task as set forth in the project Scope of Work. Table 2 is a listing of project deliverables showing planned and actual submittal dates. Attachment 1 is a progress chart showing the current status of the project.

3.0 Issues/Concerns

4.0 Planned Activities for Next Month

SpecPro plans to review analytical data and begin work on the final report. Any re-sampling of locations indicated by analytical results will also be planned to be conducted during May if needed.

Table 1. Percent Complete

	Task	Complete
1	Project Management and Administrative Support	80%
2	Project Preparation/Plans	100%
3	Field Sampling	85%
4	Final Report Preparation	0%

Table 2. Project Deliverables

Deliverable	Scheduled	Actual
Monthly Progress Reports	Monthly	5/06/03
Draft Work Plan	11/29/02	11/29/02
Final Report	7/14/03	--



PROJECT SCHEDULE - ASSESSMENT OF DLA STORAGE SITES

ID	Task Name	Duration	Start	Finish	Septem Sep	October Oct	Novemb Nov	Decemb Dec	January Jan	Februar Feb	March Mar	April Apr	May May	June Jun	July Jul	August Aug
1	DLA Storage Area Assessment	206 days	Mon 9/23/02	Mon 7/7/03												
2	Work Plan Preparation	37 days	Tue 10/1/02	Wed 11/20/02												
3	Draft Work Plan Submittal	1 day	Thu 11/21/02	Thu 11/21/02												
4	Final Work Plan Submittal	6 days	Fri 11/22/02	Fri 11/29/02												
5	Field Work	105 days	Mon 12/2/02	Fri 4/25/03												
6	Draft Report	30 days	Mon 4/28/03	Fri 6/6/03												
7	Draft Report Submittal	1 day	Mon 6/9/03	Mon 6/9/03												
8	Comment Resolution for Draft R	10 days	Tue 6/10/03	Mon 6/23/03												
9	Final Report	14 days	Tue 6/24/03	Fri 7/11/03												
10	Final Report Submittal	1 day	Mon 7/14/03	Mon 7/14/03												
11	Position Paper	10 days	Tue 7/15/03	Mon 7/28/03												

Project: DLA Schedule
Date: Tue 5/6/03

Task		Milestone		External Tasks	
Split		Summary		External Milestone	
Progress		Project Summary		Deadline	



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*Ravenna Army Ammunition Plant, Bldg. 1038
8451 State Route 5
Ravenna, OH 44266*

*330-358-1753
330-358-1754 Fax*

October 13, 2003

Mr. Ernest Dixon
Contracting Officer, Environmental Contracting Division
Department of the US Army
HQ Joint Munitions Command, Bldg. 350
AMSJM-CCA-I
Rock Island, IL 61299-6000

**Reference: Contract No. DAAA09-01-G-0009, Delivery Order No. 0009:
Assessment of Potential Contamination at the DLA Outdoor Storage Areas,
Ravenna Army Ammunition Plant**

Subject: Deliverable – September 2003 Monthly Progress Report

Dear Mr. Dixon:

Please find enclosed the Monthly Progress Report for September 2003 for the Assessment of Potential Contamination at the DLA Outdoor Storage Areas, Ravenna Army Ammunition Plant. This monthly report includes the activities/accomplishments by task during the past month, the completed progress chart, percent completed summary, and project deliverables listing since the project was completed.

If you have questions or comments, please contact me at (330) 358-1753.

Sincerely,

SPECPRO, INC.

L. Chantelle Carroll
Project Manager

C: Mark Patterson, RVAAP
L. Cueto, SpecPro

MONTHLY PROGRESS REPORT FOR SEPTEMBER 2003

**ASSESSMENT OF POTENTIAL CONTAMINATION AT THE
DLA OUTDOOR STORAGE AREAS
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO**

**CONTRACT NO. DAAA09-01-G-0009
DELIVERY ORDER NO. 0009**

1.0 Activities/Accomplishments During the Month

The draft final report was submitted with recommendations for procedural remedial action for the project, excepted and became final.

2.0 Progress Chart/Deliverables

Table 1 shows the current percent complete for each project task as set forth in the project Scope of Work. Table 2 is a listing of project deliverables showing planned and actual submittal dates. Attachment 1 is a progress chart showing the current status of the project.

3.0 Issues/Concerns

4.0 Planned Activities for Next Month

Table 1. Percent Complete

	Task	Complete
1	Project Management and Administrative Support	100%
2	Project Preparation/Plans	100%
3	Field Sampling	100%
4	Final Report Preparation	100%

Table 2. Project Deliverables

Deliverable	Scheduled	Actual
Monthly Progress Reports	Monthly	6/06/03
Draft Work Plan	11/29/02	11/29/02
Final Report	8/30/03	9/15/03



PROJECT SCHEDULE - ASSESSMENT OF DLA STORAGE SITES

ID	Task Name	Duration	Start	Finish	Septe Sep	Octobe Oct	Novem Nov	Decem Dec	Januar Jan	Febru Feb	March Mar	April Apr	May May	June Jun	July Jul	August Aug	Septe Sep	Octobe Oct	Novem Nov
1	DLA Storage Area Asse	215 days	Mon 9/23/02	Fri 7/18/03															
2	Work Plan Preparation	37 days	Tue 10/1/02	Wed 11/20/02															
3	Draft Work Plan Submit	1 day	Thu 11/21/02	Thu 11/21/02															
4	Final Work Plan Submit	6 days	Fri 11/22/02	Fri 11/29/02															
5	Field Work	147 days	Mon 12/2/02	Tue 6/24/03															
6	Draft Report	63 days	Mon 6/2/03	Thu 9/11/03															
7	Draft Report Submittal	1 day	Fri 9/12/03	Fri 9/12/03															
8	Comment Resolution for	10 days	Mon 9/15/03	Fri 9/26/03															
9	Final Report	10 days	Mon 9/29/03	Fri 10/10/03															
10	Final Report Submittal	1 day	Mon 10/13/03	Mon 10/13/03															
11	Position Paper	10 days	Tue 10/14/03	Mon 10/27/03															

Project: DLA Schedule2
Date: Mon 10/13/03

Task		Milestone		External Tasks	
Split		Summary		External Milestone	
Progress		Project Summary		Deadline	

1/14/03

From: Eileen Mohr
To: patterson, mark
Date: 1/14/03 10:29AM
Subject: DSMOA Annual Review

Hi Mark:

It is that time of year for us to review Years 1 and 2 of the cooperative agreement. What we need to do is to look at the workplan for any anticipated workplan changes that may impact on the current funding levels projected and awarded. This will allow us to update the Two Year Joint CA Execution Plan if we need to.

I will fax you a copy of the latest 2 year workplan. If you could look at it and we could have a conference call to discuss any potential changes, that would be great. One thing right off the top of my head is that once the USACE sends us a final determination on Ohio EPA's role in the sitewide surface water ... we may need to increase hours/funding for that initiative.

Because of other time commitments... I need to have this done by February 7, 2003.

Thanks for your assistance Mark!

Eileen

Eileen T. Mohr
Project Coordinator
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

CC: Eberle, Mike

FAXED 01/14/03

2 YEAR WORKPLAN TABLE (3 MONTH EXTENSION)

Name of Installation, Project, or Operable Unit:

Funding Source:

Ravenna Army Ammunition Plant (RVAAP)

DERA X

BRAC

BRAC II

BRAC III

SERVICE: Army

List of all major milestones occurring at the installation for years 1 and 2

YEAR 1 (July 1, 2002 - June 30, 2003):

Winklepeck Burning Grounds (WBG):

- ~~Review final FS report~~ → *No*
- Finalize ecological field truthing initiative ✓

Erie Burning Grounds (EBG):

- Phase II RI - scope workplan; review SOW; review draft workplan ✓

Sand Creek Disposal Area:

- Interim Removal Action - comment resolution on preliminary draft report; review draft report

NACA Test Crash Area:

- ~~Monitor Well Installation - scope project; review draft workplan; comment resolution; review final workplan~~

Dump Along Paris Windham Road:

- Interim Removal Action - comment resolution on preliminary draft report; review draft report *NI*

Quarry Landfill/Pond:

- Phase 1 RI - scope project; review draft workplan ✓

Load Line 1:

- Phase II RI - comment resolution on preliminary draft report; review draft report; ~~review final report~~ N.Y.

Load Lines 2,3,4:

- ~~Phase II RI - review preliminary draft reports, comment resolution on preliminary draft reports; review draft reports; review final reports~~ N.Y. RA dependent (RTE - mid Feb.)

Load Lines 6, 9, 10:

- Phase I RI - review draft workplan; comment resolution; review final workplan

Load Line 11:

- Interim Removal Action - comment resolution on report, ~~review final report~~ N.Y. (Draft Final)
- Phase I RI - review preliminary draft report; comment resolution on preliminary draft RI report; review draft RI report

Load Line 12:

- Phase II RI - comment resolution on preliminary draft report; review draft report; ~~review final report~~ N.Y.

Central Burn Pits:

- ~~Phase I RI - review preliminary draft report, comment resolution on preliminary draft report; review draft report; review final report; conduct additional work if necessary~~ N.Y.

Open Demolition Area (ODA) #1:

- Interim Removal Action - comment resolution on preliminary draft report; review draft and final reports; prepare statement of basis

Open Demolition Area (ODA) #2:

- ~~Phase II RI - review final workplan; oversight of field work; review preliminary draft report~~ Done - RA dependent.

Dependent
with
decision

Mustard Agent:

- Additional input into CWM decision document, i.e. final remedial options

Cobbs Pond:

- Phase II RI - review preliminary draft report, comment resolution on preliminary draft report; review draft report *RA dependent*

C Block Quarry:

- ~~Interim Removal Action - review draft workplan; comment resolution draft workplan; review final workplan; oversight of field activities~~ *FY09+*

Pistol Range:

- ~~Interim Removal Action - review draft workplan; comment resolution on draft workplan; review final workplan; oversight of field activities~~ *FY08+*

Anchor Test Area:

- ~~Interim Removal Action - review draft workplan; comment resolution on draft workplan; review final workplan; review final workplan; oversight of field activities; review preliminary draft report~~ *FY09+*

Installation-Wide Issues:

- Facility-wide surface water and biological issues ✓
- Sitewide human health and ecological risk assessment issues ✓
- Review appropriate technical documents ✓
- Coordinate activities with Ohio National Guard ✓
- Participate in RAB meetings - RAB meetings will constitute the installation public outreach meetings ✓
- Participate in RAB tours ✓
- General program management issues ✓
- Assist in preparing Cost to Complete ✓
- Assist in preparing Installation Action Plan ✓
- Revise DSMOA ✓
- Attend Installation Restoration Program conference (?)
- Attend remediation training (?)
- Attend contract/cost estimating training (if not complete in 2001-2002) (?)

EXTENDED YEAR 2 (July 1, 2003 - September 30, 2004):

Winklepeck Burning Grounds (WBG):

- Remedial Design - proposed plan/decision document; scope documents; review SOW; review draft workplan; comment resolution; review final workplan (UXO issues are the main driver)

Erie Burning Grounds (EBG):

- Comment resolution on draft workplan; review final workplan; provide oversight of field activities
- Phase II RI - review preliminary draft report; comment resolution; review draft report; review final report

Sand Creek Disposal Area:

- Review final IRA report; prepare statement of basis

Load Lines 1, 2, 3, 4, 12:

- Feasibility Study - scope FS; review SOW; review draft workplan; comment resolution; review final workplan; oversight field activities

Load Lines 5, 7, 8:

- Phase I RI - scope work; review SOW; review draft workplan; comment resolution on draft workplan; review final workplan

Load Lines 6, 9, 10:

- Phase I RI - oversight of field activities; review preliminary draft reports
- Phase I RI - comment resolution on preliminary draft reports; review draft reports; review final reports

Load Line 11:

- Phase I RI - review final report
- Evaluate remedial alternatives; preferred plan/decision document; commence LTM
- Continue LTM

NACA Test Crash Area:

- Monitoring well Installation - install monitoring wells, review data report from monitoring wells

Dump Along Paris Windham Road:

- Review final report; prepare statement of basis

Central Burn Pits:

- Feasibility Study - scope FS; review SOW; review draft workplan; comment resolution; review final workplan; oversight field activities

Quarry Landfill/Pond:

- Comment resolution on draft workplan; review final workplan
- Phase I RI - oversight field activities; review preliminary draft report

Anchor Test Area:

- Interim Removal Action - comment resolution on preliminary draft report; review draft report; review final report; prepare statement of basis

C Block Quarry:

- Review preliminary IRA draft report
- Interim Removal Action - comment resolution on preliminary draft report; review draft report; review final report; prepare statement of basis

Pistol Range:

- review preliminary draft Interim Removal Action report
- Interim Removal Action - comment resolution on preliminary draft report; review draft report; review final report; prepare statement of basis

Open Demolition Area #2

- Comment resolution on preliminary draft report; review draft report
- Phase II RI - review final report



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

February 3, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
OHARNG EA AND DOPAA

CPT Tom Daugherty
(AGOH-FM-EN)
2825 West Dublin-Granville Road
Columbus, OH 43235

Dear CPT Daugherty:

Thank you for your correspondence and the response to comment (RTC) matrix for the draft Ravenna Training and Logistics Site (RTL) Environmental Assessment (EA) and Description of Proposed Actions and Alternatives (DOPAA). The RTC and attached correspondence were generated by the Ohio Army National Guard (OHARNG) in response to comments on the draft EA and DOPAA from the Ohio Environmental Protection Agency (Ohio EPA), and were received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), on January 21, 2003. This correspondence is divided into two parts: general comments related to your letter and the RTC, and comments specific to the RTC matrix.

GENERAL COMMENTS:

1. Future Land Use:

Your correspondence indicates that: "Attempting to define specific uses of the AOCs in the EA at this time only serves to complicate the issues by directing attention away from the true purpose of the EA, to identify and minimize environmental impacts associated with the proposed development of the RTL." Additionally your correspondence indicates that: "Leaving the final end-state and re-utilization of the AOCs undefined does not nullify the validity of the EA or preclude development and use of RTL and the AOCs by the OHARNG in the future." I would like to present a position that is counter to the statements that are made in your correspondence.

For a number of years, Ohio EPA has been encouraging the OHARNG and the Operations Support Command (OSC) to formalize the future use of the installation and come to agreement on cleanup levels. Although it is clear that the installation will be utilized as a training and logistics site, it is less clear as to whether or not various Areas of Concern (AOCs) will be utilized and, if so, for what purpose(s). For example, the OSC has indicated that chemical contamination would be cleaned up to an industrial standard, which is clearly not protective of several OHARNG land use scenarios. In addition, the OSC has indicated that unexploded ordnance (UXO) would be removed only to four feet below ground surface, yet OHARNG land use levels would require a cleanup depth of 9.5 feet to accommodate a M-1 main battle tank in turret defilade. Further Department of Defense (DOD) directive 6055.9-STD requires a ten foot assessment depth for unrestricted use (commercial, residential, utility, sub-surface, recreational and construction activity).



Leaving the final end-state and re-utilization of the various AOCs undefined results in:

- a) Ohio EPA requiring that all future land use scenarios (including the child and resident farmer) being evaluated. This adds time and cost to the projects.
- b) The slow-down or halting of several current projects. We are at the Feasibility Study (FS) portion of the CERCLA process at several AOCs. Based upon the components of the FS and the nine evaluation criteria, without having knowledge of future land use, no further progress on AOC evaluation and cleanup can occur.
- c) Decreased cost-effectiveness. If an insufficient cleanup (either in terms of UXO or chemical constituents) is achieved for the OHARNG's end-use of an AOC, then additional work will need to be conducted prior to the use of the AOC. It is more cost-effective and time-efficient to determine the use of the AOC prior to making cleanup decisions.
- d) The environmental project team looking at and defining potentially applicable land use controls. This is due to the fact that we have no assurances that the OSC and OHARNG would agree to land use controls and that the appropriate parties would enforce the controls in place.

Connected with the above, it is Ohio EPA's understanding that the Winklepeck Burning Grounds (WBG) AOC is currently being considered for a Mark 19 Range. As such, the statement in the correspondence that few AOCs "...will be ready for re-use by the OHARNG in the near future, therefore we have not been compelled to include plans to re-utilize these AOCs in the current pdEA" is not accurate. Please advise Ohio EPA as to whether or not a separate EA will be prepared for the proposed range.

Clearly, it is in the best interest of the OHARNG to come to agreement with the OSC on cleanup levels and depth, and potential future OHARNG use of currently-identified AOCs.

2. Partnership:

Your correspondence indicates that the OHARNG fully intends to continue their partnership with Ohio EPA and the OSC by coordinating activities with the Installation Restoration Program (IRP) team. Ohio EPA would hope that this commitment to partnership would extend to such issues as to determining whether or not key areas such as wetlands, the Hemlock Gorge, etc., would be utilized for training, or would be set aside as preserved areas. This position has been presented to the OHARNG on several occasions. Currently, several of the OHARNG responses in the RTC matrix would tend to indicate that the use of any area on the installation is at the sole discretion of the OHARNG, thus, precluding any chance of dialogue. If this is the position of the OHARNG, then future discussion of this issue is warranted.

SPECIFIC COMMENTS:

Several of the responses in the OHARNG RTC matrix indicate that the text would be changed as "appropriate and necessary," or that the comment is "noted," etc. As no specific replacement text was presented in the RTC, Ohio EPA will be unable to determine whether or not the original comment was addressed adequately, until the revised EA is received. This caveat will be referred to in numerous places in the following Ohio EPA responses to the RTC matrix.

- 0 Response is acceptable.
- 1 Please refer to general comment # 1 above.
- 2 Response is acceptable. See caveat detailed above.
- 3 Please be advised that three copies of any future submissions should be distributed directly to Ohio EPA, NEDO, DERR, for distribution. Two copies will be needed for review in NEDO, and one copy could still be directed to Central Office (CO). This will expedite any needed review.
- 4 See general comment # 2. Please note that the original Ohio EPA comment did not suggest that the OHARNG projects are "haphazardly sited with no regard for natural resources." In addition, please note the potential ramifications of disturbing wetlands.
- 5 Response is acceptable. See caveat detailed above.
- 6 Response is acceptable. See caveat detailed above.
- 7 Response is acceptable.
- 8 It is unclear as to how releasing the number of foresters and biologists will compromise National Security.
- 9 Response is acceptable. See caveat detailed above.
- 10 Response is acceptable. See caveat detailed above.
- 11 See caveat detailed above. In addition, the OHARNG should be in direct communication with Ohio EPA, DSW, to ensure that the proposed actions will not impact upon, or degrade, Waters of the State. Contact names and numbers can be provided to the OHARNG.
- 12 Response is acceptable. See caveat detailed above.
- 13 Please provide a copy of the Integrated Contingency Plan (ICP) to Ohio EPA, NEDO, DERR.

- 14 Response is acceptable.
- 15 Response is acceptable. See caveat detailed above.
- 16 Response is acceptable. See caveat detailed above.
- 17 Response is acceptable. See caveat detailed above.
- 18 Response is acceptable. See caveat detailed above.
- 19 Ohio EPA notes that the only reason that a comment was made regarding the statistical methods is due to the fact that they were referenced in the pdEA. If this is "outside the scope of the pdEA," it should not be included in the pdEA.
- 20 Response is acceptable. See caveat detailed above.
- 21 Response is acceptable. See caveat detailed above.
- 22 Please refer to general comment # 2 detailed above.
- 23 Response is acceptable. See caveat detailed above.
- 24 The response is clear. However, it is still unclear as to how this practice will yield the most reliable information.
- 25 Response is acceptable. See caveat detailed above.
- 26 Response is acceptable. See caveat detailed above.
- 27 Response is acceptable. See caveat detailed above.
- 28 If there is no need to discuss the National Priorities List (NPL) within the pdEA, then remove the reference to the NPL in the revised document.
- 29 Response is acceptable. See caveat detailed above.
- 30 Response is acceptable. See caveat detailed above.
- 31 Response is acceptable. See caveat detailed above.
- 32 Response is acceptable. See caveat detailed above.
- 33 Response is acceptable. See caveat detailed above.
- 34 Response is acceptable. See caveat detailed above.
- 35 Response is acceptable. See caveat detailed above.

- 36 Response is acceptable. See caveat detailed above.
- 37 Response is acceptable. See caveat detailed above.
- 38 Response is acceptable. See caveat detailed above.
- 39 OSC does not have copies of the underground storage tank (UST) closure reports. If the OHARNG has copies of these reports, please provide them to Ohio EPA. Additionally, please provide an explanation for why there is no documentation available from the referenced OHARNG UST removal at the old UTES # 1. Without documentation, there is no factual data to indicate that this area has been properly remediated and closed. As such, Ohio EPA requests that the OHARNG provide the requested documentation, or be prepared to conduct additional investigative activities in these areas, to demonstrate that the site(s) has(ve) been properly remediated.
- 40 Response is acceptable. See caveat detailed above.
- 41 Response is acceptable. See caveat detailed above.
- 42 Discussion warranted on this issue.
- 43 Please add the requested keys to the tables. This is standard practice.
- 44 Response is acceptable. See caveat detailed above.
- 45 Response is acceptable. See caveat detailed above.
- 46 Please reference general comment # 2 detailed above.
- 47 How will it be ensured that the troops training in these areas will avoid the referenced sites?
- 48 Response is acceptable. See caveat detailed above.
- 49 Response is acceptable. See caveat detailed above.
- 50 Response is acceptable. See caveat detailed above.
- 51 Please reference general comment # 1 detailed above.
- 52 Please confirm that the OHARNG is agreeing to let OSC determine the cleanup level, as the response to this comment indicates. Also, please refer to general comment # 1 detailed above. If the OHARNG response was in error, please remove this from the revised RTC matrix.
- 53 See response to # 52.

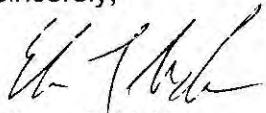
CPT TOM DAUGHERTY
FEBRUARY 3, 2003
PAGE 6

54 Response is acceptable. See caveat detailed above.

55 Response is acceptable.

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

Sincerely,



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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Mark Patterson, RVAAP
LTC Tom Tadsen, RVAAP
COL William Radford, Columbus OHARNG
COL William Zieber, Columbus OHARNG
COL Matthew Kambic, Columbus OHARNG

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

14	5	Revise the text to indicate that in May 1999, 16,164 acres were transferred to the Ohio Army National Guard (OHARNG).
20	9	The previous Ohio EPA comment asked for the revision to read: "A suspected glacial valley..." Instead, in the revised workplan, this portion was removed. Please revise as initially requested.
22	10	This section is not specific to the RVAAP installation. As such, make the previously requested revision or put the requested text in Section 1.2.3.3.
23	11	If the well at T-5301 is not relevant, then the other two cited wells are not relevant. Please revise the text as initially requested.
30	14	In the last sentence of the first full paragraph, please revise "Shanon" to read "Sharon."
NA	14	In Section 1.2.6, please revise the text to read: "...in the western part of RVAAP."
33	17	Please add a reference to the 1996 U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) report, as was previously requested. [USACHPPM prepared two Relative Risk Site Evaluation (RRSE) reports for RVAAP.]
N/A	23	In the last bullet, please revise the cited acreage, based upon either the 1999 or the latest land transfer.
49	23	Section 3.2.2 EXPOSURE MEDIA: The revisions made to the first sentence in Section 3.2.2 are not clear. The draft Ohio EPA guidance uses a point of compliance of 0-1.2 meters. No distinction between surface and subsurface soils are made. The current revision defines both surface and subsurface soils and implies that soils between two feet and 1.2 meters are not classified. Please revise the sentence. It is acceptable to define surface and subsurface soils based on the known and/or suspected contamination that has been identified at RVAAP. See original comment # 57 as well for additional information.
NA	24	Section 3.2.2 EXPOSURE MEDIA: The first sentence on page 24 appears to be from another document and should be revised.
49	23 - 24	Regarding exposure media, the revised text did not completely incorporate the original comment. In addition, the revised text should be further refined, as the paragraph (first paragraph on page 24) is not clear. It would be acceptable to indicate that,

due to the lack of inhalation toxicity criteria and receptor-specific inhalation rates, exposure via the inhalation pathway is generally not evaluated as part of an ecological risk assessment. The paragraph should identify that all appropriate exposure media will be included in the ecological risk assessment and that exposure media will be determined on a site-specific basis.

51	24 - 25	Section 3.2.4.1 Protected Species: The revisions did not fully take into account original comment # 51. No discussion on habitat was given. In addition, Section 3.2.1 states that protected species will be quantitatively evaluated only in the screening level assessment. This is not correct, as these species may be evaluated throughout the risk assessment process. Please revise Section 3.2.4.1.
55/57	24	The text indicates that groundwater has been encountered at depths as shallow as 2'. If this is the case, then there is the potential for burrowing animals to contact contaminated groundwater and, as such, this should be left in as a medium of concern.
N/A	25	As this should be a stand-alone document, please add an appendix which lists the rare species, as opposed to citing the Winklepeck Burning Grounds (WBG) report.
60	26	Section 3.6 DEFINE STUDY BOUNDARIES: The revised text should state that the exposure unit (EU) will be defined as the extent of contamination. The revised text (in the first paragraph) does state that sampling may be conducted out-side the boundaries if warranted. Please revise the text to indicate that if contamination is found at the installation boundary, that off-post sampling may be required (second paragraph). The last line in Section 3.6 should be removed, as area use factors should be discussed under receptor exposure and not the identification of areas of concern (AOCs) or EUs.
N/A	28	Section 3.7 IDENTIFY DECISION RULES: The term "background risk" should be removed from the last sentence of the paragraph following Policy Goal 3.
62		Original comment # 62 was not addressed. Future risk assessments should not use the three categories for hazard quotients or indices. Please reference back to the original comment.

The table was revised, however, if the table is to remain (the tables add little to the process, as the topic is handled extensively in most ecological risk assessment guidance documents) in the document, then the following changes should be made:

- a) Measurement Endpoint 1 should be revised as some special interest species will be evaluated based solely on media concentrations (e.g., plants, aquatic organisms).
- b) Decision Rule for Assessment Endpoint 1: Information regarding the habitat of special interest species should be given. At times, all that may be required to complete an ecological risk assessment, using a special interest species, may be the required habitat. This section (decision rule) identifies that a special interest species must be present at a site, which may not be correct. Please add a discussion on special interest habitat in the decision rule.
- c) Decision Rule for Assessment Endpoint 1 and other decision rule locations: A weight of evidence evaluation may not be needed or completed in some circumstances. The discussions regarding the completion of a weight of evidence evaluation should be revised to include this point.
- d) Measurement Endpoint 1 and others: Several measurement endpoint discussions identify modeled prey contaminant concentrations. Tissue concentrations gathered via direct sampling may be used in the risk assessments when greater confidence is needed. As the discussion of the risk assessment process is general and non-specific, the addition of text that identifies that measured tissue concentrations may be used is needed. Make changes to Section 3.8.1 as well.
- e) Assessment endpoints 7 and 8 discuss aquatic receptors. The decision rules and measurement endpoints must include the use of the specific requirements of the State of Ohio surface water standards identified in Section 3745 of the Ohio Administrative Code (OAC) when appropriate. Decisions as given in the document may or may not be made based on the HQ values alone.

N/A	32	A discussion of what decision is being made would be helpful in Section 3.8.
N/A	32	Section 3.8.1 is not clear. Several citations to the Draft Ohio EPA Ecological Risk Assessment Guidance are incorrect. A level II assessment does not include food chain modeling. In addition, it appears that the Level III assessment is being confused with a Level IV assessment. Section 3.8.1 should be revised.
N/A	33 - 34	In Section 3.9.2 or 3.9.3, a discussion is needed to indicate that sample quantitation limits are to be at useful levels. For example, soil sample results with quantitation limits that exceed screening values cannot be used in the screening evaluation. In these circumstances, those (chemicals with quantitation limits that exceed screening concentrations) would be required to be carried through a baseline risk assessment. In addition, matrix interference should also be discussed. There have been cases where high levels of contamination have raised quantitation limits of another contaminant to below a detection limit of interest. This issue should be discussed in the Facility-wide Ecological Risk Assessment Workplan or identified to be discussed in the AOC specific sampling and analysis plan.
69	35	Remove metals from the third bullet in Section 3.9.4.
N/A	35	Section 4.0 SELECTION OF EXPOSURE UNITS AND RECEPTOR SPECIES: The last sentence of the first paragraph of Section 4.0 is out of place. Information regarding the estimation of exposure of ecological receptors to contamination should be located elsewhere in the document.
N/A	36	Section 4.0 indicates that a figure showing the potential ecological receptors and exposure media will be developed. This information and diagram is an essential part of the conceptual site model (CSM). Please amend the text to inform the reader that the diagram is part of the CSM.
N/A	38	Section 4.1.1 TERRESTRIAL EXPOSURE CLASSES AND RECEPTORS: The cottontail rabbits should be removed from the example and replaced with meadow vole. Also, see original comment # 77 regarding the home ranges of the receptors and the relationship to EUs during receptor selection.
N/A	40-43	Section 4.1.1 TERRESTRIAL EXPOSURE CLASSES AND RECEPTORS: The tables included a footnote regarding the calculation of intakes. The footnote is not clear as to the use of

the ingestion rates and the percentage of diet values. It is true that for some species the total percent of diet (i.e., animal, plant, and soil) exceeds 100%. This is due to the fact that many sources of information were used to develop the receptor life history information tables. All of the components of the receptor diet (plant, animal, soil, etc.) are multiplied by the Food Ingestion Rate in order to derive a total contaminant intake value. Revise the table or add additional information on how the intakes are to be calculated using the provided tables and information.

In addition, the receptor information given in the tables do not exactly match what is cited in the Draft Ohio EPA guidance. If consistency with the guidance is desired (this is the understanding by Ohio EPA), then the tables should be revised. See original comment # 79. The tables should be revised accordingly.

79	40	Please revise the table for the short-tailed shrew based on the information given in original comment # 79.
80	44 - 46	Section 4.1.2 AQUATIC EXPOSURE CLASSES AND RECEPTORS: This comment has not been adequately addressed. Please see original comment # 80 and revised Section 4.1.2.
N/A	46	As this should be a stand-alone document, please add the constituent specific transfer factors found in Tables L4 through L7 in the WBG Phase II report.
N/A	46 - 50	Section 4.2 QUANTIFICATION OF EXPOSURE: The information regarding soil-to-plant uptake factors should be revised. Ohio EPA will likely remove the specific K_{ow} based cut-off for organic compounds from the draft ecological risk assessment guidance document. This change would require that all organic compounds without chemical specific accumulation factors would be evaluated using the regression equation from Travis and Arms (1988). Please make this change in the workplan or provide supporting evidence of the position given in the workplan.
N/A	49	The paragraph that discusses inorganic BAFs for small mammals and birds should be revised. It appears as though the word organic should replace inorganic when the regression equation from Travis and Arms (1988) is discussed.

- | | | |
|-----|----|--|
| N/A | 50 | Installation-specific background has been determined for RVAAP. As such, these values will not change. In addition, the algorithms also should not change. As this should be a stand-alone document, please ensure that this information is included in the revised document. |
| 91 | 51 | The revision is acceptable; however, it could have also been revised to indicate that the volatile organic compounds (VOCs) may be transported off-site by surface water or sediment mechanisms, etc.. |
| 92 | 51 | Please check with Dr. Judy Pennington regarding her research into plant uptake of explosives compounds. |
| N/A | 54 | Figure III Ecological Risk Assessments for Soil at RVAAP: Step two should be revised. The term average should be replaced with maximum. Average values may also be compared to screening values for informational purposes for the risk managers. The risk managers will be making the decision as to whether continued ecological assessment will be required. |
| N/A | 54 | Figure III Ecological Risk Assessments for Soil at RVAAP: Step 4 is to be removed. The response given is specific for surface water and, as pointed out, Figure III is specific to soils. See comment # 94 for details. |
| 94 | | Response to Step 1B: The plant protection levels (PPLs) developed using the Hill model should be used as the toxicity criteria for the ecological risk assessments involving plant receptors. These PPL values should be used referentially to other toxicity criteria. The PPLs developed specific dose response curves for copper, 2,4,6 TNT, 1,3,5 TNB, and cyanide specific to plant receptors that are found at RVAAP. Below is an excerpt from Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997, ES/ER/TM-85/R3, which is used as the source of screening values for terrestrial plants exposed to copper to help clarify the unique data that has been collected as part of the field-truthing effort at WBG. |

“3.1.12 Copper

Experiments conducted in soil. Miles and Parker (1979b) found approximately 68% reductions in root and shoot weights of little bluestem grown from seed for 12 weeks in a sandy soil

(pH 7.8, % organic matter 2.5, CEC 12 meq/100g soil), when 100 ppm Cu as CuSO₄ was added. This was the only concentration tested. Growth was reduced in a second sandy soil (pH 4.8, % organic matter 1.9, CEC 6 meq/100g soil) by 86% with the addition of 100 ppm Cu (only concentration tested).

Wallace et al. (1977b) evaluated the effects of Cu, added as CuSO₄ to a loam soil, on leaf and stem weights of bush beans grown from seed for 17 days. Leaf weight was reduced 26% by 200 ppm Cu, while 100 ppm had no effect.

Confidence is low in the benchmark of 100 ppm Cu in soil because it is derived from fewer than 10 values."

As you can see, the data gathered for WBG would be of higher confidence and should be used for both a screening value (when the PPL is the lowest of the available soil screening values) and for calculating HQ values. This is based on the chemical specific data, duration of exposure and receptor species.

In addition, after reviewing the soil screening value for 2,4,6-trinitrotoluene, it appears as though the soil screening value was not based on a plant receptor. Therefore, the PPL should be used for a screening value and for deriving HQ values for plant receptors. Given that the PPL is lower than the provided soil screening value, one could infer that plants may be the sensitive receptor and should be used to derive a soil screening value.

As for 1,3,5 TNB and cyanide, there are no soil screening values and limited toxicity data on plants. Again, the PPLs should be used for these compounds. Please revise the facility-wide ecological risk assessment work plan to incorporate the use of the PPLs as described above.

N/A	54	Figure III Ecological Risk Assessments for Soil at RVAAP: Step 5 should be removed or revised. This evaluation, if completed, is to be qualitative and done on a case by case basis. Much more detail is required if the step is retained. See comment # 94 for details.
N/A	55	Figure III Ecological Risk Assessments for Soil at RVAAP: Steps 7 and 8 should be removed. The 2% criterion has not been adequately justified, given the concerns that have been discussed on the sampling methodologies in the WBG ground-truthing report. Also, given that habitat should be evaluated in

a Level I ERA, the 2% bare area by infrastructure foot print is not needed. In addition, a document that states no further action is required based solely on the fact that 2% of the area is bare, would likely not be approved. Discussion regarding impacts other than those caused by chemical contamination (e.g., compaction, cinders, gravel/slag, etc.) have routinely been handled as part of the uncertainty section of any risk assessment. The workplan should identify the uncertainty section as the location for discussions that may explore possible impacts (or lack thereof) by chemical and non-chemical stressors. Some of this discussion is also given in the narrative to step 9. See original comment # 103 for a discussion on the uncertainty section. See also original comment # 94 for additional information as the comments were not incorporated into the revised document.

N/A	55	Figure III Ecological Risk Assessments for Soil at RVAAP: Step 9 should be expanded to explain what is "Risk Management Analysis." A feasibility study (FS), if not conducted concurrently with the risk assessment (as specified by U.S. EPA guidance on conducting RI/FS investigations for CERCLA, EPA/540/P-91/001), is to be completed following the ecological and human health risk assessments. The FS is a major part of the "risk management analysis." Additional information is required for step 9.
96	56	The cost of the WBG field truthing study does not factor into its usability at other areas of concern (AOCs). As such, strike this entry from the text in Section 4.5.1.
N/A	57	Narrative to Step 5: Replace "ensure" with "determine" in the first sentence. Also, additional information should be given the narrative that explains that the decision whether to use the WBG values will be made as a group and that the comparison is qualitative in nature.
96	57	Please revise the text to indicate that other factors (besides conducting a "biological walk over survey") are involved in determining AOC comparability, such as soil, topography, history, etc..
N/A	58	Narrative to Step 9: It should be stated in the narrative to step 9 that an ecological study is not always definitive as the current versions implies. Often, as seen in the WBG ground-truthing study, results from ecological investigations are subject to interpretation and are rarely definitive. The evaluation discussed in step 9 should also include the likelihood that a field

DR. DAVID BRANCATO
JANUARY 13, 2003
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study or Level IV ecological risk assessment would not be definitive, and the decision makers would rely upon the HQ values and other evidence gathered during the risk assessment process.

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

Sincerely,



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

ETM/kss

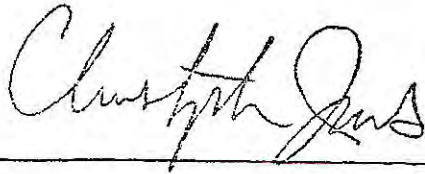
cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Laurie Eggert, Ohio EPA, OFFO, SWDO
Brian Tucker, Ohio EPA, CO, DERR
Mark Patterson, RVAAP
LTC Tom Tadsen, RVAAP
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John Jent, USACE Louisville
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ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR

OHIO ENVIRONMENTAL PROTECTION AGENCY
AUTHORIZATION FOR STORM WATER DISCHARGES ASSOCIATED
WITH CONSTRUCTION ACTIVITY UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the federal Water Pollution Control Act, as amended (33 U.S.C. Section 1251 et. seq. hereafter referred to as "the Act") and the Ohio Water Pollution Control Act [Ohio Revised Code ("ORC") Chapter 6111], dischargers of storm water from sites where construction activity is being conducted, as defined in Part I.B of this permit, are authorized by the Ohio Environmental Protection Agency, hereafter referred to as "Ohio EPA," to discharge from the outfalls at the sites and to the receiving surface waters of the state identified in their Notice of Intent ("NOI") application form on file with Ohio EPA in accordance with the conditions specified in Parts I through VII of this permit.

This permit is conditioned upon payment of applicable fees, submittal of a complete NOI application form and written approval of coverage from the director of Ohio EPA in accordance with Ohio Administrative Code ("OAC") Rule 3745-38-06.



Christopher Jones
Director

OHIO E.P.A.
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PART VII. DEFINITIONS

PART I. COVERAGE UNDER THIS PERMIT

A. Permit Area.

This permit covers the entire State of Ohio.

B. Eligibility.

1. Construction activities covered. Except for storm water discharges identified under Part I.B.2, this permit may cover all new and existing discharges composed entirely of storm water discharges associated with construction activity that enter surface waters of the state or a storm drain leading to surface waters of the state.

For the purposes of this permit, construction activities include any clearing, grading, excavating, grubbing and/or filling activities that disturb the threshold acreage described in the next paragraph. Discharges from trench dewatering are also covered by this permit as long as the dewatering activity is carried out in accordance with the practices outlined in Part III.G.2.g.iv of this permit.

Prior to March 10, 2003, only construction activities disturbing five or more acres of total land were required to obtain NPDES construction storm water permit coverage. On and after March 10, 2003, construction activities disturbing one or more acres of total land will be eligible for coverage under this permit. The threshold acreage includes the entire area disturbed in the larger common plan of development or sale.

This permit also authorizes storm water discharges from support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided:

- a. The support activity is directly related to a construction site that is required to have NPDES permit coverage for discharges of storm water associated with construction activity;
- b. The support activity is not a commercial operation serving multiple unrelated construction projects and does not operate beyond the completion of the construction activity at the site it supports;
- c. Appropriate controls and measures are identified in a storm water pollution prevention plan (SWP3) covering the discharges from the support activity; and
- d. The support activity is on or contiguous with the property defined in the NOI;

Part I.B

2. Limitations on coverage. The following storm water discharges associated with construction activity are not covered by this permit:
 - a. Storm water discharges that originate from the site after construction activities have been completed, including any temporary support activity, and the site has achieved final stabilization. Industrial post-construction storm water discharges may need to be covered by an NPDES permit;
 - b. Storm water discharges associated with construction activity that the director has shown to be or may reasonably expect to be contributing to a violation of a water quality standard; and
 - c. Storm water discharges authorized by an individual NPDES permit or another NPDES general permit;

3. Waivers. After March 10, 2003, sites whose larger common plan of development or sale have at least one, but less than five acres of land disturbance, which would otherwise require permit coverage for storm water discharges associated with construction activities, may request that the director waive their permit requirement. Entities wishing to request such a waiver must certify in writing that the construction activity meets one of the two the waiver conditions:
 - a. **Rainfall erosivity waiver.** For a construction site to qualify for the rainfall erosivity waiver, the cumulative rainfall erosivity over the project duration must be five or less and the site must be stabilized with at least a 70 percent vegetative cover or other permanent, non-erosive cover. The rainfall erosivity must be calculated according to the method in U.S. EPA Fact Sheet 3.1 Construction Rainfall Erosivity Waiver dated January 2001. If it is determined that a construction activity will take place during a time period where the rainfall erosivity factor is less than five, a written waiver certification must be submitted to Ohio EPA at least 21 days before construction activity is scheduled to begin. If the construction activity will extend beyond the dates specified in the waiver certification, the operator must either: (a) recalculate the waiver using the original start date with the new ending date (if the R factor is still less than five, a new waiver certification must be submitted) or (b) submit an NOI application form and fee for coverage under this general permit at least seven days prior to the end of the waiver period (see Attachment A); or

Part I.B.3

- b. **TMDL (Total Maximum Daily Load) waiver.** Storm water controls are not needed based on a TMDL approved or established by U.S. EPA that addresses the pollutant(s) of concern or, for non-impaired waters that do not require TMDLs, an equivalent analysis that determines allocations for small construction sites for the pollutant(s) of concern or that determines that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. The pollutant(s) of concern include sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. The operator must certify to the director of Ohio EPA that the construction activity will take place, and storm water discharges will occur, within the drainage area addressed by the TMDL or equivalent analysis. A written waiver certification must be submitted to Ohio EPA at least 21 days before the construction activity is scheduled to begin.
4. **Prohibition on non-storm water discharges.** All discharges covered by this permit must be composed entirely of storm water with the exception of the following: discharges from fire fighting activities; fire hydrant flushings; potable water sources including waterline flushings; irrigation drainage; lawn watering; routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; uncontaminated ground water from trench or well point dewatering and foundation or footing drains where flows are not contaminated with process materials such as solvents. Dewatering activities must be done in compliance with Part III.G.2.g.iv of this permit. Discharges of material other than storm water or the authorized non-storm water discharges listed above must comply with an individual NPDES permit or an alternative NPDES general permit issued for the discharge.

Except for flows from fire fighting activities, sources of non-storm water listed above that are combined with storm water discharges associated with construction activity must be identified in the SWP3. The SWP3 must identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

Part I.B

5. Spills and unintended releases (Releases in excess of Reportable Quantities). This permit does not relieve the permittee of the reporting requirements of 40 CFR Part 117 and 40 CFR Part 302. In the event of a spill or other unintended release, the discharge of hazardous substances in the storm water discharge(s) from a construction site must be minimized in accordance with the applicable storm water pollution prevention plan for the construction activity and in no case, during any 24-hour period, may the discharge(s) contain a hazardous substance equal to or in excess of reportable quantities.

40 CFR Part 117 sets forth a determination of the reportable quantity for each substance designated as hazardous in 40 CFR Part 116. The regulation applies to quantities of designated substances equal to or greater than the reportable quantities, when discharged to surface waters of the state. 40 CFR Part 302 designates under section 102(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, those substances in the statutes referred to in section 101(14), identifies reportable quantities for these substances and sets forth the notification requirements for releases of these substances. This regulation also sets forth reportable quantities for hazardous substances designated under section 311(b)(2)(A) of the Clean Water Act (CWA).

C. Requiring an individual NPDES permit or an alternative NPDES general permit.

1. The director may require an alternative permit. The director may require any operator eligible for this permit to apply for and obtain either an individual NPDES permit or coverage under an alternative NPDES general permit in accordance with OAC Rule 3745-38-04. Any interested person may petition the director to take action under this paragraph.

The director will send written notification that an alternative NPDES permit is required. This notice shall include a brief statement of the reasons for this decision, an application form and a statement setting a deadline for the operator to file the application. If an operator fails to submit an application in a timely manner as required by the director under this paragraph, then coverage, if in effect, under this permit is automatically terminated at the end of the day specified for application submittal.

Part I.C

2. Operators may request an individual NPDES permit. Any owner or operator eligible for this permit may request to be excluded from the coverage of this permit by applying for an individual permit. The owner or operator shall submit an individual application with reasons supporting the request to the director in accordance with the requirements of 40 CFR 122.26. If the reasons adequately support the request, the director shall grant it by issuing an individual NPDES permit.
3. When an individual NPDES permit is issued to an owner or operator otherwise subject to this permit or the owner or operator is approved for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit or the date of approval for coverage under the alternative general permit, whichever the case may be.

D. Permit requirements when portions of a site are sold

If an operator obtains a permit for a development, and then the operator (permittee) sells off lots or parcels within that development, permit coverage must be continued on those lots until a Notice of Termination (NOT) in accordance with Part IV.B is submitted. For developments which require the use of centralized sediment and erosion controls (i.e., controls that address storm water runoff from one or more lots) for which the conveyance of permit coverage for a portion of the development will either prevent or impair the implementation of the controls and therefore jeopardize compliance with the terms and conditions of this permit, the permittee will be required to maintain responsibility for the implementation of those controls. For developments where this is not the case, it is the permittee's responsibility to temporarily stabilize all lots sold to individual lot owners unless an exception is approved in accordance with Part III.G.4. In cases where permit coverage for individual lot(s) will be conveyed, the permittee shall inform the individual lot owner of the obligations under this permit and ensure that the Individual Lot NOI application is submitted to Ohio EPA.

Part I

E. Authorization

1. Obtaining authorization to discharge. Operators that discharge storm water associated with construction activity must submit an NOI application form in accordance with the requirements of Part II of this permit to obtain authorization to discharge under this general permit. As required under OAC Rule 3745-38-06(E), the director, in response to the NOI submission, shall notify the applicant in writing that he/she has been granted general permit coverage to discharge storm water associated with construction activity under the terms and conditions of this permit or that the applicant must apply for an individual NPDES permit or coverage under an alternate general NPDES permit as described in Part I.C. 1.
2. No release from other requirements. No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations. Other permit requirements commonly associated with construction activities include, but are not limited to, section 401 water quality certifications, isolated wetland permits, permits to install sanitary sewers or other devices that discharge or convey polluted water, permits to install drinking water lines, single lot sanitary system permits and disturbance of land which was used to operate a solid or hazardous waste facility (i.e., coverage under this NPDES general permit does not satisfy the requirements of OAC Rule 3745-27-13 or ORC Section 3734.02(H)). This permit does not relieve the permittee of other responsibilities associated with construction activities such as contacting the Ohio Department of Natural Resources, Division of Water, to ensure proper well installation and abandonment of wells.

Part II. NOTICE OF INTENT REQUIREMENTS

A. Deadlines for notification.

Initial coverage: Operators who intend to obtain initial coverage for a storm water discharge associated with construction activity under this general permit must submit a complete and accurate NOI application form and appropriate fee at least 21 days prior to the commencement of construction activity. If more than one operator, as defined in Part VII of this general permit, will be engaged at a site, each operator shall seek coverage under this general permit. Where one operator has already submitted an NOI prior to other operator(s) being identified, the additional operator shall request modification of coverage to become a co-permittee. In such instances, the co-permittees shall be covered under the same facility permit number. No additional permit fee is required.

Part II.A

Individual lot transfer of coverage: Operators must each submit an individual lot notice of intent (Individual Lot NOI) application form (no fee required) to Ohio EPA at least seven days prior to the date that they intend to accept responsibility for permit requirements for their portion of the original permitted development from the previous permittee. The original permittee may submit an Individual Lot NOT at the time the Individual Lot NOI is submitted. Transfer of permit coverage is not granted until an approval letter from the director of Ohio EPA is received by the applicant.

B. Failure to notify.

Operators who fail to notify the director of their intent to be covered and who discharge pollutants to surface waters of the state without an NPDES permit are in violation of ORC Chapter 6111. In such instances, Ohio EPA may bring an enforcement action for any discharges of storm water associated with construction activity.

C. Where to submit an NOI.

Operators seeking coverage under this permit must submit a signed NOI form, provided by Ohio EPA, to the address found in the associated instructions.

D. Additional notification.

The permittee shall make NOIs and SWP3s available upon request of the director of Ohio EPA, local agencies approving sediment and erosion control plans, grading plans or storm water management plans, local governmental officials, or operators of municipal separate storm sewer systems (MS4s) receiving drainage from the permitted site. Each operator that discharges to an NPDES permitted MS4 shall provide a copy of its Ohio EPA NOI submission to the MS4 in accordance with the MS4's requirements, if applicable.

E. Renotification.

Upon renewal of this general permit, the permittee is required to notify the director of his intent to be covered by the general permit renewal. Permittees covered under the previous NPDES general permit for storm water discharges associated with construction activity (NPDES permit number OHR100000) shall have continuing coverage under this permit. The permittees covered under OHR100000 shall submit a letter within 90 days of receipt of written notification by Ohio EPA expressing their intent that coverage be continued. There is no fee associated with these letters of intent for continued coverage. Permit coverage will be terminated after the 90-day period if the letter is not received by Ohio EPA. Ohio EPA will provide instructions on the contents of the letter and where it is to be sent within the notification letter.

PART III. STORM WATER POLLUTION PREVENTION PLAN (SWP3)

A. Storm Water Pollution Prevention Plans.

A SWP3 shall be developed for each site covered by this permit. For a multi-phase construction project, a separate NOI shall be submitted when a separate SWP3 will be prepared for subsequent phases. SWP3s shall be prepared in accordance with sound engineering and/or conservation practices by a professional experienced in the design and implementation of standard erosion and sediment controls and storm water management practices addressing all phases of construction. The SWP3 shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with construction activities. In addition, the SWP3 shall describe and ensure the implementation of best management practices (BMPs) that reduce the pollutants in storm water discharges during construction and pollutants associated with post-construction activities to ensure compliance with ORC Section 6111.04, OAC Chapter 3745-1 and the terms and conditions of this permit.

B. Timing

A SWP3 shall be completed prior to the timely submittal of an NOI and updated in accordance with Part III.D. Upon request and good cause shown, the director may waive the requirement to have a SWP3 completed at the time of NOI submission. If a waiver has been granted, the SWP3 must be completed prior to the initiation of construction activities. The SWP3 must be implemented upon initiation of construction activities.

Permittees continuing coverage from the previous generation of this permit (OHR100000) that have initiated construction activity prior to the receipt of written notification from Ohio EPA to submit a letter of intent to continue coverage, as required in Part II.E, are not required to update their SWP3 as a result of this renewal (OHC000002). All permittees developing sites with coverage under OHR100000 that seek continuation of coverage do not need to update the post-construction section of their SWP3 as required in Part III.G.2.e of this permit.

C. SWP3 Signature and Review.

1. Plan Signature and Retention On Site. The SWP3 shall be signed in accordance with Part V.G. and retained on site during working hours.
2. Plan Availability
 - a. On-site: The plan shall be made available immediately upon request of the director or his authorized representative during working hours. A copy of the NOI and letter granting permit coverage under this general permit also shall be made available at the site.

Part III.C.2

- b. By written request: The permittee must provide a copy of the SWP3 within 10 days upon written request of any of the following:
 - i. The director or the director's authorized representative;
 - ii. A local agency approving sediment and erosion plans, grading plans or storm water management plans; or
 - iii. In the case of a storm water discharge associated with construction activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the operator of the system.
 - c. To the public: All NOIs, general permit approval for coverage letters, and SWP3s are considered reports that shall be available to the public in accordance with the Ohio Public Records law. The permittee shall make documents available to the public upon request or provide a copy at public expense, at cost, in a timely manner. However, the permittee may claim to Ohio EPA any portion of an SWP3 as confidential in accordance with Ohio law.
3. Plan Revision. The director or authorized representative, may notify the permittee at any time that the SWP3 does not meet one or more of the minimum requirements of this part. Within 10 days after such notification from the director, (or as otherwise provided in the notification) or authorized representative, the permittee shall make the required changes to the SWP3 and, if requested, shall submit to Ohio EPA the revised SWP3 or a written certification that the requested changes have been made.

D. Amendments

The permittee shall amend the SWP3 whenever there is a change in design, construction, operation or maintenance, which has a significant effect on the potential for the discharge of pollutants to surface waters of the state or if the SWP3 proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity. Amendments to the SWP3 may be reviewed by Ohio EPA in the same manner as Part III.C.

Part III

E. Duty to inform contractors and subcontractors

The permittee shall inform all contractors and subcontractors not otherwise defined as "operators" in Part VII of this general permit, who will be involved in the implementation of the SWP3, of the terms and conditions of this general permit. The permittee shall maintain a written document containing the signatures of all contractors and subcontractors involved in the implementation of the SWP3 as proof acknowledging that they reviewed and understand the conditions and responsibilities of the SWP3. The written document shall be created and signatures shall be obtained prior to commencement of work on the construction site.

F. Total Maximum Daily Load (TMDL) allocations

If a TMDL is approved for any waterbody into which the permittee's site discharges and requires specific BMPs for construction sites, the director may require the permittee to revise his/her SWP3.

G. SWP3 Requirements

Operations that discharge storm water from construction activities are subject to the following requirements and the SWP3 shall include the following items:

1. Site description. Each SWP3 shall provide:
 - a. A description of the nature and type of the construction activity (e.g., low density residential, shopping mall, highway, etc.);
 - b. Total area of the site and the area of the site that is expected to be disturbed (i.e., grubbing, clearing, excavation, filling or grading, including off-site borrow areas);
 - c. A calculation of the runoff coefficients for both the pre-construction and post construction site conditions;
 - d. An estimate of the impervious area and percent imperviousness created by the construction activity;
 - e. Existing data describing the soil and, if available, the quality of any discharge from the site;
 - f. A description of prior land uses at the site;

Part III.G.1

- g. An implementation schedule which describes the sequence of major construction operations (i.e., grubbing, excavating, grading, utilities and infrastructure installation) and the implementation of erosion, sediment and storm water management practices or facilities to be employed during each operation of the sequence;
- h. The name and/or location of the immediate receiving stream or surface water(s) and the first subsequent named receiving water(s) and the areal extent and description of wetlands or other special aquatic sites at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project;
- i. For subdivided developments where the SWP3 does not call for a centralized sediment control capable of controlling multiple individual lots, a detail drawing of a typical individual lot showing standard individual lot erosion and sediment control practices.

This does not remove the responsibility to designate specific erosion and sediment control practices in the SWP3 for critical areas such as steep slopes, stream banks, drainage ways and riparian zones.

- j. Location and description of any storm water discharges associated with dedicated asphalt and dedicated concrete plants covered by this permit and the best management practices to address pollutants in these storm water discharges;
- k. A copy of the permit requirements (attaching a copy of this permit is acceptable); and
- l. Site map showing:
 - i. Limits of earth-disturbing activity of the site including associated off-site borrow or spoil areas that are not addressed by a separate NOI and associated SWP3;
 - ii. Soils types should be depicted for all areas of the site, including locations of unstable or highly erodible soils;
 - iii. Existing and proposed contours. A delineation of drainage watersheds expected during and after major grading activities as well as the size of each drainage watershed, in acres;

Part III.G.1.I

- iv. Surface water locations including springs, wetlands, streams, lakes, water wells, etc., on or within 200 feet of the site, including the boundaries of wetlands or stream channels and first subsequent named receiving water(s) the permittee intends to fill or relocate for which the permittee is seeking approval from the Army Corps of Engineers and/or Ohio EPA;
 - v. Existing and planned locations of buildings, roads, parking facilities and utilities;
 - vi. The location of all erosion and sediment control practices, including the location of areas likely to require temporary stabilization during the course of site development;
 - vii. Sediment and storm water management basins noting their sediment settling volume and contributing drainage area;
 - viii. Permanent storm water management practices to be used to control pollutants in storm water after construction operations have been completed.
 - ix. Areas designated for the storage or disposal of solid, sanitary and toxic wastes, including dumpster areas, areas designated for cement truck washout, and vehicle fueling;
 - x. The location of designated construction entrances where the vehicles will access the construction site;
 - xi. The location of any in-stream activities including stream crossings;
2. Controls. The SWP3 must contain a description of the controls appropriate for each construction operation covered by this permit and the operator(s) must implement such controls. The SWP3 must clearly describe for each major construction activity identified in Part III.G.1.g: (a) appropriate control measures and the general timing (or sequence) during the construction process that the measures will be implemented; and (b) which contractor is responsible for implementation (e.g., contractor A will clear land and install perimeter controls and contractor B will maintain perimeter controls until final stabilization). Ohio EPA recommends that the erosion, sediment, and storm water management practices used to satisfy the conditions of this permit, should meet the standards and specifications in the current edition of Ohio's Rainwater and Land Development (see definitions) manual or other standards acceptable to Ohio EPA. The controls shall include the following minimum components:

Part III.G.2

- a. **Non-Structural Preservation Methods.** The SWP3 must make use of practices which preserve the existing natural condition as much as feasible. Such practices may include: preserving riparian areas adjacent to surface waters of the state, preserving existing vegetation and vegetative buffer strips, phasing of construction operations in order to minimize the amount of disturbed land at any one time and designation of tree preservation areas or other protective clearing or grubbing practices. The recommended buffer that operators should leave undisturbed along a surface water of the state is 25 feet as measured from the ordinary high water mark of the surface water.

- b. **Erosion Control Practices.** The SWP3 must make use of erosion controls that are capable of providing cover over disturbed soils unless an exception is approved in accordance with Part III.G.4. A description of control practices designed to restabilize disturbed areas after grading or construction shall be included in the SWP3. The SWP3 must provide specifications for stabilization of all disturbed areas of the site and provide guidance as to which method of stabilization will be employed for any time of the year. Such practices may include: temporary seeding, permanent seeding, mulching, matting, sod stabilization, vegetative buffer strips, phasing of construction operations, use of construction entrances and the use of alternative ground cover.

- i. **Stabilization.** Disturbed areas must be stabilized as specified in the following tables below. Permanent and temporary stabilization are defined in Part VII.

Table 1: Permanent Stabilization

Area requiring permanent stabilization	Time frame to apply erosion controls
Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance
Any areas within 50 feet of a stream and at final grade	Within two days of reaching final grade
Any other areas at final grade	Within seven days of reaching final grade within that area

Part III.G.2.b.i

Table 2: Temporary Stabilization

Area requiring temporary stabilization	Time frame to apply erosion controls
Any disturbed areas within 50 feet of a stream and not at final grade	Within two days of the most recent disturbance if the area will remain idle for more than 21 days
For all construction activities, any disturbed areas that will be dormant for more than 21 days but less than one year, and not within 50 feet of a stream	Within seven days of the most recent disturbance within the area For residential subdivisions, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot(s).
Disturbed areas that will be idle over winter	Prior to the onset of winter weather

Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed.

- ii. **Permanent stabilization of conveyance channels.** Operators shall undertake special measures to stabilize channels and outfalls and prevent erosive flows. Measures may include seeding, dormant seeding (as defined in the 1996 edition of the Rainwater and Land Development manual), mulching, erosion control matting, sodding, riprap, natural channel design with bioengineering techniques or rock check dams.
- c. **Runoff Control Practices.** The SWP3 shall incorporate measures which control the flow of runoff from disturbed areas so as to prevent erosion from occurring. Such practices may include rock check dams, pipe slope drains, diversions to direct flow away from exposed soils and protective grading practices. These practices shall divert runoff away from disturbed areas and steep slopes where practicable.
- d. **Sediment Control Practices.** The plan shall include a description of structural practices that shall store runoff allowing sediments to settle and/or divert flows away from exposed soils or otherwise limit runoff from exposed areas. Structural practices shall be used to control erosion and trap sediment from a site remaining disturbed for more than 14 days. Such practices may include, among others: sediment settling ponds, silt fences, earth diversion dikes or channels which direct runoff to a sediment settling pond and storm drain inlet protection. All sediment control practices must be capable of ponding runoff in order to be considered functional. Earth diversion dikes or channels alone are not considered a sediment control practice unless those are used in conjunction with a sediment settling pond.

Part III.G.2.d

The SWP3 must contain detail drawings for all structural practices.

- i. Timing. Sediment control structures shall be functional throughout the course of earth disturbing activity. Sediment basins and perimeter sediment barriers shall be implemented prior to grading and within seven days from the start of grubbing. They shall continue to function until the up slope development area is restabilized. As construction progresses and the topography is altered, appropriate controls must be constructed or existing controls altered to address the changing drainage patterns.
- ii. Sediment settling ponds. Concentrated storm water runoff and runoff from drainage areas, which exceed the design capacity of silt fence or inlet protection, shall pass through a sediment settling pond. For common drainage locations that serve an area with 10 or more acres disturbed at one time, a temporary (or permanent) sediment settling pond must be provided until final stabilization of the site. The permittee may request approval from Ohio EPA to use alternative controls if it can demonstrate the alternative controls are equivalent in effectiveness to a sediment settling pond. It is recommended for drainage locations serving less than 10 acres, smaller sediment basins and/or sediment traps should be used.

The sediment settling pond shall be sized to provide at least 67 cubic yards of storage per acre of total contributing drainage area. When determining the total contributing drainage area, off-site areas and areas which remain undisturbed by construction activity must be included unless runoff from these areas is diverted away from the sediment settling pond and is not co-mingled with sediment-laden runoff. The depth of the sediment settling pond must be less than or equal to five feet. The configuration between inlets and the outlet of the basin must provide at least two units of length for each one unit of width (> 2:1 length:width ratio). Sediment must be removed from the sediment settling pond when the design capacity has been reduced by 40 percent (This is typically reached when sediment occupies one-half of the basin depth). When designing sediment settling ponds, the permittee must consider public safety, especially as it relates to children, as a design factor for the sediment basin and alternative sediment controls must be used where site limitations would preclude a safe design. The use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal is encouraged.

Part III.G.2.d

- iii. Silt Fence and Diversions. Sheet flow runoff from denuded areas shall be intercepted by silt fence or diversions to protect adjacent properties and water resources from sediment transported via sheet flow. Where intended to provide sediment control, silt fence shall be placed on a level contour. This permit does not preclude the use of other sediment barriers designed to control sheet flow runoff. The relationship between the maximum drainage area to silt fence for a particular slope range is shown in the table below.

Maximum drainage area (in acres) to 100 linear feet of silt fence	Range of slope for a particular drainage area (in percent)
0.5	< 2%
0.25	≥ 2% but < 20%
0.125	≥ 20% but < 50%

Storm water diversion practices shall be used to keep runoff away from disturbed areas and steep slopes where practicable. Such devices, which include swales, dikes or berms, may receive storm water runoff from areas up to 10 acres.

- iv. Inlet Protection. Other erosion and sediment control practices shall minimize sediment laden water entering active storm drain systems, unless the storm drain system drains to a sediment settling pond.
- v. Stream Protection. If construction activities disturb areas adjacent to streams, structural practices shall be designed and implemented on site to protect all adjacent streams from the impacts of sediment runoff. No structural sediment controls (e.g., the installation of silt fence or a sediment settling pond in-stream) shall be used in a stream. For all construction activities immediately adjacent to surface waters of the state, it is recommended that a setback of at least 25-feet, as measured from the ordinary high water mark of the surface water, be maintained in its natural state as a permanent buffer. Where impacts within this setback area are unavoidable due to the nature of the construction activity (e.g., stream crossings for roads or utilities), the project shall be designed such that the number of stream crossings and the width of the disturbance within the setback area are minimized.
- vi. Modifying Controls. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the permittee must replace or modify the control for site conditions.

Part III.G.2

- e. **Post-Construction Storm Water Management Requirements.** So that receiving stream's physical, chemical, and biological characteristics are protected and stream functions are maintained, post-construction storm water practices shall provide perpetual management of runoff quality and quantity. To meet the post-construction requirements of this permit, the SWP3 must contain a description of the post-construction BMPs that will be installed during construction for the site and the rationale for their selection. The rationale must address the anticipated impacts on the channel and floodplain morphology, hydrology, and water quality.

Detail drawings and maintenance plans must be provided for all post-construction BMPs. Maintenance plans shall be provided by the permittee to the post-construction operator of the site (including homeowner associations) upon completion of construction activities (prior to termination of permit coverage). For sites located within a community with a regulated municipal separate storm sewer system (MS4), the permittee, land owner, or other entity with legal control of the property may be required to develop and implement a maintenance plan to comply with the requirements of the MS4. Maintenance plans must ensure that pollutants collected within structural post-construction practices, be disposed of in accordance with local, state, and federal regulations. Permittees, except for those regulated under the small MS4 program, are not responsible under this permit for operation and maintenance of post-construction practices once coverage under this permit is terminated.

This permit does not preclude the use of innovation or experimental post-construction storm water management technologies. However, the director may require discharges from such structures to be monitored to ensure compliance with Part III.G.2.e of this permit. The installation of structural controls in certain scenarios may also require a separate permit under section 404 of the CWA. Permittees are only responsible for the installation and maintenance of storm water management measures prior to final stabilization of the site and are not responsible for maintenance after storm water discharges associated with construction activity have been eliminated from the site. However, post-construction storm water BMPs that discharge pollutants from point sources once construction is completed, may in themselves, need authorization under a separate NPDES permit.

Linear construction projects, (e.g., pipeline or utility line installation), which do not result in the installation of impervious surface, are not required to comply with the conditions of Part III.G.2.e of this permit. However, linear construction projects must be designed to minimize the number of stream crossings and the width of disturbance.

Part III.G.2.e

Large Construction Activities. For all large construction activities (involving the disturbance of five or more acres of land or will disturb less than five acres, but is a part of a larger common plan of development or sale which will disturb five or more acres of land), the post construction BMP(s) chosen must be able to detain storm water runoff for protection of the stream channels, stream erosion control, and improved water quality. Structural (designed) post-construction storm water treatment practices shall be incorporated into the permanent drainage system for the site. The BMP(s) chosen must be sized to treat the water quality volume (WQ_v) and ensure compliance with Ohio's Water Quality Standards in OAC Chapter 3745-1. The WQ_v shall be equivalent to the volume of runoff from a 0.75-inch rainfall and shall be determined according to one of the two following methods:

- i. Through a site hydrologic study approved by the local municipal permitting authority that uses continuous hydrologic simulation and local long-term hourly precipitation records or
- ii. Using the following equation:

$$WQ_v = C * P * A / 12$$

where:

WQ_v = water quality volume in acre-feet

C = runoff coefficient appropriate for storms less than 1 inch
(see Table 1)

P = 0.75 inch precipitation depth

A = area draining into the BMP in acres

**Table 1
Runoff Coefficients Based on the Type of Land Use**

Land Use	Runoff Coefficient
Industrial & Commercial	0.8
High Density Residential (>8 dwellings/acre)	0.5
Medium Density Residential (4 to 8 dwellings/acre)	0.4
Low Density Residential (<4 dwellings/acre)	0.3
Open Space and Recreational Areas	0.2

Where the land use will be mixed, the runoff coefficient should be calculated using a weighted average. For example, if 60% of the contributing drainage area to the storm water treatment structure is Low Density Residential, 30% is High Density Residential, and 10% is Open Space, the runoff coefficient is calculated as follows $(0.6)(0.3) + (0.3)(0.5) + (0.1)(0.2) = 0.35$.

Part III.G.2.e

An additional volume equal to 20 percent of the WQ_v shall be incorporated into the BMP for sediment storage and/or reduced infiltration capacity. Ohio EPA recommends that BMPs be designed according to the methodology included in the Rainwater and Land Development manual or in another design manual acceptable for use by Ohio EPA.

BMPs shall be designed such that the drain time is long enough to provide treatment, but short enough to provide storage available for successive rainfall events as described in Table 2 below.

Table 2
Target Draw Down (Drain) Times for Structural
Post-Construction Treatment Control Practices

Best Management Practice	Drain Time of WQ_v
Infiltration	24 - 48 hours
Vegetated Swale and Filter Strip	24 hours
Extended Detention Basin (Dry Basins)	48 hours
Retention Basins (Wet Basins)*	24 hours
Constructed Wetlands (above permanent pool)	24 hours
Media Filtration, Bioretention	40 hours

* Provide both a permanent pool and an extended detention volume above the permanent pool, each sized at $0.75 * WQ_v$

The permittee may request approval from Ohio EPA to use alternative structural post-construction BMPs if the permittee can demonstrate that the alternative BMPs are equivalent in effectiveness to those listed in Table 2 above. Construction activities shall be exempt from this condition if it can be demonstrated that the WQ_v is provided within an existing structural post-construction BMP that is part of a larger common plan of development or if structural post-construction BMPs are addressed in a regional or local storm water management plan. Public entities (i.e., the state, counties, townships, cities, or villages) shall comply with the post-construction storm water management requirements of Part III.G.2.e for roadway construction projects initiated after March 10, 2006 and where practicable for projects initiated as of the effective date of this permit and thereafter.

For redevelopment projects (i.e., developments on previously developed property), post-construction practices shall either ensure a 20 percent net reduction of the site impervious area, provide for treatment of at least 20 percent of the WQ_v , or a combination of the two.

Part III.G.2.e

Small Construction Activities. For all small land disturbance activities (which disturb one or more, but less than five acres of land and is not a part of a larger common plan of development or sale which will disturb five or more acres of land), a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed must be included in the SWP3. Structural measures should be placed on upland soils to the degree attainable.

- i. Such practices may include, but are not limited to: storm water detention structures (including wet basins); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices). The SWP3 shall include an explanation of the technical basis used to select the practices to control pollution where flows exceed pre-development levels.
 - ii. Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., no significant changes in the hydrological regime of the receiving water).
- f. **Surface Water Protection.** If the project site contains any streams, rivers, lakes, wetlands or other surface waters, certain construction activities at the site may be regulated under the CWA and/or state isolated wetland permit requirements. Sections 404 and 401 of the Act regulate the discharge of dredged or fill material into surface waters and the impacts of such activities on water quality, respectively. Construction activities in surface waters which may be subject to CWA regulation and/or state isolated wetland permit requirements include, but are not limited to: sewer line crossings, grading, backfilling or culverting streams, filling wetlands, road and utility line construction, bridge installation and installation of flow control structures. If the project contains streams, rivers, lakes or wetlands or possible wetlands, the permittee must contact the appropriate U.S. Army Corps of Engineers District Office. (CAUTION: Any area of seasonally wet hydric soil is a potential wetland - please consult the Soil Survey and list of hydric soils for your County, available at your county's Soil and Water Conservation District. If you have any questions about Section 401 water quality certification, please contact the Ohio Environmental Protection Agency, Section 401 Coordinator.)

Part III.G.2.f

U.S. Army Corps of Engineers (Section 404 regulation):
Huntington, WV District (304) 529-5210 (Muskingum, Hocking and Scioto River Basin)
Buffalo, NY District (716) 879-4329 (Lake Erie Basin)
Pittsburgh, PA District (412) 395-7152 (Mahoning River Basin)
Louisville, KY District (502) 315-6678 (Little & Great Miami River Basin)

Ohio Environmental Protection Agency (Section 401 regulation):
Columbus, OH (614) 644-2001 (all of Ohio)

g. **Other controls.**

- i. **Non-Sediment Pollutant Controls.** No solid (other than sediment) or liquid waste, including building materials, shall be discharged in storm water runoff. The permittee must implement all necessary BMPs to prevent the discharge of non-sediment pollutants to the drainage system of the site or surface waters of the state. Under no circumstance shall concrete trucks wash out directly into a drainage channel, storm sewer or surface waters of the state. No exposure of storm water to waste materials is recommended.
- ii. **Off-site traffic.** Off-site vehicle tracking of sediments and dust generation shall be minimized.
- iii. **Compliance with other requirements.** The SWP3 shall be consistent with applicable State and/or local waste disposal, sanitary sewer or septic system regulations, including provisions prohibiting waste disposal by open burning and shall provide for the proper disposal of contaminated soils to the extent these are located within the permitted area.
- iv. **Trench and ground water control.** There shall be no turbid discharges to surface waters of the state resulting from dewatering activities. If trench or ground water contains sediment, it must pass through a sediment settling pond or other equally effective sediment control device, prior to being discharged from the construction site. Alternatively, sediment may be removed by settling in place or by dewatering into a sump pit, filter bag or comparable practice. Ground water dewatering which does not contain sediment or other pollutants is not required to be treated prior to discharge. However, care must be taken when discharging ground water to ensure that it does not become pollutant-laden by traversing over disturbed soils or other pollutant sources.

Part III.G.2

- h. **Maintenance.** All temporary and permanent control practices shall be maintained and repaired as needed to ensure continued performance of their intended function. All sediment control practices must be maintained in a functional condition until all up slope areas they control are permanently stabilized. The SWP3 shall be designed to minimize maintenance requirements. The applicant shall provide a description of maintenance procedures needed to ensure the continued performance of control practices.
- i. **Inspections.** At a minimum, procedures in an SWP3 shall provide that all controls on the site are inspected at least once every seven calendar days and within 24 hours after any storm event greater than one-half inch of rain per 24 hour period. The permittee shall assign qualified inspection personnel (those with knowledge and experience in the installation and maintenance of sediment and erosion controls) to conduct these inspections to ensure that the control practices are functional and to evaluate whether the SWP3 is adequate and properly implemented in accordance with the schedule proposed in Part III.G.1.g of this permit or whether additional control measures are required. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWP3 shall be observed to ensure that those are operating correctly. Discharge locations shall be inspected to ascertain whether erosion and sediment control measures are effective in preventing significant impacts to the receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site vehicle tracking.

The permittee shall maintain for three years following the submittal of a notice of termination form, a record summarizing the results of the inspection, names(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWP3 and a certification as to whether the facility is in compliance with the SWP3 and the permit and identify any incidents of non-compliance. The record and certification shall be signed in accordance with Part V.G. of this permit.

- i. **When practices require repair or maintenance.** If the inspection reveals that a control practice is in need of repair or maintenance, with the exception of a sediment settling pond, it must be repaired or maintained within three days of the inspection. Sediment settling ponds must be repaired or maintained within 10 days of the inspection.

Part III.G.2.i

- ii. **When practices fail to provide their intended function.** If the inspection reveals that a control practice fails to perform its intended function and that another, more appropriate control practice is required, the SWP3 must be amended and the new control practice must be installed within 10 days of the inspection.
 - iii. **When practices depicted on the SWP3 are not installed.** If the inspection reveals that a control practice has not been implemented in accordance with the schedule contained in Part III.G.1.g of this permit, the control practice must be implemented within 10 days from the date of the inspection. If the inspection reveals that the planned control practice is not needed, the record must contain a statement of explanation as to why the control practice is not needed.
3. **Approved State or local plans.** All dischargers regulated under this general permit must comply, except those exempted under state law, with the lawful requirements of municipalities, counties and other local agencies regarding discharges of storm water from construction activities. All erosion and sediment control plans and storm water management plans approved by local officials shall be retained with the SWP3 prepared in accordance with this permit. Applicable requirements for erosion and sediment control and storm water management approved by local officials are, upon submittal of a NOI form, incorporated by reference and enforceable under this permit even if they are not specifically included in an SWP3 required under this permit. When the project is located within the jurisdiction of a regulated municipal separate storm sewer system (MS4), the permittee must certify that the SWP3 complies with the requirements of the storm water management program of the MS4 operator.
4. **Exceptions.** If specific site conditions prohibit the implementation of any of the erosion and sediment control practices contained in this permit or site specific conditions are such that implementation of any erosion and sediment control practices contained in this permit will result in no environmental benefit, then the permittee shall provide justification for rejecting each practice based on site conditions. Exceptions from implementing the erosion and sediment control standards contained in this permit will be approved or denied on a case-by-case basis.

PART IV. NOTICE OF TERMINATION REQUIREMENTS

A. Failure to notify.

The terms and conditions of this permit shall remain in effect until a signed Notice of Termination (NOT) form is submitted. Failure to submit an NOT constitutes a violation of this permit and may affect the ability of the permittee to obtain general permit coverage in the future.

B. When to submit an NOT

1. Permittees wishing to terminate coverage under this permit must submit an NOT form in accordance with Part V.G. of this permit. Compliance with this permit is required until an NOT form is submitted. The permittee's authorization to discharge under this permit terminates at midnight of the day the NOT form is submitted.
2. All permittees must submit an NOT form within 45 days of completing all permitted land disturbance activities. Enforcement actions may be taken if a permittee submits an NOT form without meeting one or more of the following conditions:
 - a. Final stabilization (see definition in Part VII) has been achieved on all portions of the site for which the permittee is responsible (including, if applicable, returning agricultural land to its pre-construction agricultural use);
 - b. Another operator(s) has assumed control over all areas of the site that have not been finally stabilized;
 - c. For residential construction only, temporary stabilization has been completed and the lot, which includes a home, has been transferred to the homeowner. (Note: individual lots without housing which are sold by the developer must undergo final stabilization prior to termination of permit coverage.); or
 - d. An exception has been granted under Part III.G.4.

C. How to submit an NOT

Permittees must use Ohio EPA's approved NOT form. The form must be completed and mailed according to the instructions and signed in accordance with Part V.G of this permit.

PART V. STANDARD PERMIT CONDITIONS.

A. Duty to comply.

1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of ORC Chapter 6111. and is grounds for enforcement action.
2. Ohio law imposes penalties and fines for persons who knowingly make false statements or knowingly swear or affirm the truth of a false statement previously made.

B. Continuation of an expired general permit.

An expired general permit continues in force and effect until a new general permit is issued.

C. Need to halt or reduce activity not a defense.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to mitigate.

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Duty to provide information.

The permittee shall furnish to the director, within 10 days of written request, any information which the director may request to determine compliance with this permit. The permittee shall also furnish to the director upon request copies of records required to be kept by this permit.

F. Other information.

When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the NOI, SWP3, NOT or in any other report to the director, he or she shall promptly submit such facts or information.

Part V

G. Signatory requirements.

All NOIs, NOTs, SWP3s, reports, certifications or information either submitted to the director or that this permit requires to be maintained by the permittee, shall be signed.

1. These items shall be signed as follows:
 - a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
 - i. A president, secretary, treasurer or vice-president of the corporation in charge of a principal business function or any other person who performs similar policy or decision-making functions for the corporation; or
 - ii. The manager of one or more manufacturing, production or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
 - b. For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or
 - c. For a municipality, State, Federal or other public agency: By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA).
2. All reports required by the permits and other information requested by the director shall be signed by a person described in Part V.G.1 of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

Part V.G.2

- a. The authorization is made in writing by a person described in Part V.G.1 of this permit and submitted to the director;
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator of a well or well field, superintendent, position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - c. The written authorization is submitted to the director.
3. Changes to authorization. If an authorization under Part V.G.2 of this permit is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part V.G.2 of this permit must be submitted to the director prior to or together with any reports, information or applications to be signed by an authorized representative.

H. Certification.

Any person signing documents under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

I. Oil and hazardous substance liability.

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under section 311 of the CWA or 40 CFR Part 112. 40 CFR Part 112 establishes procedures, methods and equipment and other requirements for equipment to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable surface waters of the State or adjoining shorelines.

Part V

J. Property rights.

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

K. Severability.

The provisions of this permit are severable and if any provision of this permit or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

L. Transfers.

Ohio NPDES general permit coverage is transferable. Ohio EPA must be notified in writing sixty days prior to any proposed transfer of coverage under an Ohio NPDES general permit. The transferee must inform Ohio EPA it will assume the responsibilities of the original permittee transferor.

M. Environmental laws.

No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

N. Proper operation and maintenance.

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of SWP3s. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

O. Inspection and entry.

The permittee shall allow the director or an authorized representative of Ohio EPA, upon the presentation of credentials and other documents as may be required by law, to:

Part V.O

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and
3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

PART VI. REOPENER CLAUSE

- A. If there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with construction activity covered by this permit, the permittee of such discharge may be required to obtain coverage under an individual permit or an alternative general permit in accordance with Part I.C of this permit or the permit may be modified to include different limitations and/or requirements.
- B. Permit modification or revocation will be conducted according to ORC Chapter 6111.

PART VII. DEFINITIONS

- A. "Act" means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, Pub. L. 97-117 and Pub. L. 100-4, 33 U.S.C. 1251 et. seq.
- B. "Best management practices (BMPs)" means schedules of activities, prohibitions of practices, maintenance procedures and other management practices (both structural and non-structural) to prevent or reduce the pollution of surface waters of the state. BMP's also include treatment requirements, operating procedures and practices to control plant and/or construction site runoff, spillage or leaks, sludge or waste disposal or drainage from raw material storage.
- C. "Commencement of construction" means the initial disturbance of soils associated with clearing, grubbing, grading, placement of fill or excavating activities or other construction activities.
- D. "Concentrated storm water runoff" means any storm water runoff which flows through a drainage pipe, ditch, diversion or other discrete conveyance channel.
- E. "Director" means the director of the Ohio Environmental Protection Agency.

Part VII

- F. "Discharge" means the addition of any pollutant to the surface waters of the state from a point source.
- G. "Disturbance" means any clearing, grading, excavating, filling, or other alteration of land surface where natural or man-made cover is destroyed in a manner that exposes the underlying soils.
- H. "Final stabilization" means that either:
1. All soil disturbing activities at the site are complete and a uniform perennial vegetative cover (e.g., evenly distributed, without large bare areas) with a density of at least 70 percent cover for the area has been established on all unpaved areas and areas not covered by permanent structures or equivalent stabilization measures (such as the use of mulches, rip-rap, gabions or geotextiles) have been employed. In addition, all temporary erosion and sediment control practices are removed and disposed of and all trapped sediment is permanently stabilized to prevent further erosion; or
 2. For individual lots in residential construction by either:
 - a. The homebuilder completing final stabilization as specified above or
 - b. The homebuilder establishing temporary stabilization including perimeter controls for an individual lot prior to occupation of the home by the homeowner and informing the homeowner of the need for and benefits of, final stabilization. (Homeowners typically have an incentive to put in the landscaping functionally equivalent to final stabilization as quick as possible to keep mud out of their homes and off sidewalks and driveways.); or
 3. For construction projects on land used for agricultural purposes (e.g., pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its pre-construction agricultural use. Areas disturbed that were previously used for agricultural activities, such as buffer strips immediately adjacent to surface waters of the state and which are not being returned to their pre-construction agricultural use, must meet the final stabilization criteria in (1) or (2) above.
- I. "Individual Lot NOI" means a Notice of Intent for an individual lot to be covered by this permit (see parts I and II of this permit).
- J. "Larger common plan of development or sale"- means a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan.

Part VII

- K. "MS4" means municipal separate storm sewer system which means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) that are:
1. Owned or operated by the federal government, state, municipality, township, county, district(s) or other public body (created by or pursuant to state or federal law) including special district under state law such as a sewer district, flood control district or drainage districts or similar entity or a designated and approved management agency under section 208 of the act that discharges into surface waters of the state; and
 2. Designed or used for collecting or conveying solely storm water,
 3. Which is not a combined sewer and
 4. Which is not a part of a publicly owned treatment works.
- L. "National Pollutant Discharge Elimination System (NPDES)" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits and enforcing pretreatment requirements, under sections 307, 402, 318 and 405 of the CWA. The term includes an "approved program."
- M. "NOI" means notice of intent to be covered by this permit.
- N. "NOT" means notice of termination.
- O. "Operator" means any party associated with a construction project that meets either of the following two criteria:
1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
 2. The party has day-to-day operational control of those activities at a project which are necessary to ensure compliance with an SWP3 for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions).
- As set forth in Part II.A, there can be more than one operator at a site and under these circumstances, the operators shall be co-permittees.
- P. "Owner or operator" means the owner or operator of any "facility or activity" subject to regulation under the NPDES program.

Part VII

- Q. "Permanent stabilization" means the establishment of permanent vegetation, decorative landscape mulching, matting, sod, rip rap and landscaping techniques to provide permanent erosion control on areas where construction operations are complete or where no further disturbance is expected for at least one year.
- R. "Percent imperviousness" means the impervious area created divided by the total area of the project site.
- S. "Point source" means any discernible, confined and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or the floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.
- T. "Rainwater and Land Development" is a manual describing construction and post-construction best management practices and associated specifications. A copy of the manual may be obtained by contacting the Ohio Department of Natural Resources, Division of Soil & Water Conservation.
- U. "Riparian area" means the transition area between flowing water and terrestrial (land) ecosystems composed of trees, shrubs and surrounding vegetation which serve to stabilize erodible soil, improve both surface and ground water quality, increase stream shading and enhance wildlife habitat.
- V. "Runoff coefficient" means the fraction of total rainfall that will appear at the conveyance as runoff.
- W. "Sediment settling pond" means a sediment trap, sediment basin or permanent basin that has been temporarily modified for sediment control, as described in the latest edition of the Rainwater and Land Development manual.
- X. "State isolated wetland permit requirements" means the requirements set forth in Sections 6111.02 through 6111.029 of the ORC.
- Y. "Storm water" means storm water runoff, snow melt and surface runoff and drainage.
- Z. "Surface waters of the state" or "water bodies" means all streams, lakes, reservoirs, ponds, marshes, wetlands or other waterways which are situated wholly or partially within the boundaries of the state, except those private waters which do not combine or effect a junction with natural surface or underground waters. Waters defined as sewerage systems, treatment works or disposal systems in Section 6111.01 of the ORC are not included.

Part VII

- AA. "SWP3" means storm water pollution prevention plan.
- BB. "Temporary stabilization" means the establishment of temporary vegetation, mulching, geotextiles, sod, preservation of existing vegetation and other techniques capable of quickly establishing cover over disturbed areas to provide erosion control between construction operations.
- CC. "Water Quality Volume (WQ_v)" means the volume of storm water runoff which must be captured and treated prior to discharge from the developed site after construction is complete. WQ_v is based on the expected runoff generated by the mean storm precipitation volume from post-construction site conditions at which rapidly diminishing returns in the number of runoff events captured begins to occur.

MR. MARK PATTERSON
JANUARY 13, 2003
PAGE 2

107 through A-123 - Please indicate on these logs whether the monitoring wells are "screened" or the "open-hole" type.

Comment # 5: Appendix A, Calendar Year 2001 Groundwater Monitoring Well Inspection Logs, pages A-29 through A-63 and A-78 through A-91 - The "Reported Construction Depth" has been omitted. Please provide the "Reported Construction Depth" on these logs.

Comment # 6: Appendix A, Calendar Year 2001 Groundwater Monitoring Well Inspection Logs, pages A-29 through A-53 - The "Measured Depth of the Well" has been omitted. Please provide the "Measured Depths" on these logs.

Comment # 7: Appendix A, Calendar Year 2001 Groundwater Monitoring Well Inspection Logs, pages A-22, and A-107 through -123 - Please check the appropriate box under "Does vegetation around well need to be cleared?" Answers to this question have been omitted from the logs.

Comment # 8: Appendix A, Calendar Year 2001 Groundwater Monitoring Well Inspection Logs, pages A-29, A-30, A-35, A-40, and A-55 - Please check the appropriate box under "Are there any obstructions in the well?" Answers to this question have been omitted from the logs.

If you have any questions regarding these comments, please do not hesitate to call me at (330) 963 - 1148.

Sincerely,



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

TF/kss

cc: Kevin Jago, SAIC
Paul Zorko, USACE
Conni McCambridge, Ohio EPA, NEDO, DDAGW
Bonnie Buthker, Ohio EPA, SWDO, OFFO
Eileen Mohr, Ohio EPA, NEDO, DERR

ec: Mike Eberle, Ohio EPA, NEDO, DERR



May 13, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
DRAFT, CONCEPTUAL PLAN FOR A
FACILITY-WIDE GROUNDWATER MONITORING
PROGRAM PLAN
PORTAGE/TRUMBULL COUNTIES

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

Dear Mr. Patterson:

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-Conceptual Plan for a Facility-Wide Groundwater Monitoring Program Plan for the Ravenna Army Ammunition Plant, Ravenna, Ohio." The document was prepared by SpecPro, Inc. for the U.S. Army Joint Munitions Command under Contract No. DAAA09-01-G-0009 / Delivery Order No. 0012 and received by Ohio EPA on April 14, 2003

Currently, the Army and Ohio EPA are in the process of negotiating Director's Findings and Orders (F&Os) which will include provisions for a Site-wide Ground Water Monitoring Program (SWGWMP) conducted in accordance with a Site-wide Ground Water Monitoring Program Plan (SWGWMPP). Ground water monitoring activities currently being conducted under the RCRA (OD-2) and Solid Waste (Ramsdell Quarry Landfill) programs will be moved to the SWGWMP. Although the ground water monitoring at these sites will no longer be conducted in accordance with specific Ohio Administrative Code regulations (OAC 3745-54-90 through 3745-55-01 and OAC 3745-27-10), the intent of these regulations will be met within the context of the SWGWMPP. The SWGWMPP will also include a long term ground water monitoring network comprised of wells installed as part of the ground water investigations conducted at various Areas of Concern (AOCs) under the CERCLA program. To ensure that all parties are in agreement with the basic components of the SWGWMPP, a conceptual model has been developed and submitted to Ohio EPA for review and comment. The following comments were compiled from reviewers in the Division of Drinking and Ground Waters (DDAGW) and the Division of Emergency and Remedial Response (DERR):

GENERAL COMMENTS

Comment # 1: In the F&O's, the facility wide ground water monitoring program plan is called the "Site-wide Ground Water Monitoring Program Plan (SWGWMPP). In order to maintain consistency and to better distinguish this program from the Facility-wide Sampling and Analysis Plan (FSAP), all

references in the Conceptual Model to the "Facility-wide Ground Water Monitoring Program (FWGWMP) or to the "Facility-wide Ground Water Monitoring Program Plan (FWGWMPP) should be changed to Site-wide Ground Water Monitoring Program (SWGWMP) or Site-wide Ground Water Monitoring Program Plan (SWGWMPP), respectively.

Comment # 2: Please change all references of "concurrence" by Ohio EPA to "approval" by Ohio EPA.

Comment # 3: Please change all references of "Findings & Orders Agreement" and "Agreement" to "Facility-wide, Director's Findings and Orders (dated TBD.)"

Comment # 4: Please number each page of the Conceptual Plan and cite the correct page number on the Table of Contents.

Comment # 5: The terms "exit points" and "points of compliance" are used several places in the Conceptual Model. In order for all parties to have a common understanding of what these terms mean, they should be defined in the document.

Comment # 6: Several places in the Conceptual Model, references to a "refined conceptual facility plan" are made. It is unclear what is meant by a "refined conceptual facility plan." This should be clarified in the text.

SPECIFIC COMMENTS

Comment # 7: Please change "chemicals of concern" to "chemical of concern" in the Acronyms List.

Comment # 8: In Section 1.1, it is unclear as to the meaning of the "...selected monitoring well network.." The Site Conceptual Plan should provide clarification on what monitoring wells are included in the "selected monitoring well network."

Comment # 9: In Section 1.1, the text states that "the overall purpose of developing and implementing a SWGWMPP for RVAAP is to determine if site-related contaminants pose a significant risk to groundwater use either on the RVAAP facility or off-post." What is meant by "significant?" Also, there is a need to monitor source areas that may be impacting the groundwater (i.e. AOC specific).

Comment # 10: In Section 1.2, please add the word "potential" before "contaminants" in this sentence.

Mr. Mark Patterson
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- Comment # 11: In Section 3.2, the text states "Up to 20% of the total number of well currently in place at RVAAP will be included in the SWGWMP during any given monitoring period." Please change "Up to 20%" to "Approximately 20%."
- Comment # 12: Section 3.2 indicates that up to 20 percent of the total number of wells currently in place at RVAAP will be included in the SWGWMP during any given monitoring period. It is unclear whether this sentence means that the maximum number of wells included in any given monitoring period may be 20 percent of the total number of wells in place today (May 2003) or at the time of the monitoring period under consideration. From the April 3, 2003 meeting with the Army, Ohio EPA believes that the maximum number of wells included in any given monitoring period may be 20 percent of the total number of wells in place at the time of the monitoring period under consideration. In order for all parties to have a common understanding of this issue, this sentence should be clarified.
- Comment # 13: Although semiannual sampling at OD-2 and Ramsdell and quarterly sampling at other AOCs is discussed in Section 3.3, two bullets in Section 1.1 seem to indicate that all of the SWGWMP ground water sampling will be done on an annual basis. The third and fourth bullets in Section 1.1 should be modified to indicate that sampling frequency may be on a quarterly, semi-annual or annual basis depending upon the well.
- Comment # 14: In Section 3.3 (Sampling Methods), the text states that "Requirements for sample containers and preservation techniques for groundwater samples are presented in Section 4.3.6 of the Facility-wide SAP." Please add "sample sequence" to this sentence.
- Comment # 15: In Section 3.3 (Analytical Parameters), the text states "For AOC wells, all COC found to be below facility wide background values or at non-detect after the initial monitoring period will be dropped from the list of applicable analytical parameters for that particular well should that well be included for further monitoring under the SWGWMPP." Please change "COC" to "COCs". Modify the sentence to read "after the initial monitoring period of three consecutive quarters will be dropped...."
- Comment # 16: In Section 3.3 (Analytical Parameters), there is no mention of Sam Mansy's USACE protocols (e.g. "Shell Document"). This may have been updated since the last version of the FWSAP.
- Comment # 17: In Section 3.4 (initial phase, 1st bullet), the paragraph, as written, is unclear. Please revise this paragraph.

- Comment # 18: In Section 3.4 (3rd bullet), the text states that "if contamination detected in groundwater at the exit points or points of compliance results in an estimated current risk greater than 10⁻⁴, or in toxic effects where HQ is greater than 1, consider a remedial action to address the risk." The last part of this sentence should read "a remedial action must be considered (and implemented) to address the risk."
- Comment # 19: In Section 3.5, the text states that "the data needed to provide decision inputs may vary across the installation depending on the waste type, site setting, and other AOC-specific factors." Please use "AOC" instead of "site." They should not be used interchangeably. Please make the appropriate changes to the text.
- Comment # 20: An additional bullet should be added to Section 4.1 to document that data will be submitted in the "5dbf" format in addition to hard copies.
- Comment # 21: Section 4.1 states that reports of each sampling event will be submitted to Ohio EPA for review within 30 days of receiving validated data. In the F&Os, it states additionally that the validated data will be obtained within 45 days of completion of each sampling event. This additional stipulation concerning the receipt of the validated data should be added to this section of the Conceptual Model.
- Comment # 22: In Section 4.1, the bullet concerning QA/QC information should specify that, at a minimum, data regarding matrix spikes, matrix spike duplicates, laboratory control samples, field and laboratory blanks, chain of custody and sample receipt forms and duplicate samples will be submitted.
- Comment # 23: In Section 4.1, a bullet should be added to state that the sampling event report will also include the results of any statistical analyses that may be needed (e.g., comparison of metals concentrations to background). The plan should be revised to provide a discussion concerning what statistical method(s)/procedure(s) will be used to conduct the analyses during each sampling event. A reference for the statistical method(s)/procedure(s) should also be provided in the submittal.
- Comment # 24: In Section 4.2, it states that an annual report will be submitted by April 30th of each year. In the draft Director's Findings and Orders, this date is December 15th. Consistency should be maintained between the F&Os and the Conceptual Plan with respect to this date. Please change this date in the Conceptual Plan from April 30 to December 15.

- Comment # 25: In Section 4.2 (Annual Report), please add the following to the bulleted list: 1.) plot of [conc] trends; 2) facility map; 3) monitoring well network map; 4) ground water flow map; and 5) well logs of any newly installed monitoring wells.
- Comment # 26: In Section 4.3, it states that a description of any proposed modifications to the SWGWMPP will be "submitted with the annual report to a committee." Please clarify the composition and duties of this "committee."
- Comment # 27: In Section 4.4, it states that at the completion of all ground water monitoring activities, all ground water monitoring wells on the facility may be plugged and abandoned. "May" should be replaced with "will." When ground water monitoring activities have ceased, all remaining monitoring wells should be properly abandoned and documentation of each submitted to Ohio EPA for review. This section should be modified accordingly. It may be a good idea to consider leaving a few "key wells" open.
- Comment # 28: On Figure 3.1, in the last boxes under "Future Wells" and "CERCLA Wells" it states that if results are greater than non-detect. Should this be greater than background? Please check and verify whether this should be "non-detect" or "background" and modify the figure as needed.
- Comment # 29: On Figure 3.1, in the last box under "RCRA Wells" the acronym "LTM" is used. Please add this acronym and its definition to the list of acronyms found at the beginning of the document.
- Comment # 30: The Conceptual Model should include a timetable, with respect to the signing of the F&Os, for implementation of the SWGWMPP.
- Comment # 31: The Decision Diagram (Figure 3.2) should include documentation of the estimated time involved in each phase of the decisions process. An additional block "Implement Approved Remedial Workplan," should be added below the block, "Develop Work Plan ..."
- Comment # 32: In Figure 3.2, the flow diagram under "Initial (RI) Phase of Monitoring" indicates that action would be required if Risk Analysis shows $>10^{-6}$. What about 10^{-4} to 10^{-6} risk management range? Risk in this range may also require some action.
- Comment # 33: In Figure 3.2, the flow diagram under "On-going and Long-Term Monitoring" indicates that if "risk analysis shows $> 10^{-4}$, or HQ > 1 , or Results $> ARAR$ ", then "consider Remedial Action to Address Risk." This should be more definitive. It is highly likely that some type of Remedial Action would be required.

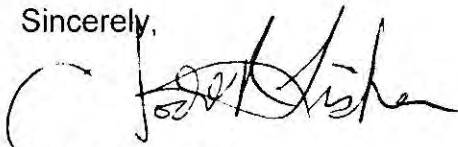
Mr. Mark Patterson
May 13, 2003
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Comment # 34: The Conceptual Model should document that if statistical analysis of the data are necessary, it will be performed in accordance with "Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities" (U.S. EPA, 1992), "Standard Guide for Developing Appropriate Statistical Approaches for Ground Water Detection Monitoring Programs," (ASTM designation D 6312-98) or other mutually agreed upon guidance documents.

Comment # 35: The Conceptual Model should document that all ground water sampling and analyses and well drilling, installation, construction and abandonment procedures will be consistent with the techniques included in the most recent revisions of the Facility-wide Sampling and Analysis Plan (FSAP) and Ohio EPA's "Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring."

If you have any questions regarding these comments, 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

TF/ams

ec: Mike Eberle, Ohio EPA, DERR, NEDO

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Mark Navarre, Legal, CO
Rod Beals, Ohio EPA, DERR, NEDO
Paul Zorko, USACE, Louisville



August 29, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
SITEWIDE ~~HHRA~~

Mr. Mark Patterson
Installation Program 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 document entitled: **"RVAAP's Facility Wide Human Health Risk Assessment Workplan."** This document, dated April 25, 2003 and received via email on the same date, was prepared by the U.S. Army Corps of Engineers (USACE) - Louisville District.

This document was reviewed by personnel from Ohio EPA's Northeast District Office (NEDO) and Central Office (CO), Division of Emergency and Remedial Response (DERR), and the Southwest District Office (SWDO), Office of Federal Facilities Oversight (OFFO). This revised document was reviewed compared to Ohio EPA's comments on the preliminary draft workplan, dated December 19, 2002, and USACE's response to comment (RTC) matrix provided in the April 25, 2003 revised workplan.

This correspondence represents a compilation of comments from all reviewers and follows the original comment numbers in the December 2002 Ohio EPA correspondence (as well as in RTC matrix). Additionally, the general comment section in this correspondence notes issues not previously detailed:

General Comments:

- A. Revise the text on page 1, Section 1.0 to read: "... (BRACO) which Army Environmental Center..."
- B. Run the document through spell check.
- C. Screening Methodology: Methodology used to screen data should be written clearly and consistently. For the selection of preliminary remediation goals (PRGs) for screening site data and selecting Chemicals of Potential Concern (COPCs) for the risk assessment, Ohio EPA recommends that the Region 9 PRGs be used with an adjustment (1/10th the values based on non-cancer effects).

The new text on pages 2 and 3 describes values that will be used for screening out chemicals from the baseline risk assessment. Only the U.S. EPA Region 9 Preliminary

Remediation Goals based on a residential scenario will be accepted. In addition, the Region 9 PRGs for compounds with a non-cancer disease endpoint are to be reduced by an order of magnitude (adjusted by 1/10th based on non-cancer endpoint). If a situation arises where groundwater contaminant concentrations exceed a Region 9 PRG tap water value but are below a Maximum Contaminant Level (MCL), a risk management decision may be appropriate for "No Further Action." However, this will be handled on a case-by-case basis only. Region 9 Tap Water PRG values can be used to eliminate compounds from both groundwater and surface water in human health risk assessments. Similarly, soil values may be used to exclude compounds in sediments. The new text given in the introduction needs to be revised to incorporate this information.

- D. The text on new page 3 and the top of page 4 indicates that: "Since this removal takes care of a partial but not the total problem within the AOC, it would not be referred to as an interim removal." Please note that these interim actions would be completed upon discovery and the results of the actions will be considered and incorporated with the final remedy decision making and remedy.
- E. On new page 4, revise the text to read: "... than the respective concentration at LL1, then the contractor will *examine*..." The example presented should also discuss what will happen if additional chemicals of concern (COCs) are determined at subsequent areas of concern (AOCs) that were not previously evaluated at Load Line 1 (for example).
- F. On new page 5, revise the company name to read: "Physics International."
- G. In the revised document, ensure that header descriptions are on the top of the page (as applicable), and not within the interior portion of the text on a page. For example, refer to the Description of Activity/Facility Status" on new pages 6-8. This is also applicable to Table 2 (OHARNG Proposed Land Use) and Section 1.3 (summary of existing site data).
- H. On new page 15, change "manage" to "managed" in the sentence that reads "...was limited to managed fishing programs..."
- I. Table 1 details the proposed usage of various surface water bodies by the Ohio Army National Guard (OHARNG). How was the potential use of the various water bodies determined? For example, Erie Burning Grounds is proposed for fishing. Given that during investigative activities UXO/OE support was required, how would the potential for encountering OE/UXO be handled during fishing, trapping, water fowl activities, etc.

Table 1 provides information on surface water exposure type and duration by the OHARNG. However, the table provides no indication of what specific OHARNG receptor this information reflects (dust suppression/fire fighter, OHARNG Resident, OHARNG Trainee). Surface waters may also be used by recreational visitors who are not OHARNG, therefore, the table should also reflect use by recreational receptors. Please remove the exposure type and duration columns, since this information should be presented in the exposure assumptions table. The proposed use of surface water by OHARNG may be better discussed in a paragraph rather than a table, since the table reflects only one use. The possibility of alternate future uses (residential, nature preserve, etc.) should also be

discussed. Since no agreements on future use of this land have been formalized between the OHARNG and the Army coupled with the fourth paragraph after Table 2, which states that "Future uses of RVAAP are currently being determined," Table 2 should include a footnote indicating where this information originated, and that the information is not final and could change.

- J. The text on new page 30, Section 2.1.1, references a document describing multi-incremental sampling. At this point in time, although Ohio EPA agrees with the merit of the multi-incremental sampling approach, we have not agreed upon any guidance documents that specify the details of usage, etc., nor has Ohio EPA agreed to a wholesale change to the sampling approach currently used to investigate this RVAAP. It is not clear as to whether or not the Ohio State University (OSU) document is being proposed as the model to follow, or provided as additional information. Please clarify.
- K. On new page 30 (Section 2.1.4), please remove the specific references to Load Line 11.
- L. Section 1.0 Introduction: The last paragraph of Section 1.0 is not clear. Revise for clarity and specificity.
- M. Ohio EPA is concerned with the lack of clarity in several sections of this workplan, and whether or not what is being specified will be clear to the various contractors working on the RVAAP installation projects. Methods that are consistent with current guidance should have been left to a citation rather than presenting an incomplete or general interpretation. The Agency requests additional discussion of this issue.

Specific Comments:

- 1. RTC and text revision acceptable.
- 2. RTC and text revision acceptable.
- 3. Clarity of the Introduction: The response is acceptable. However, the introduction could be significantly improved. The introduction appears to be discussing specific issues and command hierarchy instead of introducing the reader to the topic of a baseline human health risk assessment workplan and its use in the investigation and remediation of contamination at RVAAP. In addition, the added text begins a discussion on a specific process (i.e., screening on pages 2 and 3) that should be moved to the appropriate location.
- 4. RTC Noted. At the beginning of the quote, start with Guidance states "Risk assessment has been consistently....."
- 5. RTC and text revisions acceptable.

6. RTC and text revision acceptable.
7. RTC and text revisions acceptable.
8. RTC acceptable.
9. RTC noted. In previous actions undertaken at (for example) Building T-5301, Open Demolition Area # 1 and the Pesticide Storage Building, contaminated soil was excavated until the confirmation samples indicated that the metals concentrations were consistent with the installation-wide background; and all explosives, propellents and other organic compounds were non-detect. The rest of the RTC is unclear. In addition, it is possible and may be appropriate, to use background concentrations of organic compounds as remedial goals, especially when explosives would be considered to be non-existent in background soils.
10. RTC noted, however, as RGO's have already been calculated for Load Line 1, the original comment is valid and does have merit. However, this document is a risk assessment workplan and information on risk management is not needed. What is needed is a better understanding and description in the workplan on how the RGOs are to be used in the screening or risk assessment process. As written, the document is mixing too much of risk management and risk assessment. If the USACE has consented to using a standards approach, then the RGOs or screening values would serve both as a trigger for remediation and cleanup goals. This may be a good approach at RVAAP and with the fixed price remediation contracts it would be much easier to implement. However, the standards concept may be a departure from the strict interpretation of the CERCLA and RCRA approach, therefore, the USACE must discuss the role of RGOs in the risk assessment.
11. RTC acceptable.
12. RTC acceptable.
13. RTC noted. However, the text revisions do not specifically address adjustments for multiple chemical exposure with respect to RGOs.
14. RTC and text revision acceptable.
15. RTC and text revision acceptable.
16. RTC and text revision acceptable.
17. RTC and text revision acceptable.
18. RTC and text revision acceptable.

19. RTC and text revision acceptable.
20. RTC and text revision acceptable.
21. RTC and text revision acceptable.
22. RTC and text revision acceptable.
23. RTC and text revision acceptable.
24. RTC and text revision acceptable.
25. RTC partially acceptable. RDX was substituted for RCX, however, HMX was not added as a potential contaminant in the revised text.
26. RTC noted.
27. RTC and text revision acceptable.
28. RTC and text revision acceptable. However, change the text on new page 12 to read "quartzite" instead of "quartz."
29. RTC and text revision acceptable.
30. RTC and text revision acceptable.
31. RTC and text revision acceptable.
32. The revised text on new page 15 is still somewhat contradictory. One sentence states that: "Due to access limitations fishing is no longer permitted at RVAAP" while the following sentence states: "Based upon conversations with site personnel workers may use these water bodies." Combine the two sentences to indicate that catch and release fishing is limited solely to on-site personnel, while the general public is not granted the same privileges.
33. The use of the phrase "...site workers may use these water bodies..." is ambiguous; i.e., the activities which are (or may be) allowed are not specified. Adjust the text accordingly.
34. On what basis was it determined that the South Fork of Eagle Creek might be used for limited recreational and agricultural pursuits off the installation? The rest of the RTC and text revision is acceptable.
35. Revise the RTC and text regarding the air quality in the surrounding area. The revised text indicates that Windham and Newton Falls would be the nearest upwind sources based upon a southwesterly prevailing wind direction. This is incorrect, as Windham is in a more downwind position and Newton Falls would be in a more "side-wind" position.

36. RTC and text revision acceptable.
37. The revisions that clarify receptors are acceptable. However, the comment was not completely addressed and the text should be revised. The author of the document continues to mis-interpret the cited OSWER guidance document (OSWER 9355.7-04). As the title indicates (Land Use in the CERCLA Remedy Selection Process), the document is specific for remedy selection which incorporates risk management. The document also indicates the needed input from local residents and other stakeholders in addition to other CERCLA requirements that may not apply in some cases to military sites. The Draft Risk Assessment Workplan is for **risk assessment** methods and not remedy selection. Therefore, risk and hazards should be assessed to potential receptors without a consideration of future risk management/remedy selection. This is standard risk assessment practice. Obviously, exposure scenarios can be site-specific and RVAAP is a perfect example of this situation. These specific scenarios will help with remedy selection. However, the remedy will not be decided in the risk assessment phase. The citation to the OSWER directive is incorrect and should be removed. RAGS Part A should be cited for the selection of receptors/scenarios to be evaluated in the risk assessment. In addition, the text in Section 1.2.5 and other areas of the document that discuss the risk management and remedy selection should be removed.
38. RTC and text revision acceptable.
39. RTC and text revision acceptable.
40. RTC acceptable, however, please note that the point of the comment still has not been addressed, because the author continues to focus only on OHARNG future use and has not provided acknowledgment in the text discussion of other potential future uses, such as residential. Future uses other than OHARNG should be discussed. See comment # 37 as well.
41. RTC noted. However, current understanding is that many issues regarding the future use by OHARNG are still up in the air, therefore, until this is resolved with confidence, other non-OHARNG future uses should be considered. See comment # 37 as well.
42. RTC and text revision acceptable.
43. The list presented in Section 1.2.6 is not the most recent. For example, the river otter is no longer on the state endangered list. Please revise the table to use the most up to date information. In addition, why is there ecological information in the Human Health Risk Assessment Workplan. There is an ecological risk assessment workplan to address these issues. Please consider removing information from the workplan that is not relevant to the human health risk assessment process.
44. Please check the revised text on new page 26 that references the 1996 and 1998 Relative Risk Site Evaluation (RRSE) initiatives, to ensure that the AOCs listed are accurate. For

example, Erie Burning Grounds is listed as being evaluated in both the 1996 and 1998 RRSE efforts, which is not correct. This comment is also applicable to the 1998 USACHPPM entry on new page 27.

45. Text revision acceptable.
46. Text not revised.
47. Response to comment acceptable.
48. RTC acceptable. Please add a sentence at the end of the first paragraph in Section 2.1 that directs readers to the facility-wide ecological risk assessment workplan for additional information.
49. RTC noted, however, it should include the extent of contamination in the objective. Currently, the objective focuses on determining nature and current levels of contamination, but not "how far out" is the contamination. In addition, this section only focuses on data collection and the need for soil sampling and it should also discuss the need for sampling other media, such as groundwater, surface water, sediment, air.
50. RTC acceptable
51. RTC noted. However, Ohio EPA has not discussed or agreed to applying this sampling approach to investigations at RVAAP. The Sampling and Analysis Plan (SAP) for Ravenna would need to be revised and reviewed before just applying this approach. Therefore, the last sentence of Section 2.1.1 should be removed.
52. Please change "colloection" to "collection" in the first sentence of the second paragraph.
53. RTC and text revision acceptable.
54. RTC acceptable. No text change was required.
55. RTC and text revision acceptable.
56. RTC noted. However, the additional text does not address how hot spots will be identified if samples are collected in a biased approach that doesn't follow a square, rectangular, or triangular grid. In addition, justification for the size of potential "hot spots" is needed. No such justification was given for the selection of a "hot spot" of 50x100 feet. Please include additional information to address this issue.
57. The text does not address identification of contamination, if present, at depths greater than 7' as stated in the "Define the Media" portion of Section 2.1.4. As such, this comment was not addressed, as the focus is still on OHARNG receptors. The residential receptor is not included and digging in tanks to turret defilade level is still noted as a potential activity of the OHARNG.

58. Text in Section 2.1.5.1 still does not address cumulative considerations such as additivity, multiple chemical adjustments, and the point of compliance. In "Section 2.1.5.2 Decision Rule," remove the third paragraph, as this is redundant and appears word for word, in Section 1.0. Remove the last paragraph.
59. RTC and text revision acceptable.
60. RTC noted. Change "or" to "and" in the second to last bullet regarding Background Concentrations. Also, cite the RVAAP background concentrations.
61. RTC acceptable.
62. RTC acceptable.
63. RTC acceptable.
64. RTC acceptable.
65. RTC acceptable.
66. RTC and text revision acceptable.
67. RTC noted. Comments on Load Line 1 RGOs and the Supplemental Risk Assessment were generated in May 2003, prior to review of this document. This disconnect resulted due to scheduling issues and the prioritization of document reviews by the Army. Since these comments are outstanding and apply to this facility-wide human health risk assessment workplan (and specifically this section), resolution of the LL1 RGO comments should be incorporated into this workplan.
68. RTC noted. Comments on Load Line 1 RGO's and Supplemental Risk Assessment were generated in May 2003, prior to review of this document, due to the schedule and prioritization of document reviews by the Army. Since these comments are outstanding and apply to this facility wide human health risk assessment workplan and specifically this section, resolution of these comments should be incorporated into this workplan.
69. RTC Noted. However, Table 6 reflects only OHARNG future use, which may or may not be the sole case.
70. RTC and text revision acceptable.
71. RTC acceptable
72. RTC acceptable.

73. RTC acceptable. Table 7 needs to be corrected, as the soil ingestion rate for the Open industrial worker is 0.
74. The document is mixing risk assessment and risk management. See comment # 37 above.
75. RTC acceptable, however, the table needs to be updated with the citation given in the comment.
76. The document should be revised to include the general information given in the comment. Given the specific nature of the estimation, no "general" box model has been developed. It should also be noted that when exposure to volatile compounds from surface water is anticipated, the risk assessors are to contact Ohio EPA for specific guidance.
77. RTC acceptable.
78. RTC acceptable.
79. RTC acceptable. Please revise and update the citation to RAGS E. An out-of-date version is identified in the revision.
80. RTC acceptable.
81. RTC noted. The second and third paragraph that were added should be removed. There are some inaccuracies and the added text does not improve the section. In addition, inconsistent use of scientific notation and values are evident. Please put the value (1) in front of the exponent (*e.g.*, many uses of 10^{-6} and E-6, also page 77 uses 10E-6). Please correct.
82. The RTC and the PEF are acceptable. Section 6.0, however, needs additional revision, as only one PEF value is given in the key for the equation.
83. The response should be altered as the statement is not entirely correct. Cleanup goals are to be single medium, single chemical values. During remedy selection, various remedial options are evaluated. One such evaluation is the calculation of total risk and hazards to receptors per the remedy under consideration. This helps ensure that the risk and hazard goals are met following the completion of the remedy. Often, remedial options are media specific and result in either the cleanup of the compounds in that medium or an elimination of the exposures via that exposure medium. When exposures are expected via multiple media, then total risk and hazards are to be calculated for those potentially exposed receptors. The last sentence should be removed or revised, as exposures to multi-media may be required.
84. RTC acceptable.

Mr. Mark Patterson
August 29, 2003
Page 10

85. RTC acceptable.

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

Sincerely,



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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, SWDO, OFFO
Laurie Eggert, Ohio EPA, SWDO, OFFO
Brian Tucker, Ohio EPA, CO, DERR
David Brancato, USACE Louisville
Paul Zorko, USACE Louisville
Glen Beckham, USACE Louisville
LTC Tom Tadsen, OHARNG, RVAAP
Joanne Watson, AEC

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



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

October 17, 2003

RE: OHIO EPA COMMENTS ON THE
RESPONSE TO COMMENTS
FOR FW **HHRA** WORK PLAN
RAVENNA ARMY AMMUNITION PLANT
PORTAGE AND TRUMBULL COUNTIES

Dr. David J. Brancato
U.S. Army Corps of Engineers
CELRL-ED-E, Room 921
P.O. Box 59
Louisville, KY 40201

Dear Dr. Brancato:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the Response to Comments on the **Facility-Wide Human Health Risk Assessment (HHRA)** Work Plan, dated October 7, 2003. It is assumed that the changes will be made in the revised HHRA work plan as cited in the response to comments. For ease of use, the comments below are numbered consistently with the responses.

- A) No comment required.
 - B) No comment required.
 - C) No comment required.
 - D) No comment required.
 - E) No comment required.
 - F) No comment required.
 - G) No comment required.
 - H) No comment required.
 - I) Regarding Table 1: The table is not clear in the title of the fourth column. Exposure type is not a commonly used risk assessment descriptor. The table should be revised to identify exposure route, exposure media, or other more direct information pertaining to the risk assessment. For example, the title of the column (exposure type) does not clearly identify how the exposure of the various receptors will be calculated using terms such as hip boots, setting decoys, or hunting dog. These terms are not clear in their use. Please clarify the text and table as appropriate.
- Also, the response from Tim Morgan, states: "(o)ur goal when the IRP is done is to have unrestricted fishing and taking of fish from all of the ponds." It is important to ensure that the risk assessments and risk management decisions identify this "unrestricted use" in the DQO process.
- J) No comment required.

- K) No comment required.
- L) No comment required.
- M) Item M (and cover email): The Response to Comment (RTC) matrix indicates that the decision regarding the issue of a table vs. text format will default to the Army's preference. This is not acceptable. Given that Ohio EPA is the Agency that will be taking the lead on the review and approval (once the Orders are finalized) of the risk assessments, the preference of Ohio EPA should be followed. Please revise the RTC and document as requested.
 - 1) No comment required.
 - 2) No comment required.
 - 3) No comment required.
 - 4) No comment required.
 - 5) No comment required.
 - 6) No comment required.
 - 7) No comment required.
 - 8) No comment required.
 - 9) No comment required.
 - 10) Comments 9 and 10 both discuss the clarity of the risk assessment process within the context of an RI/FS. The document is intended to be a human health risk assessment work plan. However, without putting the risk assessment in context of the RI/FS process, and having confusing text that is, at times, not consistent with the RI/FS process, may hinder or slow the evaluation and remedy selection of a given AOC. The comments from Ohio EPA were an attempt to help the Army clarify the remedial process for the AOCs and entire facility that is being used at RVAAP. The comment response is acceptable as written.
 - 11) No comment required.
 - 12) No comment required.
 - 13) No comment required.
 - 14) No comment required.
 - 15) No comment required.

- 16) No comment required.
- 17) No comment required.
- 18) No comment required.
- 19) No comment required.
- 20) No comment required.
- 21) No comment required.
- 22) No comment required.
- 23) No comment required.
- 24) No comment required.
- 25) No comment required.
- 26) No comment required.
- 27) No comment required.
- 28) No comment required.
- 29) No comment required.
- 30) No comment required.
- 31) No comment required.
- 32) No comment required.
- 33) No comment required.
- 34) No comment required.
- 35) Item 35: If the winds in this area are from the southwest, then Windham is downwind. Please adjust the RTC and the revised text accordingly.
- 36) No comment required.
- 37) No comment required.
- 38) No comment required.
- 39) No comment required.

- 40) Item 40: The RTC indicates that the "Army has clearly delineated end-state and end-use of the land." Ohio EPA disagrees with this assessment, based upon recent developments resulting from the Fixed Price Remediation with Insurance (FPRI) contract issued for Load Lines 1 through 4. The Ohio Army National Guard (OHARNG) has clearly indicated that they would use these areas for "Mounted Training - No Digging" subsequent to slab removal and cleanup of any contamination under the slabs and appropriate (if any) remediation of the utilities. The Army agreed that they would deal with these issues as funding became available. However, the Army's position has changed within the last few weeks. The Army is now indicating that they consider Load Lines 2, 3, and 4 to be response complete (RC) and Remedial Action (RA) underway at Load Line 1 (which is the "tracking mechanism" for all four Load Lines). This is obviously not correct, given that we only have a final Remedial Investigation (RI) at Load Line 1 and preliminary-draft RIs at Load Lines 2, 3, 4, and that feasibility studies (FS), Records of Decision (RODs), and Remedial Design (RD) have not occurred at any of the Load Lines. Given the fact that the end use of these Load Lines, as well as other Areas of Concern (AOCs), is subject to change, Ohio EPA again requests the evaluation of other potential future receptors, including a residential scenario (at a minimum), in order for the revised document to be considered acceptable and complete and obtain Ohio EPA concurrence.
- 41) Item 41: See # 40 response above.
- 42) No comment required.
- 43) No comment required.
- 44) No comment required.
- 45) No comment required.
- 46) No comment required.
- 47) No comment required.
- 48) No comment required.
- 49) No comment required.
- 50) No comment required.
- 51) No comment required.
- 52) No comment required.
- 53) No comment required.
- 54) No comment required.
- 55) No comment required.

- 56) Please add the text given in the response to the work plan comment that justifies the use of the 5000 square feet area for hot spot detection. The justification that 1/8th of an acre may be reasonable for Guard activity is acceptable. It should also be noted in the work plan that this area, 1/8th acre, is also a common residential lot size.
- 57) Item 57: Refer to comments on 40 and 41. Also, the RTC seemingly indicates that excavation to turret defilade will not be conducted. Ohio EPA has not been informed that this is definitely the case. As such, where applicable, turret defilade needs to be considered and evaluated.
- 58) No comment required.
- 59) No comment required.
- 60) No comment required.
- 61) No comment required.
- 62) No comment required.
- 63) No comment required.
- 64) No comment required.
- 65) No comment required.
- 66) No comment required.
- 67) No comment required.
- 68) Item 68: In the RTC, it is noted (once again) that the OHARNG has proposed specific end uses. Given that the uses seem to change and that the Army is currently not adhering to verbal commitments made to the OHARNG, this sitewide HHRA must include the various pieces of information that are floating around in numerous documents, and all potential receptors requested by Ohio EPA. Additionally, by what mechanism will the "no digging" be enforced?
- 69) No comment required.
- 70) No comment required.
- 71) No comment required.
- 72) No comment required.
- 73) The comment was indicating that the table listed 0 kg/day and needed to be corrected, not that Ohio EPA was requesting to change the value to 0. Please ensure that the correct value is listed on the table.

Dr. David J. Brancato
U.S. Army Corps of Engineers
October 17, 2003
Page 6

- 74) See comments above on same topic.
- 75) No comment required.
- 76) No comment required.
- 77) No comment required.
- 78) No comment required.
- 79) No comment required.
- 80) No comment required.
- 81) No comment required.
- 82) No comment required.
- 83) No comment required.
- 84) No comment required.
- 85) No comment required.

If you have any questions or concerns 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, DERR, NEDO
Bonnie Buthker, Ohio EPA, OFFO, SWDO
Laurie Moore, Ohio EPA, OFFO, SWDO
Brian Tucker, Ohio EPA, DERR, CO
Mark Patterson, RVAAP
John Jent, USACE, Louisville
Glen Beckham, USACE, Louisville
Paul Zorko, USACE, Louisville

ec: Mike Eberle, Ohio EPA, DERR, NEDO



1/23/03

State of Ohio Environmental Protection Agency

Office of Legal Services
MEETING ATTENDANCE RECORD

Lazarus Government Center
P.O. Box 1049, 122 S. Front Street
Columbus, Ohio 43216-1049

SUBJECT: RAVENNA ARMY AMMUNITION PLANT

DATE: 1/23/03 TIME: 10:00 AM MEETING PLACE: OHIO EPA
122 S. FRONT ST.
COLUMBUS, OHIO

NAME	AFFILIATION	TELEPHONE NO.
MARK NAVARRE	OHIO EPA LEGAL OFFICE	(614) 644-3037 mark.navarre@epa.state.oh.us
Bonnie Butk	OHIO EPA / OFFO	(937) 285-6469 bonnie.butk@epa.state.oh.us
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Todd Fisher	OHIO EPA / NEDU / DERR	(330) 963-1148 Todd.Fisher@epa.state.oh.us
ERNIE NEAL	NEAL ENVIR. SERV.	614-224-5333
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ARMY DRAFT DATED 15 JAN 2003

Ohio EPA - 12/26/02

- Appendix A: Areas of Concern
- Appendix B: Ohio EPA and USEPA Guidance Documents
- Appendix C: RVAAP Document Compendium
- Appendix D: DSMOA
- Appendix E: Installation Action Plan

**BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY**

In the matter of:

United States Department of the Army	:	<u>Director's Final</u>
Ravenna Army Ammunition Plant	:	<u>Findings and Orders</u>
8451 State Route 5	:	
Ravenna, Ohio 44244-9297	:	

Respondent

PREAMBLE

It is agreed by the Parties hereto as follows:

I. JURISDICTION

1. These Director's Final Findings and Orders ("Orders") are issued to the United States Department of the Army ("Army" or "Respondent") pursuant to the authority vested in the Director of Environmental Protection ("Director"), on behalf of the Ohio Environmental Protection Agency ("Ohio EPA"), under Chapters 3734, 3745 and 6111 of the Ohio Revised Code ("ORC").

> All Army authority conveyed - not CERCLA

II. PARTIES BOUND

2. These Orders shall apply to and be binding upon Respondent and its successors in interest liable under Ohio law. Not if there is a change in ownership or operation of the Ravenna Army Ammunition Plant ("RVAAP") shall in any way alter Respondent's ("RVAAP"), the Respondent may transfer obligations under these Orders with the approval of the Ohio EPA.

REVISED DRAFT DATED 6 JAN 03

~~a. Respondent shall provide a copy of these Orders to all contractors, subcontractors, laboratories and consultants retained to perform any portion of the Work pursuant to these Orders. Respondent shall ensure that all contractors, subcontractors, laboratories and consultants retained to perform Work pursuant to these Orders also comply with the applicable provisions of these Orders.~~

III. PURPOSE

3. Pursuant to ORC 3734.02(G) and OAC rule 3745-50-31, the Director may by order exempt any person generating, storing, treating, disposing of or transporting solid or hazardous waste in such quantities or under such circumstances that, in the determination of the Director, are unlikely to adversely affect the public health or safety or the environment, from any requirement to obtain a permit or license or comply with the manifest system or other requirements of Chapter 3734.

4. The purpose of these Orders is as follows:

a. To establish an exemption from the requirements to (1) obtain a hazardous waste treatment, storage, and disposal permit, as required by ORC Section 3734.02 (E), prior to operation of Open Detonation Area #2 for storage, treatment, and disposal of the ordnance and explosives wastes and (2) obtain emergency permits for the destruction of ordnance and explosives wastes discovered at RVAAP that can not be safely transported to OD#2 provided, however, that Respondent shall comply with all applicable requirements of ORC chapter 3734 and OAC chapters 3745-50 through 3745-68.

b. To establish an exemption from the requirement to (1) conduct ground water investigation, monitoring, and remediation activities at OD#2 required by OAC rules 3745-54-90 through 3745-54-99 and 3745-55-011, (2) conduct all groundwater and soil investigation, monitoring, and remediation at the Deactivation Furnace required by OAC rules 3745-54-90 through 3745-54-99 and 3745-55-011, and (3) conduct all ground water monitoring activities at the RQL required by OSC Rule 3745-27-10 provided, however, that Respondent shall comply with the Site-wide CERCLA ground water investigation, monitoring, and remediation program as set forth in the SWGWMPP and AOC Work Plans.

c. To establish an exemption from the requirement to obtain a solid waste permit ORC § 3734.02 (E) and (G) to conduct the bioremediation of explosive contaminated soils.

d. To obtain a Federal Facility Air Exemption OAC Rules to conduct CERCLA related restoration activities.

e. To obtain an exemption from the wastewater treatment rules OAC to allow the onsite treatment of non-hazardous wastewater.

5. Pursuant to ORC Section 3734.02(G), the Director has determined that RVAAP investigative, monitoring and remedial activities, the Open Detonation Area #2 hazardous waste activities, and emergency destruction of ordnance and explosives wastes discovered at RVAAP, if conducted in accordance with the requirements of these Orders, are unlikely to adversely affect public health or safety or the environment. In issuing these Orders, the Director has given consideration to, and based his determination on, evidence relating

EPA
to VI
CERCLA
RVAAP
investigative
monitoring
remedial
activities
wastewater
treatment
rules
OAC

...
...
... will talk to Air Program ...
... propose exemption to PFI

REVISED DRAFT

Ohio EPA - 12/26/02

to the technical feasibility and economic reasonableness of complying with these Orders and to evidence relating to conditions calculated to result from compliance with these Orders, and their relation to benefits to the people of the State to be derived from such compliance.

III.IV. DEFINITIONS

IS THE STATE WILLING TO USE THE CERCLA/NCP DEFINITION FOR "CERCLA" TERMS (E.G., ARAR, ETC.)?

6. Unless otherwise stated, all terms used in these Orders or in any of the Appendices attached hereto shall have the same meaning as defined in ORC Chapters 3734 and 6111 and rules promulgated thereunder, and CERCLA and the rules promulgated thereunder, including the NCP. Whenever the following terms are used in these Orders or in any of the Appendices hereto, the following definitions shall apply:

- a. "ARARs" shall mean applicable or relevant and appropriate requirements as those terms are used in CERCLA and the NCP.
- b. "Area of Concern" or "AOC" shall mean an area at the Site at which contaminants or waste materials are known or suspected to be present, requiring investigation or remediation.
- c. "Army" or "Respondent" shall mean the United States Department of the Army Ravenna Army Ammunition Plant.
- d. "CERCLA" shall mean.....
- e. "Contaminants" or "waste materials" shall include (1) any "hazardous waste" under ORC § 3734.01(J); (2) any "solid waste" under ORC § 3734.01(E) including any "construction and demolition debris" as defined under ORC § 3714.01(C); (3) any "hazardous substances" as defined in ORC § 3746.01(F) or CERCLA § 101(14); (4) any "industrial waste" under ORC § 6111.01(C); and (5) any "other waste" under ORC § 6111.01(D). By way of example, contaminants may include, but are not limited to, chlorinated solvents, ordnance and explosives, heavy metals, unexploded ordnance, and chemical warfare agents.
- f. "Contractor" shall mean a contractor, retained by the Respondent to perform any portion of the Work pursuant to these Orders, and shall include any subcontractor, representative, agent, employee or designee thereof.
- g. "Day" shall mean a calendar day unless expressly stated to be a business day. "Business day" shall mean a day other than a Saturday, Sunday or State Holiday. In computing any

→ M.N

RVAAP Revision – 01/15/03

period of time under these Orders, where the last day would fall on a Saturday, Sunday or State Holiday, the period shall run until the close of the next business day.

- g-h. “Document” shall mean any record, report, photograph, video tape, letter, correspondence, computer disk or tape, recorded or retrievable information of any kind, or any other documentary evidence, regarding the treatment, storage, accumulation, transportation, disposal, investigation or remediation of ~~waste materials~~ contaminant at or migrating from the RVAAP. The term, “document” shall be construed broadly to promote the effective sharing of information between the Army and Ohio EPA.
- i. “Defense - State Memorandum of Agreement” or “DSMOA” shall mean the September 1992 agreement between the Department of Defense (“DoD”) and Ohio EPA, to expedite the cleanup of hazardous waste sites on DoD installations in the State of Ohio and to ensure compliance with applicable State law and regulations. The DSMOA is attached hereto as Appendix D, and incorporated as if fully rewritten herein.
- j. “Facility” or “RVAAP” shall mean the Ravenna Army Ammunition Plant, located at 8451 State Route 5 in Portage County near Ravenna, Ohio.
- k. “Feasibility Study” or “FS” shall mean the development, evaluation, screening and analyses of remedial alternatives for cleanup conducted at an AOC or group of AOCs at the Site in accordance with State and Federal environmental laws.
- l. “Funding Availability” or “Available Funds” shall mean: (1) the RVAAP’s budget allocation, based on the current obligation plan, with respect to milestones for the current fiscal year (i.e., FY); and (2) the RVAAP’s Environmental Management budget allocation, based on the current Installation Action Plan, for determinations with respect to target dates for future fiscal years (e.g., FY+1, FY+2).
- m. “Installation Action Plan” or “IAP” shall mean the plan dated [~~late ‘02 ?~~ early ‘03 ?] as amended or revised, to define all Installation Restoration Program (“IRP”) requirements, propose a comprehensive approach to conduct investigations and remedial actions, and identify possible removals and interim remedial actions at the RVAAP.
- n. “Installation Restoration Program” or “IRP” shall mean the Army’s program to identify and clean up, where necessary, contaminated lands at ~~inactive~~ Army installations to an acceptable level.
- A-O. “Investigation” shall mean ~~any inquiry~~ Remedial Investigation as the term is used in CERCLA and the NCP conducted by the Respondent in accordance with these Orders. Investigations can either be inspections to determine whether or not certain areas of the Site may be contaminated, or remedial investigations for the purpose of determining the nature and extent of contamination.
- p. “Interim Removal Action” shall mean an early response action that is identified and

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implemented during the study or design phase of a comprehensive response action. Interim removal actions are limited in scope, and address areas or media for which a final remedy will be subsequently developed.

- q. "Milestone" shall mean a fixed, firm, and enforceable date as set forth in an approved work plan for a particular AOC. A milestone is a requirement and is enforceable.
- r. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300, as amended.
- s. "Orders" shall mean this document and all Appendices to this document, which shall be attached to and made an integral part of this document
- t. "Ordnance and Explosives" or "OE" shall mean ammunition, ammunition components, chemical or biological warfare materiel or explosives that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, buried or fired. Soils with explosive constituents are considered OE if the concentration is sufficient to be reactive and present an imminent safety hazard.
- u. "Ordnance and Explosives Waste" or "OEW" shall mean "Ordnance and Explosives" waste material that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, buried or fired, or derived from the disposal and/or detonation of ordnance and explosives.
- v. "Paragraph" shall mean a portion of these Orders identified by an Arabic numeral or an upper or lower case letter.
- w. "Party" or "Parties" shall mean the Army and/or Ohio EPA.
- x. "Record of Decision" or "ROD" shall mean the final remedial action plan for a particular AOC or group of AOCs at the Site. A ROD summarizes the problems posed by the conditions of the AOC, the alternative remedies considered for addressing those problems, the comparative analysis of the alternatives in terms of the nine evaluation criteria established in the NCP, and the selected remedy for the AOC and the rationale for that selection.
- y. "Remedial Action" shall mean any action that abates permanently a placement or disposal or threatened disposal of contaminants or waste materials to prevent present or future harm to the public health or welfare or to the environment, i.e., those activities to be undertaken by or on behalf of the Respondent to implement the final cleanup remedy for an AOC at the Site selected pursuant to the ROD.
- z. "Remedial Design" shall mean the preparation of detailed engineering plans, specifications and construction drawings needed to implement the selected remedial action, i.e., technical analysis and procedures, that follow the selection of the remedial

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action for an AOC at the Site and result in detailed plans and specifications for implementation of the remedial action.

- aa. "Remedial Investigation" or "RI" shall mean the investigation conducted by the Respondent, to determine the nature and extent of the contamination at the at an AOC or group AOCs at the Site caused by the disposal, discharge or release of contaminants, and includes the gathering of necessary data to support the Feasibility Study and the selection of a remedy for each AOC or group of AOCs at the Site.
- ~~bb.~~
- ~~ee.~~
- bb. "Response Costs" shall mean those costs that are incurred by Ohio EPA with respect to oversight of the investigation or remediation of the Site.
- cc. "Site" shall mean the RVAAP, where the treatment, storage, accumulation, transportation or disposal, or the discharge into waters of the State, of contaminants or waste materials has occurred, and any other area where such contaminants or waste materials have migrated or threaten to migrate.
- dd. "Section" shall mean a portion of these Orders identified by an upper case Roman numeral.
- ee. "Target Date" shall mean an anticipated completion date for a task that has not been designated as a milestone and shall be a goal for accomplishing a designated task. A target date is not a requirement and is not enforceable.
- ff. "Unavoidable Delay" shall mean any event beyond the control of the Respondent which prevents or delays performance of any obligation required by an approved work plan and these Orders, and which could not be overcome by due diligence on the part of the Respondent.
- gg. "Unexploded Ordnance" or "UXO" shall mean military munitions that have been primed, fuzed, armed or otherwise prepared for action, and have been fired, dropped, launched, projected or placed in such a manner as to constitute a hazard to operations, installation personnel or material and remain unexploded either by malfunction, design or any other cause.
- hh. "Work" shall mean any activities Respondent is required to perform under these Orders.
- ii. "Work plan" shall mean that document detailing the requirements for characterizing the RVAAP and for support of a Remedial Investigation and Feasibility Study, Interim Remedial Action, or Remedial Design and Remedial Action. Each Workplan includes a

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detailed description of the proposed investigations and/or remediation activities; a schedule for those actions; and personnel and equipment requirements.

IV. FINDINGS OF FACT, DETERMINATIONS, AND CONCLUSIONS OF LAW

§.7. All findings of fact, determinations, and conclusions of law necessary for the issuance of these Orders pursuant to ORC Chapters 3714, 3734, 3745 and 6111 have been made and are outlined below. The Director has determined the following:

a. The U.S. Department of the Army ("Army" or "Respondent") owns the Ravenna Army Ammunition Plant ("RVAAP" or "Facility"), which is located at 8451 State Route 5, Portage and Trumbull Counties, approximately 4.8 kilometers (3 miles) east/northeast of the City of Ravenna. The RVAAP consists of 21,419 acres (8,668 hectares) contained in a 17.7-kilometer-long (11-mile-long), 5.63 kilometer-wide (3.5-mile-wide) tract bounded by State Route 5 and the CSX System Railroad on the south; State Route 534 on the east; the Garrettsville and Berry Roads on the west; and the Conrail Railroad on the north. The Michael J. Kirwan Reservoir is located immediately south of the RVAAP.

b. At the RVAAP, the Army has engaged in the manufacture and storage of munitions and munition derivatives. Prior operators of the Facility include: Ravenna Arsenal, Inc. - 1951 until 1982; Physics International Corp., a subsidiary of Rockcor Inc., 1982 until 1985; Rockcor, purchased in 1985 by Olin Corporation, 1985 until 1993; Mason & Hanger-Silas Mason Co., Inc.; 1993 until 1998; and R&R International, Inc., 1998 until November 15, 1999. At the present time, the operator of the RVAAP is Toltest Inc.

c. Although currently inactive, the RVAAP has historically handled hazardous wastes and operated several waste management units in support of its operations. Various industrial operations at the RVAAP have been identified as potential sources of contaminants. These operations include the load lines, sewage treatment plants, waste-water treatment plants, vehicle maintenance areas, storage tanks, waste storage areas, equipment storage areas, and furnaces and evaporation units. Landfills at the RVAAP were used to bury wastes from industrial operations and sanitary sources. Other burial sites may be located on-Site based on historical information. Settling and retention ponds at the Site collected ~~waste-wastewater~~ from munitions washdown operations at various facilities. Additionally, the RVAAP includes several areas associated with the burning, demolition, and testing of various munitions. These burning grounds and demolition areas are located at several large areas or in abandoned quarries at the RVAAP. Strategic ores and other materials were stockpiled at several locations at the Site; subsequent to removal by the Defense Logistics Agency, the residual materials may have left various contaminants in place. Potential contaminants at the Site include, but are not limited to: primary explosives, secondary explosives, propellants, metals, PCBs, pesticides, waste oils, sludge from load lines, various laboratory chemicals, sanitary waste, mustard agent and petroleum products.

d. At the RVAAP, Respondent generates "hazardous waste," as that term is defined by ORC Section 3734.01 and OAC rule 3745-51-03. Respondent notified U.S. EPA on November 19, 1980 of its hazardous waste activity at the RVAAP and was issued U.S. EPA Identification Number OH5-210-020-736. The RVAAP includes an open burning ("OB") area/unit, and an open detonation ("OD") area/unit (Open Detonation Area #2).

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f. ~~e.~~ On November 8, 1988, Ravenna Arsenal, Inc. submitted a RCRA Part B hazardous waste facility installation and operation permit application for the RVAAP to Ohio EPA, and on June 22, 1992, Ravenna Arsenal submitted a revised Part B permit application to Ohio EPA.

g. ~~k.~~ The RVAAP Deactivation Furnace, established in 1968, was located on the Winklepeck Burning Grounds in the north central portion of the Facility. The burning grounds area covers approximately 200 acres, of which 15 acres were designated for burning/detonation activities. [need clarification] On January 31, 1986, Ravenna Arsenal submitted a Part A hazardous waste facility permit application for the RVAAP's hazardous waste storage and treatment operations. The Part A hazardous waste permit application included high temperature munitions demilitarization activities performed in the deactivation furnace. Operation of the deactivation furnace ceased in 1983. By letter dated November 8, 1989, Ravenna Arsenal informed Ohio EPA of Ravenna Arsenal's intent to formally close the deactivation furnace.

f. On July 30, 1992, the Director issued Final Findings & Orders, which exempted Ravenna Arsenal, Inc. from the permitting requirements for OB and OD hazardous waste treatment activities conducted at the RVAAP, and for storage of all hazardous waste generated from such treatment at the RVAAP

g. The July 30, 1992 Findings and Orders state that the exemption provided therein would be effective until the Hazardous Waste Facility Board makes a final determination on the RVAAP/Ravenna Arsenal's Part B permit application.

h. By letter dated, April 11, 1994, Ravenna Arsenal notified Ohio EPA of the Ravenna Arsenal's intent to withdraw its RCRA Part B permit application for treatment and storage of hazardous waste at the Facility. At the RVAAP, the Respondent has conducted thermal treatment activities pursuant exemptions granted on October 1, 1985, May 19, 1986 and July 30, 1992 and through numerous emergency permits which have been issued since 1987.

i. The RVAAP Open Detonation Area (OD) was established in 1948 for the testing, detonation and disposal of ordnance items. On February 12, 1998, Ohio EPA approved a revised closure plan for the RVAAP Open Detonation (OD) Area (OD#2) Hazardous Waste Treatment Unit and required Ravenna Arsenal to prepare minor modifications to the plan. Those specific modifications were presented to Ohio EPA in a June 26, 2000 memorandum. In addition, Ravenna Arsenal requested that Ohio EPA grant an extension of time to complete closure of the OD area based on ongoing site-wide remediation activities taking place under the March 2000 RVAAP Installation Action Plan (IAP).

j. Open Detonation Area #2, approximately 25 acres in size and located in the west central area of the RVAAP, was historically utilized to open burn and open detonate large caliber munitions and off-specification bulk explosives.

~~k.~~ The RVAAP Deactivation Furnace, established in 1968, was located on the Winklepeck Burning Grounds in the north central portion of the Facility. The burning grounds area covers approximately 200 acres, of which 15 acres were designated for burning/detonation activities. [need clarification] On January 31, 1986, Ravenna Arsenal submitted a Part A hazardous waste facility permit application for the RVAAP's hazardous waste storage and treatment operations. The Part A hazardous waste permit application included

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~~high temperature munitions demilitarization activities performed in the deactivation furnace. Operation of the deactivation furnace ceased in 1983. By letter dated November 8, 1989, Ravenna Arsenal informed Ohio EPA of Ravenna Arsenal's intent to formally close the deactivation furnace.~~

l. On February 23, 2001, the Respondent submitted the final closure plan for the Deactivation Furnace. **[need to confirm current status]**

m. The Ramsdell Quarry Landfill (RQL) located on a 10-acre site in the northeastern portion of the RVAAP, has been utilized for various waste treatment and disposal activities since 1946. From 1976 until 1989, the RQL *operated* as a non-hazardous solid waste disposal facility. Respondent was issued an Ohio EPA Solid Waste Disposal Facility License (No. 67-00-06) for the RVAAP for the operation of the RQL from 1976 to 1989.

n. ~~n.~~ By letter dated February 10, 1989, Ohio EPA notified Respondent that the Respondent must either submit a Permit-to-Install application to continue operation of the RQL or proceed with closure activities. By letter dated June 9, 1989, the Respondent notified Ohio EPA of its intent to commence closure of the RQL by September 22, 1989.

o. By letter dated August 29, 1989, Environmental Design Group, Inc., on behalf of Respondent, requested a waiver from OAC 3745-27-10(C) to allow a final cover slope of 33% to be constructed on the RQL. On December 28, 1989, Ohio EPA issued Director's Final Findings and Orders allowing the Respondent to establish a final closure slope for the RQL at a grade greater than that provided under existing regulations.

p. By letter dated November 20, 1989, Respondent notified Ohio EPA that it would be unable to complete closure of the RQL by its original target date of November 24, 1989, and requested an extension to complete closure by June 22, 1990. Ohio EPA approved this extension in a letter dated March 6, 1990.

q. By letter dated July 3, 1990, Environmental Design Group, on behalf of the Respondent, notified Ohio EPA that closure of the RQL was completed in accordance with OAC 3745-27-10 (effective July 29, 1976). Ohio EPA confirmed completion of closure activities pursuant to OAC 3745-27-10 (effective July 29, 1976) by letter dated September 17, 1990.

r. OAC rule 3745-27-14(A), effective March 1, 1990, requires a licensee of a solid waste disposal facility that closed in accordance with paragraph (C) of OAC rule 3745-27-10 (effective July 29, 1976) to conduct post-closure care activities for a minimum of thirty years.

s. On July 20, 1998, the Director of Ohio EPA, pursuant to OAC rule 3745-27-13, granted Respondent authorization to conduct investigative activities at and in the vicinity of the RQL. This authorization specifically allowed Respondent to conduct surface and subsurface soil sampling, monitoring well installation, groundwater sampling, and sediment sampling activities in order to gather supplemental landfill data and to investigate the surrounding quarry area. The investigative activities were to be conducted under the Department of Defense (DOD) Installation Restoration Program (IRP), and only allowed for activities identified in Respondent's OAC rule 3745-27-13 request, dated June 11, 1998 and June 23, 1998.

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t. [DATE ? *February 2002 (final)? August 2002 (draft) ?*] Respondent developed and adopted an Installation Action Plan (“IAP”) that outlines and defines a multi-year restoration program for the RVAAP. The IAP provides the guidance for a comprehensive approach and associated costs to conduct future investigations and remedial actions at each Area of Concern (“AOC”) at the RVAAP.

u. In accordance with the proposed IAP, and the scheduled multi-year Installation Restoration Program (IRP), the Respondent prepared and updated the Facility-Wide Sampling and Analysis Plan and Health and Safety Plan for the Site in March 2001. AOC-specific sampling and analysis plans and health and safety plans are developed to supplement and tier under the facility-wide documents. Neither can be implemented without the other and as such, the necessary planned activities and investigations provide for successful and consistent Site investigation.

v. By letter dated March 20, 2001, the Respondent submitted a request to Ohio EPA to exempt the Respondent from requirements to obtain certain environmental permits for cleanup activities to be conducted entirely on site at the RVAAP in order to complete the required investigations, scheduled removal or remedial actions and the planned restoration of the RVAAP.

w. The RVAAP’s CERCLA related actions, including Remedial Investigations/ Feasibility Studies and Remedial Design/Remedial Actions, have been conducted under the Department of Defense (DoD) Installation Restoration Program (IRP).

x. Under the RVAAP’s IRP, Ohio EPA has provided technical assistance to the Army in accordance with the DSMOA. As part of the technical assistance, the documents listed in the RVAAP Document Compendium, Appendix C, were prepared by the United States Army Corps of Engineers and its consultants and have been reviewed by Ohio EPA.

y. By written submission, dated October 4, 1996 and revised October 17, 1996, the Respondent requested authorization, pursuant to OAC rule 3745-27-13, to fill, grade, excavate, drill, build or mine at the previously unranked Areas of Concern on the Facility.

z. By letter dated November 4, 1996, Ohio EPA indicated that the October 4 and 17, 1996 RVAAP authorization request pursuant to OAC 3745-27-13 was approved by the Director, thereby authorizing the Respondent to perform the above referenced actions in accordance with state/ federal requirements.

aa. By written submissions, dated July 7, 2000 and revised July 24, 2000, the Respondent [?] requested authorization, pursuant to OAC 3745-27-13, to conduct intrusive activities consisting of: drilling, trenching, monitoring well installation, piezometer and well point installation, surface water and sediment sampling, excavation, surgical removal/other removal of unexploded ordnance (UXO) and suspected UXO, grading, and placement of clean hard fill or backfilling at known and to-be-discovered CERCLA AOCs. These activities would be performed in regard to implementation of the RVAAP Installation Restoration Program (IRP) Areas of Concern.

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bb. By letter dated August, 2000, Ohio EPA indicated that the July 7 and 24, 2000 RVAAP authorization requests pursuant to OAC rule 3745-27-13 were approved by the Director, thereby authorizing the Respondent to perform the above referenced actions in accordance with applicable requirements.

cc. Ground water at OD#2 is currently being monitored in accordance with OAC rules 3745-54-90 through 3745-55-011. Ground water at the RQL is currently being monitored in accordance with OAC rule 3745-27-10 (effective March 1, 1990).

dd. Monitoring wells have been installed and sampled at the following AOCs: LL-1; LL-2; LL-3; LL-4; LL-11; LL-12; Central Burn Pits; Upper and Lower Cobbs Ponds; Winklepeck Burning Grounds; OD#2; and the RQL.

ee. In 1998, fourteen monitoring wells were installed in various locations around the RVAAP to provide background data for naturally occurring constituents (e.g., metals) for the CERCLA investigations at the Site. Seven wells are installed into the glacial materials and seven are installed into the bedrock.

ff. Presently, only the monitoring wells at OD#2 and the RQL are monitored on a regular schedule as per approved ground water monitoring program plans and in accordance with specific OAC rules.

gg. Additional monitoring wells are expected to be installed at the Site as investigations into soil and ground water contamination are completed at additional AOCs under the CERCLA program.

hh. An objective of the CERCLA process is to characterize the nature, rate, and extent of ground water contaminant migration to the extent necessary to select and implement response actions. This process is intended to ensure characterization and remediation of ground water for the Site, including OD#2, the Deactivation Furnace, and the RQL.

ii. In a March 20, 2001 submittal, the Respondent requested that the RVAAP be exempted from the ground water monitoring requirements included in OAC rules 3745-54-90 through 3745-55-01 at OD#2 and the Deactivation Furnace and OAC rules 3745-27-10 at the RQL. Respondent proposed that all ground water monitoring activities be conducted as part of the CERCLA activities at the Site.

jj. In a March 21, 2002 letter to the Respondent, Ohio EPA stated that in order to be exempted from OAC rules 3745-54-90 through 3745-55-01 and 3745-27-10, the Respondent must commit to "ensuring that the ground water and surface water will be regularly monitored at these units," and that a Site-wide ground water monitoring program be instituted.

kk. Ohio EPA and the Respondent desire to avoid duplication and to integrate the ground water monitoring activities required by OAC rules 3745-54-90 through 3745-55-01 and 3745-27-10 with the Site-wide CERCLA ground water investigation, monitoring, and remediation activities.

ll. Respondent is a "person" as defined in ORC §§ 1.59, 3734.01 and 6111.01, and OAC rule 3745-50-10.

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mm. Because of their quantity, concentration, or physical or chemical characteristics of the types of Contaminants found at the Site, the Director has determined that the Contaminants at the Site are "hazardous wastes" as defined under ORC § 3734.01(J). The RVAAP constitutes a hazardous waste facility, solid waste facility, or other location where hazardous waste was treated, stored, or disposed. Conditions at the Site constitute a substantial threat to public health or safety or are causing or contributing or threatening to cause or contribute to air or water pollution or soil contamination.

nn. The groundwater and surface water at the Site constitute "waters of the state" as defined in ORC § 6111.01(H). The Work required by these Orders will contribute to the prohibition or abatement of the discharge of industrial wastes or other wastes into the waters of the State.

~~oo. In issuing these Orders, the Director has given consideration to, and based his determination on, evidence relating to the technical feasibility and economic reasonableness of complying with these Orders and to evidence relating to conditions calculated to result from compliance with these Orders, and their relation to benefits to the people of the State to be derived from such compliance.~~

~~pp. Pursuant to ORC § 3734.02(G) and OAC rule 3745-50-31, the Director may by order exempt any person generating, storing, treating, disposing of or transporting hazardous waste in such quantities or under such circumstances that, in the determination of the Director, are unlikely to adversely affect the public health or safety or the environment, from any requirement to obtain a permit or license or comply with the manifest system or other requirements of Chapter 3734.~~

~~qq. Pursuant to ORC Section 3734.02(G), the Director has determined that the the Army's proposed investigative, monitoring and remedial activities to be conducted in accordance with the SWGWMPP, IWIPSW Work Plan and AOC Work Plans, and the hazardous waste [management ? storage ? treatment ?] activities [see page 20 overstrike text re: storage and treatment, and page 29 overstrike text re: permitting and temporary waste storage; need to precisely identify the hazardous waste activities that are the subject of the .02(G) exemption request] at the RVAAP, if conducted in accordance with the requirements of these Orders, are unlikely to adversely affect public health or safety or the environment.~~

[27-13 exemption concept reserved for discussion]

VI. EXEMPTIONS

6. ~~Respondent 8.~~ In order to accelerate remediation activities, Respondent is hereby exempted from the following requirements, provided that Respondent fully complies with these Orders, including the requirements of Section VII, Performance of Work by Respondent, and the following conditions:

- a. The requirement to obtain ~~(1) a hazardous waste facility installation and operations hazardous waste treatment, storage, and disposal~~ permit, as required by ORC § 3734.02 (E), prior to operation of Open Detonation Area #2 for the storage, treatment, and disposal of ordnance

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~~and explosive waste and (2) an emergency permits for the destruction of ordnance and treatment of the following types of hazardous waste explosives wastes discovered at RVAAP that can not be safely transported to OD#2 generated from environmental investigation and remediation activities conducted at the RVAAP: ordnance and explosives, unexploded ordnance, ordnance and explosives waste (excluding chemical and biological warfare agents, bulk explosives in igloos, and soil contaminated with explosives); RVAAP, provided, however, that Respondent shall comply with all applicable requirements of ORC chapter 3734 and OAC chapters 3745-50 through 3745-68, including but not limited to the following:~~

> ~~{question: thermal destruction of load lines 2, 3 and 4, etc. ? }~~

~~{question: re: pages 10-11 and the status of the closure of: (i) OD#2 and (ii) the Deactivation Furnace... }~~

- i. Design, Maintenance and Operation of Facility, OAC 3745-54-31
- ii. General Waste Analysis Plan, OAC 3745-54-13
- iii. Security, OAC Rule 3745-54-14
- iv. General Inspection Requirements, OAC 3745-54-15 & 3745-54-73
- v. Personnel Training, OAC 3745-54-16
- vi. General Requirements for Ignitable, Reactive, or Incompatible Waste, OAC 3745-54-17, including the following:
 - (a) the procedures for handling ignitable, reactive, and incompatible wastes set forth in Section 1.a. - m. of the Director's July 30, 1992 F&Os.
 - (b) electrical grounding for all containers and tanks, and transport vehicles during all operations involving the handling of ignitable or reactive wastes.
 - (c) the use of, spark proof tools during all operations involving the handling of all ignitable or reactive wastes.
 - (d) prohibit smoking and open flames in each area where ignitable, reactive or incompatible hazardous wastes are managed, and shall post appropriate signs.
- vii. Location Standards, OAC 3745-54-18

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Operate and maintain the facility to prevent washout of any hazardous waste by a 100-year flood, and in the event of a 100-year flood, remove all hazardous waste, before flood waters can reach the facility, to a location where the wastes will not be vulnerable to the flood waters.

viii. Required Equipment, OAC 3745-54-32

Maintain all facility equipment required by OAC Rule 3745-54-32 and the equipment set forth in the approved contingency plan.

ix. Testing and Maintenance of Equipment, OAC 3745-54-33

Inspect, test and maintain the equipment required by this rule, as necessary to assure its proper operation in time of emergency.

x. Access to Communications or Alarm System, OAC 3745-54-34

xi. Required Aisle Space, OAC 3745-54-35

Maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency.

xii. Arrangements with Local Authorities, OAC 3745-54-37

(a) Make a diligent effort to:

(i) familiarize all emergency response agencies which are likely to respond in an emergency with the location and layout of the facility, properties of hazardous waste managed at the facility and associated hazards, places where facility personnel will normally be working, entrances to and roads inside the facility, and possible evacuation routes.

(ii) inform such agencies of safety equipment, supplies, proper emergency safety procedures that are applicable to the facility; and

(iii) familiarize the local police and fire departments, hospitals and any other local emergency service, with the properties of hazardous waste managed at the facility and the types of injuries or illness which could result from fires, explosions, or releases at the facility.

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- (b) If a State or local agency declines to enter into the arrangements set forth in OAC Rule 3745-54-37(A), document the refusal in the operating record as required by OAC Rule 3745-54-37(B).

xiii. Implementation of Contingency Plan, OAC 3745-54-51 & 3745-54-56

Immediately carry out the provisions of the approved contingency plan and follow the emergency procedures described in OAC Rule 3745-54-56, whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which threatens or could threaten human health or the environment.

With respect to spills and related toxic gas releases, the plan must describe the criteria to be used by the emergency coordinator to determine when the plan will be implemented. At a minimum, the plan must be implemented in the following situations:

- (a) any spill or release of hazardous waste or hazardous waste constituents greater than or equal to 55 gallons (or 220 pounds);
- (b) any spill or release of hazardous waste or hazardous waste constituents less than 55 gallons that may result in a fire or explosion hazard, as determined by the Emergency Coordinator;
- (c) any spill or release of material that exhibits the characteristics of reactivity as defined by OAC Rule 3745-51-23 and which results in the release of gases that may threaten human health or the environment;
- (d) any spill on-site that may potentially cause on or off-site soil and/or ground or surface water contamination;
- (e) any spill or release of hazardous waste or hazardous waste constituents that is reported to the National Response Center or local (city or county) emergency response center because the spill exceeded the "RQ" limits.

xiv. Content of the Contingency Plan, OAC 3745-54-52

xv. Contingency Plan - Released Material and Emergency Response Material and By-products, OAC 3745-54-56(G)

All liquid or solid material resulting from fire, explosion, released material or emergency response material and by-products that must be evaluated to determine whether such material is hazardous waste in accordance with OAC Rule 3745-52-11.

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shall be collected and managed as a hazardous waste until a demonstration that such waste is not hazardous in accordance with OAC Rule 3745-51-03 (C), (D).

- xvi. Amendments to Plan, OAC 3745-54-54

Review the approved contingency plan at least annually and upon the occurrence of any event listed in OAC Rule 3745-54-54. If necessary or appropriate, amend the contingency plan in accordance with OAC Rule 3745-50-51.

- xvii. Copies of Plan, OAC 3745-54-53

- (a) Comply with the requirements regarding contingency plan distribution.
- (b) Submit a copy of the approved contingency plan, to all local police departments, fire departments, hospitals, and local emergency response teams that may be called upon to provide emergency services, and notify such agencies and the local authorities, in writing, within ten (10) days of the effective date of any amendments of, revisions to, or modifications to the contingency plan.
- (c) Submit a copy of the approved contingency plan to Ohio EPA's Division of Emergency and Remedial Response.

- xviii. Emergency Coordinator, OAC 3745-54-55

- xix. Emergency Procedures, OAC 3745-54-56 & 3745-51-01

- xx. Availability, Retention and Disposition of Records, OAC 3745-54-74

- xxi. Operating Record, OAC 3745-54-73

- xxii. Contingency Plan Records, OAC 3745-54-73 & OAC 3745-54-56 (J)

Note in the operating record the time, date, and details of any incident that requires the implementation of the contingency plan, and within fifteen (15) days of any such incident, submit to the Director a written report of the incident containing the elements set forth in OAC Rule 3745-54-56(J).

- xxiii. Manifest System, OAC 3745-54-70, 3745-54-71, 3745-54-72 & 3745-54-76

- (a) In the management of waste at the facility, comply with the provisions of OAC Chapter 3745-52 and OAC Rules 3745-54-71, 3745-54-72 and 3745-54-76 with regard to the manifest system.

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- (b) Manifest discrepancy report. If a significant discrepancy in a manifest is discovered, attempt to reconcile the discrepancy. If not resolved with fifteen (15) days after receiving the waste, submit a report, including a copy of the manifest, to the Director in accordance with OAC Rule 3745-54-72.
- (c) Unmanifested waste report. This report must be submitted to the Director within fifteen (15) days of receipt of unmanifested waste, which waste is not excluded from the manifest requirements by OAC Rule 3745-51-05, and include the information required under OAC Rule 3745-54-76.

xxiv. Annual Reports and Additional Reports, OAC 3745-54-75, 3745-54-77

b. ~~Beginning after Ohio EPA's approval and Respondent's implementation of the SWGMPP, the~~ requirement to ~~comply with~~ conduct the ground water monitoring ~~requirements in investigation, monitoring, and remediation activities at OD#2 required by~~ OAC rules 3745-54-90 through ~~3745-55-01, for OD#2 and the Deactivation Furnace, 3745-54-99 and 3745-55-011~~, provided, however, that:

- i. Respondent shall conduct ground water monitoring and comply with all ground water monitoring and reporting requirements in OAC rules 3745-54-90 through ~~3745-54-99 and 3745-55-01~~ for OD#2 until Ohio EPA has approved and Respondent has commenced implementation of the SWGMPP; and
- ii. ~~ii. Upon~~ upon approval by Ohio EPA and implementation by Respondent of the SWGMPP, Respondent shall comply with the requirements set forth in Section VII, Performance of Work by Respondent, paragraph 14, Ground Water Monitoring Program.

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~~iii. Upon approval by Ohio EPA and implementation by Respondent of the OD#2 Ground Water AOC Workplan, Respondent shall comply with the requirements set forth in Section VII, Performance of Work by Respondent, paragraph _____.~~

b. ~~The requirement to conduct the groundwater and soil investigation, monitoring, and remediation at the Deactivation Furnace required by OAC rules 3745-54-90 through 3745-54-99 and 3745-55-011, provided, however, that:~~

Del

- ~~i. Respondent shall conduct ground water monitoring and comply with all ground water monitoring and reporting requirements in OAC rules 3745-54-90 through 3745-54-99 and 3745-55-01 the Deactivation Furnace until Ohio EPA has approved and Respondent has commenced implementation of the SWGMPP; and~~

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- ~~ii. Upon approval by Ohio EPA and implementation by Respondent of the SWGWMPP, Respondent shall comply with the requirements set forth in Section VII, Performance of Work by Respondent, paragraph 14, Ground Water Monitoring Program.~~
 - ~~iii. Upon approval by Ohio EPA and implementation by Respondent of the Deactivation Furnace AOC Ground Water, Soil, and other Workplans, Respondent shall comply with the requirements set forth in Section VII, Performance of Work by Respondent, paragraph _____.~~
- c. The requirement to comply with the ground water monitoring requirements in OAC rule 3745-27-10, for the Ramsdell Quarry Landfill, provided, however, that Respondent shall comply with the requirements set forth in Section VII, Performance of Work by Respondent, paragraph 14, Ground Water Monitoring Program, and the following conditions:
- i. With the exception of the requirement to monitor ground water in accordance with OAC rule 3745-27-10 (effective March 1, 1990), Respondent shall conduct post closure care activities in accordance with OAC rule 3745-27-14, at the RQL until at least July 3, 2020. Post-closure care requirements contained in OAC rule 3745-27-14(A) include, but are not limited to:
 - (a) Continuing operation and maintenance of the surface water management system;
 - (b) Maintaining the integrity and effectiveness of the cap system, including making repairs to the cap system as necessary to correct the effect of settling, dead vegetation, subsidence, erosion, leachate outbreaks, or other events, and preventing run-on and runoff from eroding or otherwise damaging the cap system; and
 - (c) Conducting quarterly inspection of the RQL during each year of the post-closure care period and submitting a written summary to Ohio EPA not later than fifteen (15) days after each inspection, detailing the results of the inspection and a schedule of any actions to be taken to maintain compliance with subparagraphs (a) and (b) above; and
 - ii. Respondent shall conduct ground water monitoring at the RQL pursuant to OAC rule 3745-27-10, effective March 1, 1990, and fulfill all ground water monitoring and reporting requirements in accordance with OAC rule 3745-27-10 until Ohio EPA's approval and Respondent's implementation of the SWGWMPP.
 - ~~iii. Upon approval by Ohio EPA and implementation by Respondent of the SWGWMPP, Respondent shall comply with the requirements set forth in Section VII, Performance of Work by Respondent, paragraph 14, Ground Water Monitoring Program.~~

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7.9. Respondent shall comply with all requirements and conditions of these Orders. Respondent's failure to so comply may result in revocation of this exemption and further legal action by Ohio EPA. In addition:

- a. All activities conducted at the RVAAP shall be accomplished in compliance with all applicable state and federal laws and regulations pertaining to environmental protection and from which the Respondent is not expressly exempt under the provisions of these Orders. The applicable laws and regulations include but are not limited to, control of air emissions, control of leachate, surface water run-on and run-off, and protection of groundwater.
- b. Any activities undertaken at the RVAAP shall not create a nuisance and shall not adversely affect public safety, human health or the environment.
- c. All solid and/or hazardous waste removed during intrusive activities shall be containerized and securely stored ~~and treated~~ until such time as these materials are properly characterized and disposed of in accordance with *ORC* Chapter 3734 ~~of the ORC~~ and regulations promulgated thereunder.
- d. All liquids, semisolids, industrial wastes and other wastes regulated by *ORC* Chapter 6111 removed during intrusive activities shall be managed in accordance with *ORC* Chapter 6111 and regulations promulgated thereunder.

8.10. The Director's Final Findings and Orders issued on July 30, 1992 regarding the RVAAP are hereby terminated.

VII. GENERAL PROVISIONS

9. Objectives of the Parties

~~The objective of the Parties in entering into these Orders is to contribute to the protection of public health, safety, and welfare and the environment from the disposal, discharge, or release of contaminants or waste materials at or from the Site, through the development by Respondent of an RI/FS for each AOC or appropriate group of AOCs at the Site, and upon completion and publication of a Proposed Plan and Record of Decision for each AOC or appropriate group of AOCs, the design, construction, operation and maintenance of the selected remedy as set forth in the Record of Decision for each AOC or appropriate group of AOCs.~~

10.11. Commitment of Respondent

Respondent shall perform the Work in accordance with these Orders, including but not limited to the ~~CERCLA and the~~ guidance documents set forth in Appendix B, and the schedules set forth in Appendix E.

Handwritten notes:
C. 7.9.1
to be managed in accordance with RCRA 3004(f)(1) & (2)

Handwritten note:
The purpose of this is to...

Handwritten notes:
10.11.1
10.11.2
10.11.3

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Respondent shall also reimburse Ohio EPA for Response Costs as provided in ~~these Orders and~~ accordance with the DSMOA.

~~11.12.~~ 12.12. Compliance With Law

- a. All activities undertaken by Respondent pursuant to these Orders shall be performed in accordance with the requirements of all applicable federal and state laws and regulations.
- b. Respondent shall perform the activities required pursuant to these Orders in a manner which is not inconsistent with the NCP. Ohio EPA believes that activities conducted pursuant to these Orders, if approved by Ohio EPA, shall be considered to be consistent with the NCP.
- c. Prior to commencement of Work, Respondent shall obtain Ohio EPA's approval of work plans or designs for investigation or remediation of AOCs under these Orders.
- ~~c.~~ Where any portion of the Work requires a permit or license, Respondent shall timely submit applications and take all other actions necessary to obtain such permits or licenses to the extent required by law (including CERCLA Section 121(e)). These Orders are not, and shall not be construed to be, a permit or license issued pursuant to any statute or ~~regulation.~~
- ~~d.~~ regulation

VII. PERFORMANCE OF WORK BY RESPONDENT

~~12.13.~~ 12.13. Supervising Contractor

a. All Work performed pursuant to these Orders shall be under the direction and supervision of a contractor with expertise in hazardous waste site investigation and remediation, and shall include expertise in unexploded ordnance, if applicable. Prior to the initiation of the Work, Respondent shall notify Ohio EPA in writing of the name of the supervising contractor and any subcontractors to be used in complying with the requirements of these Orders.

b. Respondent shall provide a copy of these Orders to all contractors, subcontractors, laboratories and consultants retained to perform any portion of the Work pursuant to these Orders. Respondent shall ensure that all contractors, subcontractors, laboratories and consultants retained to perform Work pursuant to these Orders also comply with the applicable provisions of these Orders.

~~13.14.~~ 13.14. Investigations and Remedial Activities

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- a. In accordance with the IAP schedule in Appendix E of these Orders, Respondent shall submit to Ohio EPA a Work Plan for each activity that will be initiated by the Army at the AOCs covered by these Orders. Each Work Plan shall describe all tasks that will be conducted for that activity, and shall include all necessary information to determine if the goals of the investigation or remediation project can be achieved. For example, a work plan that is developed for an RI/FS shall provide for the determination of the nature and extent of the contamination of the AOC caused by the disposal, discharge, or release of Contaminants, and for the development and evaluation of remedial alternatives for the cleanup of the AOC.
- ~~b.~~ Each Work Plan shall be developed in conformance with CERCLA and the guidance documents listed in Appendix B of these Orders, attached hereto and incorporated herein. If Ohio EPA determines that any additional or revised guidance documents affect the Work to be performed in implementing the investigation or remedial action, Ohio EPA will notify Respondent, and the Work Plan and other affected documents shall be modified accordingly.
- ~~b.~~ At those sites requiring a Ground Water AOC Workplan, the Ground Water AOC Workplan will include proposed time table for commencement of remedial activities, including the submission of work plans detailing proposed remedial activities, and provisions for determining when remedial activities can cease. A minimum of three consecutive years (or a Provision of the Decision Document) of ground water monitoring data, indicating that the concentration limits for each contaminant of concern have not been exceeded, shall be submitted to establish that a remedial activity is complete.
- c. Should Respondent identify any inconsistency between ~~any of the laws and regulations~~ CERCLA and guidance documents listed in Appendix B which it is required to follow by these Orders, Respondent shall notify Ohio EPA in writing of each inconsistency and the effect of the inconsistencies upon the Work to be performed. Respondent shall also recommend, along with a supportable rationale justifying each recommendation, the requirement Respondent believes should be followed. Respondent shall implement the affected Work as directed by Ohio EPA or invoke dispute resolution in accordance with Section XVIII.
- d. Ohio EPA will review the Work Plans pursuant to the procedures set forth in Section XVI, Review of Submittals. Upon approval of a Work Plan by Ohio EPA, Respondent shall implement the Work Plan. Respondent shall submit all plans, reports, or other deliverables required under the approved Work Plan, in accordance with the approved schedule, for review and approval pursuant to Section XVI, Review of Submittals.
- e. At the time that the Work Plan is submitted for each activity covered by these Orders, Respondent shall also submit to Ohio EPA for review a health and safety plan developed in conformance with ~~the criteria~~ CERCLA and the guidance documents listed in Appendix B. This health and safety plan shall cover all activities being performed under the Work Plan for which it is being issued.

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- f. Respondent shall notify Ohio EPA within seven (7) days of the discovery of any placement or disposal or threatened placement or disposal of contaminants or waste materials at an AOC not listed in Appendix A of these Orders.
- g. Within sixty (60) days of the discovery of a new AOC, Respondent shall submit a Work Plan Schedule for conducting a Phase I Remedial Investigation RRSE to Ohio EPA for review pursuant to these Orders. The purpose of such investigation shall be to gather necessary information in order to establish a relative priority for the new AOC compared to previously identified AOCs at the RVAAP. This priority shall then be used to determine when funding will be allocated to complete the Work required by these Orders to address the release or threat of release at or from the new AOC.

4.15. Site-Wide Ground Water Monitoring Program

- a. Within 60 days of the effective date of these Orders, Respondent shall submit to Ohio EPA for review and approval, a schedule to develop and conduct a Site-Wide Ground Water Monitoring Program Plan (SWGWMPP). The SWGWMPP shall be developed in conformance with CERCLA and the guidance documents listed in Appendix B. It shall include the basis for well selection and the constituents and frequency of the monitoring program. The SWGWMPP shall include, but not be limited to, the following:
- i. A list of wells proposed for inclusion and maintenance in the Site-Wide ground water monitoring network. This list shall include background wells and wells located downgradient of the AOCs. The number and location of monitoring wells shall be sufficient to allow the detection of hazardous constituents that have migrated from all potential release pathways to the uppermost aquifer from the AOCs based on site-specific hydrogeologic characterization. Upgradient wells shall represent the quality of the background ground water unaffected by any AOC. Downgradient wells shall yield samples representative of the quality of ground water passing the AOCs' unit boundaries.
 - ii. Well logs for all of the wells proposed for inclusion in the Site-Wide ground water monitoring network.
 - iii. A list of the parameters for which the wells will be sampled. This list shall include Site-specific contaminants of concern and any breakdown products of those contaminants.
 - iv. Proposed analytical methods and detection limits for each parameter.
 - v. Proposed statistical procedures for determining whether naturally occurring constituents are elevated above background concentrations. Statistical methods shall be in accordance with U.S. EPA's "Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities" (April 1992) and/or ASTM guidance document number D 6312-98 entitled, "Standard Guide

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for Developing Appropriate Statistical Approaches for Ground Water Detection Monitoring Programs.”

- vi. Proposed methods for determining whether contamination is migrating, including sample calculations for the rate of migration.
 - v. Sampling and analytical procedures to be employed. These procedures shall be consistent with the procedures in the most current revision of the “Facility Wide Sampling and Analysis Plan” (FWSAP) and Ohio EPA’s “Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring,” Chapter 10 (February, 1995).
 - vi. Provisions to amend sampling and analytical procedures as the methods in the FWSAP are updated and revised so that the SWGWMPP and the FWSAP remain consistent in the future.
 - vii. Proposed sampling frequency for the wells included in the Site-wide ground water monitoring network. The initial sampling frequency shall be no less frequent than semi-annual. Quarterly monitoring may be necessary at some locations. Any additional sampling shall be taken at an interval (frequency) that assures, to the greatest extent feasible, that an independent sample is obtained, by reference to the uppermost aquifer’s effective porosity, hydraulic conductivity, and hydraulic gradient. Respondent shall express the ground water quality at each monitoring well in a form necessary for the determination of statistically significant increases.
 - viii. The determination of the ground water surface elevation at each monitoring well each time a sample is obtained. The ground water elevation data shall be evaluated at least annually to determine if the downgradient requirements of Order 14.a.i. above, continue to be met. If the evaluation shows that the requirements of Order 14.a.i. above, are no longer met, Respondent shall modify the monitoring network to meet the downgradient requirements of Order 14.a.i. above. This may require the installation of additional monitoring wells or the addition of existing monitoring wells to the Site-Wide ground water monitoring network.
 - ~~ix. Provisions for reporting to Ohio EPA, within seven (7) days of receiving validated analytical results, any contaminants detected in the ground water (organic constituents) or detected above background concentrations (inorganic constituents). Once a contaminant has been detected in a particular monitoring well and its presence reported to Ohio EPA, additional detections of the same contaminant in the same monitoring well need not be reported unless there is a statistically significant increase in the concentration of the contaminant detected.ix.~~
- b. Reporting provisions.
- ~~i. Sampling Event Report. Within Provisions for reporting to Ohio EPA, within fourteen (14) days of receiving validated analytical results, any contaminants detected in the ground water~~

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(organic constituents) or detected above background concentrations (inorganic constituents). Once a contaminant has been detected in a particular monitoring well and its presence reported to Ohio EPA, additional detections of the same contaminant in the same monitoring well need not be reported unless there is a statistically significant increase in the concentration of the contaminant detected.

i. Sampling Event Report. Within Thirty (30) days of receipt of validated data from each sampling event, Respondent shall submit to Ohio EPA a report documenting the ground water monitoring activities conducted at the Site during the sampling event. This sampling event report shall include:

- Part of Requirements conceptually*
- (a). a summary table of the ground water data;
 - (b). the laboratory data sheets;
 - (c). all QA/QC information for the sampling event including matrix spikes, matrix spike duplicates, laboratory control samples, field and laboratory blanks, chain of custody and sample receipt forms, and duplicate samples;
 - (d). the results of any required statistical analyses;
 - (e). documentation of any contamination detected in any of the wells sampled; and
 - (f). ground water flow maps using the ground water elevation data obtained during the sampling event.

All ground water data reported shall be submitted in paper format and in the “5dbf” format.

ii. Annual Report. By December 15th of each year, the Respondent shall submit a summary report of all ground water monitoring activities that occurred at the Site during the previous year. This annual report shall include:

- (a). a summary of any additional hydrogeologic investigations that were conducted;
- (b). a summary table of additional wells installed during the year, including the depth of the wells, the screen length, the formation in which the wells are screened, and the casing type and diameter;
- (c). a summary of all of the contamination detected in any of the newly installed wells;
- (d). estimates of ground water flow velocities and/or contaminant migration rates;

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- (e). an evaluation of the current ground water flow direction(s) based upon the water level elevation data collected during the previous year;
- (f). an evaluation of the trends of contamination detected in ground water;
- (g). an assessment of the effectiveness of any ground water remediation activities.

This annual report shall include any proposed modifications to the SWGWMPP for the coming year with Respondent's justifications for each proposed modification. Such modifications may include changes in the sampling frequency, the addition or deletion of wells to or from the monitoring network, changes in the parameters analyzed, and changes in the statistical methods used. All proposed modifications to the SWGWMPP are subject to Ohio EPA review and approval prior to implementation.

- c. Drilling, installation, and construction of any additional wells at the Site shall be consistent with the procedures included in the most recent revision of the FWSAP and Ohio EPA's "Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring," (February, 1995). All wells removed or replaced shall be plugged and abandoned in accordance with these same two documents.
- d. Provisions for determining the full rate, extent and concentration of contamination. The SWGWMPP shall include an outline of how the Respondent will determine the full rate, extent and concentration of contamination if such contamination is documented in the ground water at the Site. This outline shall include a timeline for: notifying Ohio EPA of the existence of the contamination and the need for additional investigation to determine the full rate, extent and concentration; conducting confirmatory sampling; submitting a work plan detailing what additional activities will be conducted to determine the full rate, extent and concentration of the contamination; and establishing concentration limits and compliance points.
- e. Provisions for Remediation. ~~The SWGWMPP shall demonstrate how ground water will be remediated if~~ contamination exceeding the concentration limits is detected in the ground water at the compliance points established at the Site. ~~This demonstration shall include a proposed time table for commencement of remedial activities, including the Site, the Respondent will develop a Groundwater Workplan in accordance with Section 13 (Investigation and Remedial Activities).~~ ~~submission of work plans detailing proposed remedial activities, and provisions for determining when remedial activities can cease. A minimum of three consecutive years of ground water monitoring data, indicating that the concentration limits for each contaminant of concern have not been exceeded, shall be submitted to establish that a remedial activity is complete.~~
- f. ~~Within thirty (30) days of~~ In accordance with the schedule prepared in item 15 (a) and with the Ohio EPA's approval of the SWGWMPP, the Respondent shall implement the SWGWMPP. Site-wide ground water monitoring activities shall continue for a minimum of three years following the completion of all environmental investigations at the Site. If ground water contamination is detected at the Site or a portion of the Site, then the Site-wide ground water monitoring activities shall

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continue for a minimum of three years following the completion of environmental investigations and remediation at the Site, or until a minimum of three consecutive years of ground water monitoring data indicate that the concentration limits for each contaminant of concern have not been exceeded at the Site, whichever is longer. At the completion of ground water monitoring activities at the Site, all remaining ground water monitoring wells shall be properly plugged and abandoned in accordance with the methods included in the most recent revision of the FWSAP and Ohio EPA's "Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring." (February, 1995).

- g. If Respondent proposes to use OD#2 for the detonation of ordnance and explosives, unexploded ordnance, or ordnance and explosives waste (excluding chemical and biological warfare agents, and bulk explosives in igloos, and soil contaminated with explosives) found during environmental investigations at the Site, the SWGWMPP shall include regularly scheduled ground water monitoring activities specific to OD#2 that ensure that the detonation does not adversely affect ground water at the Site, and determine whether the detonation of such ordnance and explosives, unexploded ordnance, or ordnance and explosives waste at OD#2 has adversely affected the quality of ground water at the Site. Initially, the sampling frequency shall be semi-annually for AOC-specific contaminants of concern. In the event that contamination of the ground water associated with these activities at OD#2 is detected, Respondent shall submit for Ohio EPA review and approval, a work plan documenting the activities that will be conducted to determine the full rate, extent, and concentration of this contamination. After determining the full rate, extent and concentration of contamination at OD#2, the Respondent shall submit to Ohio EPA for review and approval, a report documenting the results of the determination and proposing additional activities that shall prevent the migration of such contamination from OD#2 through remediation and/or other controls. These additional activities shall commence immediately following Ohio EPA review and approval of the report. The remedial or other controls shall be in place and functional prior to resuming the detonation of such ordnance and explosives, unexploded ordnance, or ordnance and explosives waste at OD#2.
- h. Until the SWGWMPP is implemented, Respondent shall continue regular monitoring of the ground water at OD#2, the ~~Detonation Furnace~~ and the RQL, in accordance with OAC rules 3745-54-90 through 3745-54-99 and 3745-55-01 and and in accordance with OAC Rule 3745-27-10, respectively, at the RQL, and the most recent approved versions of the ground water monitoring program plans for these AOCs.
- i. As ground water investigations are completed at each AOC, Respondent shall evaluate those AOC-specific wells for incorporation into the Site-wide ground water monitoring network. Accordingly, the SWGWMPP will utilize an iterative process, with an annual review and revision cycle to accommodate the addition or deletion of wells from the ground water monitoring network. Any changes to the SWGWMPP shall be approved by Ohio EPA prior to implementation by the Respondent.
- j. Once remedial activities are determined to be complete, then Respondent may submit to Ohio EPA for review and approval, a request to amend the SWGWMPP for the RVAAP, or the affected portion

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of the RVAAP, to reduce the monitoring frequency, parameters or other components of the Site-wide ground water monitoring program. If all other environmental investigations and remedial activities at the RVAAP have been completed when three consecutive years of ground water monitoring demonstrate no concentration limit exceedances, then Respondent may submit to Ohio EPA, for review and approval, a request to cease ground water monitoring activities at the RVAAP and to plug and abandon all remaining ground water monitoring wells at the RVAAP.

~~15. Surface Water / Sediment Investigation Program~~

- ~~a. Within 60 days of the effective date of these Orders, Respondent shall submit to Ohio EPA for review, under Section XVI of these Orders, a Work Plan for the Installation-wide Investigation Program for Surface Water and Sediment (IWIPSWs) at the Site. The IWIPSWs Work Plan shall include those tasks necessary to characterize the surface water bodies at the Site, including determining the nature and extent of chemical contamination and its affect on the biological communities at the Site. The IWIPSWs Work Plan shall also include tasks necessary to characterize the relationship between surface water and ground water at the Site.~~
- ~~b. Upon Ohio EPA's approval of the IWIPSWs Work Plan, Respondent shall implement the activities in accordance with the Work Plan.~~

16. Plan Amendments

- a. If Respondent or Ohio EPA identifies a need to amend an AOC Work ~~Plan~~, Plan or the SWGWMPP, ~~or the IWIPSWs Work Plan~~, the Respondent or Ohio EPA shall provide written notification within 30 days of the identification of such need and the reasons for such amendment. The notification shall be of sufficient detail to fully explain the rationale for an amendment of the approved plan, including an accounting of the circumstances that justify a plan amendment. If sufficient information on the proposed amendment is not currently available to the Respondent in order to submit an amended plan within the timeframes set out below, the Respondent in its written notification, may propose an alternative schedule for submitting the amended plan that addresses the proposed amendment.
- ~~b. Ohio EPA agrees to consider, in its review, all reasons provided by the Respondent in its proposal to amend an approved plan.~~
- ~~e.b.~~ The Respondent shall submit an amended plan: (i) within sixty (60) days from the date of the written notification to address a proposed extension of a milestone; (ii) within ninety (90) days from the date of the written notification to address a proposed change in a target date, or any other aspect of an approved plan; and (iii) annually, if appropriate as part of the budget consultation process.
- ~~e.c.~~ If the Respondent disagrees with an Ohio EPA notification of the need to amend an approved plan, the Respondent shall, within thirty (30) days, notify Ohio EPA in writing of the reasons for such

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disagreement. If the Respondent and Ohio EPA are unable to resolve their disagreement, either the Respondent or Ohio EPA may invoke the dispute resolution procedure, Section XVIII. During the pendency of such dispute resolution process, the time period for completion of work affected by the dispute shall be extended for a period not to exceed the actual time taken to resolve any such dispute.

e.d. Ohio EPA will, in a timely manner, provide written notification to Respondent of Ohio EPA's approval, approval with modifications, or disapproval of a proposed amended plan.

f.e. Prior to approving with modifications or disapproving a proposed amendment to an approved plan, Ohio EPA will consult with the Respondent regarding the proposed amendment. The Respondent and Ohio EPA shall attempt to resolve any disagreement with respect to a proposed amendment pursuant to the provisions of Section XVIII, Dispute Resolution. Determinations by Ohio EPA to approve with modifications or to disapprove a proposed amendment will be accompanied by a written statement detailing the reasons for modifications or disapproval.

VIII. SCHEDULE ANDIX. EXTENSIONS

~~17. Milestones and Target Dates. Milestones shall be established for a one (1) year period consisting of the current federal fiscal year (FY). On the effective date of these Orders, enforceable milestones shall be established for the current federal fiscal year (FY 2002), and non-enforceable target dates shall be established for future federal fiscal years (e.g., FY+1, FY + 2). After expiration of the current fiscal year, what were previously FY +1 target dates shall become the current fiscal year (FY) milestones, and what were previously FY+2 target dates shall become FY+1 target dates. All conversions shall be automatic and remain in effect, unless Respondent notifies Ohio EPA of any need to amend the milestones or target dates.~~

~~18. Milestones and target dates shall be identified in the IAP, Appendix E, Extensions. Except as expressly provided in these Orders, the Respondent shall cause all work to be performed in accordance with the milestones established in the IAP. Respondent ~~may~~will request that a milestone be extended within thirty (30) days of determining that work will not be performed in accordance with an established milestone. Any request for extension by the Respondent shall specify:~~

- ~~(i) The milestone that is sought to be extended;~~
- ~~(ii) The length of the extension requested;~~
- ~~(iii) The cause(s) for the extension; and~~
- ~~(iv) Any related milestones or target date that would be affected if the extension were granted..~~

Upon receipt of a proposed amendment to the approved plan that requires that a milestone be extended, Ohio EPA will determine whether good cause for the requested milestone extension

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exists, and shall approve the proposed amendment if good cause for the requested milestone extension exists.

- a. Good cause for an extension of a milestone may include a delay caused by, or likely to be caused by: (i) an event of unavoidable delay; (ii) Ohio EPA's failure to timely take any action contemplated by these Orders; (iii) the good faith invocation of dispute resolution or the initiation of administrative or judicial action; (iv) Ohio EPA's approval of a proposed plan amendment to extend another milestone; (v) additional work agreed to by the Respondent and Ohio EPA; (vi) an inconsistency or conflict between such milestone and the requirements of any other existing agreement, order or permit to which the Respondent is a party.
- b. Ohio EPA's determination of whether good cause for an extension of a milestone exists is necessarily a fact specific determination. The foregoing examples of circumstances that may constitute good cause for extension of a milestone shall not be construed to create a presumption that such circumstances will, in any particular instance, be determined by Ohio EPA to constitute good cause for extension of a milestone.
- c. Prior to disapproving a requested extension of a milestone, Ohio EPA will consult with the Respondent regarding disapproval of the milestone extension. The Respondent and Ohio EPA shall attempt to resolve any disagreement with respect to a requested extension, pursuant to the provisions of Section XVIII, Dispute Resolution. A determination by Ohio EPA to disapprove the extension of a milestone will be accompanied by a written statement detailing the reasons for the disapproval.

~~19. In accordance with Section XVII, Funding, Ohio EPA will consider funding availability in reviewing Respondent's proposals for establishing and adjusting milestones and target dates pursuant to these Orders. In March of 2003, and every year thereafter, as appropriate, unless Respondent and Ohio EPA agree that no amendment of the IAP schedule is warranted, Respondent and Ohio EPA shall conduct a good faith dialogue to determine whether the schedule and funding structure of these Orders should be modified. Such dialogue shall consider the experiences and perspectives of Respondent and Ohio EPA regarding the implementation of the IAP schedule during the previous federal fiscal year, and the most recent information on current and projected funding availability. If Respondent and Ohio EPA agree that amendment of the IAP schedule is warranted, Respondent and Ohio EPA shall complete and implement such amendments within six (6) months of the initiation of such dialogue. Subject to Paragraph 16 of this Section, if the Respondent and Ohio EPA disagree as to whether amendment of the IAP schedule is warranted, or regarding the extent to which the schedule should be modified, either Respondent or Ohio EPA may invoke Section XVIII, Dispute Resolution, to facilitate a resolution of the disagreement.~~

~~{reserved for consideration of the one year "grace period" concept}~~

IX. ADDITIONAL WORK

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~~20.18.~~ Ohio EPA or Respondent may determine that, in addition to the tasks defined in the approved Work Plan, additional work may be necessary to accomplish the objectives of the Parties as set forth in Paragraph 7 of these ~~Orders.~~

~~Orders. If Ohio EPA determines that additional work is required, Ohio EPA will provide written notice explaining the basis for the determination and the scope of the additional work.~~

~~21. Within ten (10)19.~~ ~~Within sixty ten (60)~~ days of receipt of written notice from Ohio EPA that additional work is necessary, Respondent shall submit a work plan for the performance of the additional work.

The work plan shall conform with the standards and requirements set forth in Paragraph 11.b. of these Orders.

Upon approval of the work plan by Ohio EPA pursuant to Section XVI, Review of Submittals, Respondents shall implement the work plan for additional work in accordance with the schedules contained therein.

~~22. In the event that Respondent determines that additional work is necessary, Respondent shall submit a work plan for the performance of additional work. The work plan shall conform with the standards and requirements set forth in Paragraph 11.b. of these Orders. Upon approval of the work plan by Ohio EPA pursuant to Section XVI, Review of Submittals, Respondent shall implement the work plan for additional work in accordance with the schedules contained therein.~~

XI. AOC CLOSEOUT

~~23.21.~~ Following the completion of an AOC-specific remedial investigation and feasibility study, that concludes that further investigation or remediation of the AOC is not necessary, the Respondent shall submit a Record of Decision (ROD) to Ohio EPA for review, indicating no further action is warranted. The ROD shall be developed in conformance with CERCLA and the guidance documents listed in Appendix B of these Orders, and shall contain all necessary data and information to support Respondent's decision that no further action is warranted. Ohio EPA will review Respondent's ROD pursuant to Section XVI, Review of Submittals.

If Ohio EPA, through its Office of Federal Facilities Oversight ("OFFO"), concurs in writing with Respondent's decision, then that particular AOC may be deleted from Appendix A of these Orders.

~~24.22.~~ Following remediation of an AOC pursuant to these Orders, including any required Operation and Maintenance, the Respondent may submit an AOC-specific Close Out Report to Ohio EPA for review. The Close Out Report shall be developed in conformance with CERCLA and the guidance documents listed in Appendix B of these Orders, and shall contain all necessary data and information to support Respondent's decision that the remedy is complete and that the remedial action objectives and performance standards included within the Site's ROD have been met, warranting no further action. Ohio EPA will review the Close Out Report pursuant to Section XVI, Review of Submittals. If Ohio EPA concurs with Respondent's position, then that particular AOC may be deleted from Appendix A of these Orders.

XII. SAMPLING AND DATA AVAILABILITY

~~25.23.~~ Respondent shall notify Ohio EPA not less than fifteen (15) days in advance of all sample collection activity. Upon request, Respondent shall allow split and/or duplicate samples to be taken by Ohio EPA. Ohio

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EPA shall also have the right to take any additional samples it deems necessary. Upon request, Ohio EPA will allow Respondent to take split and/or duplicate samples of any samples Ohio EPA takes as part of its oversight of Respondent's implementation of the Work.

~~26.~~ ~~Within seven (7)~~^{24.} ~~Within seven (14)~~ days of a request by Ohio EPA, Respondent shall submit copies to Ohio EPA of ~~the results of all sampling and/or tests or other data, including raw~~validated data and original laboratory reports, generated by or on behalf of Respondent with respect to the Site and/or the implementation of these Orders. Respondent may submit to Ohio EPA any interpretive reports and written explanations concerning the raw data and original laboratory reports. Such interpretive reports and written explanations shall not be submitted in lieu of original laboratory reports and raw data. Should Respondent subsequently discover an error in any report or raw data, Respondent shall promptly notify Ohio EPA of such discovery and provide the correct information.

XIII. ACCESS

~~27.~~^{25.} Ohio EPA shall have access to the Site and any other property to which access is required for the implementation of these Orders, to the extent access to the property is controlled by Respondent. Access under these Orders shall be for the purposes of conducting any activity related to these Orders including, but not limited to the following: **[reserved: for discussion of Federal security issues]**

- a. Monitoring the Work;
- b. Conducting sampling;
- c. Inspecting and copying records, operating logs, technical aspects of contracts, and/or other documents related to the implementation of these Orders;
- d. Conducting investigations and tests related to the implementation of these Orders; and
- e. Verifying any data and/or other information submitted to Ohio EPA.

~~28.~~^{26.} To the extent that the Site or any other property to which access is required for the implementation of these Orders is owned or controlled by persons other than Respondent, Respondent shall use its best efforts to secure from such persons access for Respondent and Ohio EPA as necessary to effectuate these ~~Orders.~~ Copies of all access agreements~~Orders, provided that access is permitted obtained by Respondent shall be provided promptly to Ohio EPA. If any access required to effectuate these Orders is not obtained within thirty (30) days of the effective date of these Orders, or within thirty (30) days of the date Ohio EPA notifies Respondent in writing that additional access beyond that previously secured is necessary, Respondent shall promptly notify Ohio EPA in writing of the steps Respondent has taken to attempt to obtain access. Ohio EPA may, as it deems appropriate, assist Respondent in obtaining access under the current security requirements and can be accommodated by current military operations at RVAAP. If access cannot be granted at the time of the request, Ohio EPA will be notified within thirty (30) days when access may be granted.~~

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~~29.27.~~ Notwithstanding any provision of these Orders, the State of Ohio retains all of its access rights and authorities, including enforcement authorities related thereto, under any applicable statute or regulation.

XIII.XVI. PROJECT MANAGERS

~~30.28.~~ The Ohio EPA Project Managers for the Site are Eileen Mohr and Todd Fisher. The Respondent's Project Manager is ~~name~~ Mark Patterson. If a designated Project Manager is changed, the identity of the successor will be given to the other Party at least ten (10) days before the changes occur, unless impracticable, but in no event later than the actual day the change is made.

~~31.29.~~ To the maximum extent practicable, except as specifically provided in these Orders, communications between Respondent and Ohio EPA concerning the implementation of these Orders at a particular AOC shall be made between the Project Managers. Respondent's Project Manager shall be available for communication with Ohio EPA regarding the implementation of these Orders for the duration of these Orders. Each Project Manager shall be responsible for assuring that all communications from the other Party are appropriately disseminated and processed. Respondent's Project Manager or alternate shall be present on the Site or on call during all hours of work at the Site.

~~32.30.~~ Without limitation of any authority conferred on Ohio EPA by statute or regulation, Ohio EPA Project Manager's authority includes, but is not limited to the following:

- a. Taking samples and directing the type, quantity and location of samples to be taken by Respondent pursuant to an approved work plan;
- b. Observing, taking photographs, or otherwise recording information related to the implementation of these Orders, including the use of any mechanical or photographic device;
- c. Directing that the Work stop whenever the Project Manager for Ohio EPA determines that the activities at the Site may create or exacerbate a threat to public health or safety, or threaten to cause or contribute to air or water pollution or soil contamination;
- d. Conducting investigations and tests related to the implementation of these Orders;
- e. Inspecting and copying records, operating logs, contracts and/or other documents related to the implementation of these Orders; and
- f. Assessing Respondent's compliance with these Orders.

XIV. PROGRESS REPORTS

~~33.31.~~ Unless otherwise directed by Ohio EPA, Respondent shall submit a written progress report for every month to Ohio EPA by the tenth (10th) day of the following month. At a minimum, the progress reports shall:

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- a. Describe the status of all projects being implemented under these Orders and actions taken toward achieving compliance with the Orders during the reporting period;
- b. Describe difficulties encountered during the reporting period and actions taken to rectify any difficulties;
- c. Describe activities planned for the following month;
- d. Identify changes in key personnel;
- e. List target and actual completion dates for each element of activity, including project completion;
- f. Provide an explanation for any deviation from any applicable schedules; and
- g. Indicate how much contaminated soil was removed and contaminated groundwater was pumped and indicate where such contaminated media were disposed of.

34.32. Respondent's progress reports (one copy) shall be submitted to Ohio EPA's RVAAP Project Manager at the following address: Ohio EPA, Northeast District Office, 2110 East Aurora Road, Twinsburg, Ohio 44087, ATTN: Eileen Mohr.

IX XVI. NOTICE

35.33. All documents required to be submitted pursuant to these Orders shall be submitted to the following persons at the following addresses:

Ohio EPA:

Ohio Environmental Protection Agency
Northeast District Office
Attn: RVAAP Project Manager
2110 East Aurora Road
Twinsburg, OH 44087

RVAAP:

U.S. ARMY Ravenna Army Ammunition Plant
Attn: Environmental Program Manager
8451 State Route 5
Ravenna, Ohio 44244-9297

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or to such persons and addresses as may hereafter be otherwise specified in writing. For technical reports and other documents that are submitted to Ohio EPA for review, comment, approval or other action, three copies of such documents shall be submitted to Ohio EPA.

XVII. REVIEW OF SUBMITTALS

~~36.34.~~ Ohio EPA will review any work plan, report, or other item required to be submitted pursuant to these Orders (“submission”) within 45 days from the date of actual receipt of such submission by the Project Manager. This time limitation may be extended by mutual written agreement of the Project Managers. Upon review, Ohio EPA may in its sole discretion: (a) approve the submission in whole or in part; (b) approve the submission upon specified conditions; (c) modify the submission; (d) disapprove the submission in whole or in part, notifying Respondent of deficiencies; or (e) any combination of the above.

~~37.35.~~ In the event of Ohio EPA’s approval, conditional approval, or modification of Respondent’s submission, Respondent shall proceed to take any action required by the submission as approved, conditionally approved, or modified by Ohio EPA.

~~EPA. If Respondent contests any conditional approvals or modifications by Ohio EPA, Respondent shall initiate the procedures for dispute resolution set forth in Section XVIII, Dispute Resolution.~~

~~38.36.~~ In the event that Ohio EPA disapproves a submission, in whole or in part, and notifies Respondent of the deficiencies, Respondent shall, within sixty (60) days or such longer period of time as specified by Ohio EPA in writing, correct the deficiencies and submit a revised document to Ohio EPA for approval. The revised submission shall incorporate all of the uncontested changes, additions, and/or deletions specified by Ohio EPA in its notice of deficiency. To the extent that Respondent contests any changes, additions, and/or deletions specified by Ohio EPA, Respondent shall initiate the procedures for dispute resolution set forth in Section XVIII, Dispute Resolution.

~~39.37.~~ Subsequent to the close of the comment period on a document, the Respondent may request a meeting with Ohio EPA to discuss and clarify comments. Except as agreed to by the Parties, the meeting shall commence within ~~fifteen (15)~~thirty (30) days of the close of the comment period.

~~40.38.~~ In the event that Ohio EPA disapproves a revised submission, in whole or in part, Ohio EPA may again require Respondent to correct the deficiencies and incorporate all changes, additions, and/or deletions within ~~fourteen (14)~~thirty (30) days, or such period of time as specified by Ohio EPA.

~~41.39.~~ All work plans, reports, or other items required to be submitted to Ohio EPA under these Orders shall, upon approval by Ohio EPA, be deemed to be incorporated in and made an enforceable part of these Orders. In the event that Ohio EPA approves a portion of a work plan, report, or other item, the approved portion shall be deemed to be incorporated in and made an enforceable part of these Orders.

XVIII. FUNDING

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~~42.40.~~ Respondent shall take all necessary steps to obtain sufficient funding to comply with these Orders. Respondent shall consult with Ohio EPA in formulating its annual Installation Restoration Plan (IRP) budget request as set forth in this section.

~~43. — Within thirty (30) days after issuance of these Orders and thereafter by July 31 of each year following the issuance of these Orders, as part of the modification of the Installation Action Plan for the RVAAP, 41. — During the IAP Workshop~~ Respondent shall provide Ohio EPA with a briefing on the proposed Army budget request for the RVAAP, and the scope of work proposed for the RVAAP, including modifications to the scope of work, schedules, and funding levels.

~~44. —~~ Respondent and Ohio EPA shall discuss work scope, priorities, milestones and target dates, and funding levels required to comply with the Installation Action Plan for the RVAAP and these Orders. These discussions shall be conducted before the Respondent submits its annual budget request and supporting information to ~~Army Operations Support Command~~ the Army Hampton Roads BRAC/Excess Property Field Office. Ohio EPA will consider funding availability in reviewing the Respondent's proposals for establishing and adjusting milestones and target dates pursuant to these Orders. Ohio EPA's comments to the Respondent may include those additional or accelerated activities recommended by Ohio EPA that are believed by Ohio EPA to be outside of environmental cleanup target funding levels for the RVAAP. The Respondent may revise its budget request and supporting documents to resolve the comments of Ohio EPA. The Respondent reserves the right to identify which activities it believes cannot be accomplished within the established target funding levels for the RVAAP. Nothing herein shall affect the Respondent's ultimate responsibility and authority to formulate and submit to the President appropriate budget requests and to allocate appropriate funds to serve the Respondent's missions.

42. Milestones and Target Dates. Milestones shall be established for a one (1) year rolling period consisting of the current federal fiscal year (FY). On the effective date of these these Orders, enforceable milestones shall be established for the current federal fiscal year (FY 2002), and non enforceable target dates shall be established for future federal fiscal years (e.g., FY+1, FY + 2). In accordance with Section 16 above, the Respondent and Ohio EPA will establish the next year's milestones during the IAP Workshop. The goal is that what were previously FY +1 target dates shall become the current fiscal year (FY) milestones, and what was were previously FY+2 target dates will shall become FY+1 target dates. However, milestones and target dates may be adjusted in accordance with Section 45.

43. During the annual IAP Workshop Respondent and Ohio EPA shall conduct a good faith dialogue to determine whether the schedule and funding structure of these Orders should be modified. Such dialogue shall consider the experiences and perspectives of Respondent and Ohio EPA regarding the implementation of the IAP schedule during the previous federal fiscal year, and the most recent information on current and projected funding availability. If Respondent and Ohio EPA agree that amendment of the IAP milestones and target dates is warranted, Respondent and Ohio EPA shall complete and implement such amendments within six (6) months of the initiation of such dialogue. If the Respondent and Ohio EPA disagree regarding amendment of the IAP milestones, the Respondent shall be granted a 12 month extension of any disputed milestone dates. After the extension, any future requests for an additional extension of the milestone date will be obtained in

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accordance with Section _____ below. Unless otherwise agreed by the Ohio EPA, the 12 month extension may only be invoked once every three years. If the Respondent and Ohio EPA disagree regarding the amendment of a target date, either Respondent or Ohio EPA may invoke Section XVIII, Dispute Resolution, to facilitate a resolution of the disagreement.

44. It is the Respondent's position that any requirement for payment of obligation of funds by the Army established by the terms of these Orders shall be subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S. Code 1341. The Ohio EPA reserves the right to dispute the applicability of the Anti-Deficiency Act to the obligations set forth in these Orders. The Parties agree that it is premature to resolve the validity of such positions at this time. However, noncompliance with the requirements of these Orders, whether or not the result of inadequate funding, may, at the sole discretion of the Director of Ohio EPA, result in the revocation of the exemption provided herein. The Parties agree that the exemption shall not be revoked without at least thirty (30) days prior written notice to the Respondent and is subject to the Dispute Resolution provisions set forth in Section XVIII.

XVIII.XIX. DISPUTE RESOLUTION

45. The Project Managers shall, whenever possible, operate by consensus. In the event consensus cannot be reached, the dispute resolution procedure set forth in the DSMOA (Appendix D to these Orders) shall be implemented.

46. ~~The pendency of a dispute under this Section shall not affect~~46. During the pendency of the ~~such~~ dispute resolution process, the time period for completion of work affected by the dispute shall be extended for a period not to exceed the actual time taken to resolve any ~~such~~ dispute. the Work, except that upon mutual agreement of the Parties, any time period may be extended as appropriate under the circumstances. Such agreement will not be unreasonably withheld by Ohio EPA. ~~Elements~~ Elements of the Work not affected by the dispute shall be completed in accordance with applicable schedules and time frames. The opportunity to invoke dispute resolution under this Section shall ~~not~~ be available to Respondent unless otherwise expressly stated with respect to a specific provision of regarding any disputes arising under these Orders.

XIX. UNAVOIDABLE DELAYS

47. Respondent shall cause all Work to be performed in accordance with applicable schedules and time frames unless any such performance is prevented or delayed by an event which constitutes an unavoidable delay. For purposes of these Orders, an "unavoidable delay" shall mean an event beyond the control of Respondent which prevents or delays performance of any obligation required by these Orders and which could not be overcome by due diligence on the part of Respondent. Increased cost of compliance shall not be considered an event beyond the control of Respondent.

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~~48. Respondent shall notify Ohio EPA in writing within five (5) days after the occurrence of an event which Respondent contends is an unavoidable delay. Such written notification shall describe the anticipated length of the delay, the cause or causes of the delay, the measures taken and to be taken by Respondent to minimize the delay, and the timetable under which these measures will be implemented. Respondent shall have the burden of demonstrating that the event constitutes an unavoidable delay.~~

~~49. If Ohio EPA does not agree that the delay has been caused by an unavoidable delay, Ohio EPA will notify the Respondent in writing. If Ohio EPA agrees that the delay is attributable to an unavoidable delay, Ohio EPA will notify Respondent in writing of the length of the extension for the performance of the obligations affected by the unavoidable delay.~~

XX. REIMBURSEMENT OF COSTS

~~50.47.~~ Ohio EPA has incurred and continues to incur Response Costs in connection with the Site. Respondent shall reimburse Ohio EPA for all Response Costs incurred both prior to and after the effective date of these Orders.

~~51.48.~~ All costs incurred by Ohio EPA under these Orders shall be reimbursed in accordance with the procedures set forth in the DSMOA (Appendix D).

~~52.49.~~ Respondent shall not be required to reimburse Ohio EPA under these Orders for any formal enforcement activities that may be taken by Ohio EPA, i.e., notices of violation, administrative enforcement orders, and litigation by Ohio EPA to seek sanctions against Respondent for violations of state law or regulations. However, Ohio EPA regulatory and compliance assurance activities at the Site, including permitting to the extent required by law (including CERCLA Section 121(e)) and inspection activities, shall be reimbursable services.

XIII. PROTECTION OF NATURAL RESOURCE DAMAGE

~~During remediation activities at the RVAAP, the facility will direct concerted effort toward the protection and preservation of the indigenous natural resources at the RVAAP location. These environmental protection efforts will include a basic review of natural source preservation during the development and study of each project and the subsequent remediation exercise. Full consideration will be given to protecting the existing natural conditions of each project area while taking into consideration the planned future use of each specific location within the facility. [reserved for discussion]~~

XXI. RESERVATION OF RIGHTS

~~53.50.~~ Ohio EPA reserves the right to seek legal and/or equitable relief to enforce the terms and conditions of these Orders, including penalties against Respondent for noncompliance with these Orders. Except

*Excluded by should cite statute
provision to
exhaust dispute
resolution*

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as provided herein, Respondent reserves any rights it may have to raise any legal or equitable defense in any action brought by Ohio EPA to enforce the terms and conditions of these Orders.

~~54.51.~~ Nothing contained herein shall be construed to prevent Ohio EPA from exercising its lawful authority to require the Respondent to perform additional activities at the RVAAP, pursuant to ORC Chapter 3734 or 6111 or any other applicable law in the future. Nothing contained herein shall restrict the right of the Respondent to seek administrative or judicial review, or raise any administrative, legal or equitable claim or defense with respect to such further actions which Ohio EPA may seek to require of the Respondent.

~~55.52.~~ The Director reserves the right to revoke these Orders pursuant to Section XXIII, Revocation, or under applicable law, and reserves the right to terminate these Orders pursuant to Section XXIX, Termination, or under applicable law.

~~56.53.~~ Ohio EPA reserves the right to take any action, including but not limited to any enforcement action, action to recover costs, or action to recover damages to natural resources, pursuant to any available legal authority as a result of past, present, or future violations of state or federal laws or regulations or the common law, or as a result of events or conditions arising from, or related to, the Site. Upon termination of these Orders pursuant to Section XXIX, Termination, Respondent shall have resolved its liability to Ohio EPA only for the Work performed pursuant to these Orders.

~~57. — It is the position of Ohio EPA that the federal Anti-Deficiency Act, as codified at 31 U.S.C. § 1341, as amended, does not apply to any obligations set forth in these Orders, and except as otherwise provided in these Orders, obligations hereunder are unaffected by Respondent's failure to obtain adequate funds or appropriations from Congress. It is Respondent's position that the obligations set forth in these Orders are subject to the Anti-Deficiency Act, as codified at 31 U.S.C. § 1341, and the availability of adequate funds or appropriations from Congress. The Parties agree that it is premature to raise and resolve the validity of such positions at this time. However, noncompliance with the requirements of these Orders, whether or not the result of inadequate funding, may, at the sole discretion of the Director of Ohio EPA, result in the revocation of the exemption provided herein. The Parties agree that the exemption shall not be revoked without at least thirty (30) days prior written notice to the Respondent.~~

XXII. ACCESS TO INFORMATION

~~58.54.~~ Respondent shall provide to Ohio EPA, upon request, copies of all documents and information within its possession or control or that of its contractors or agents relating to events or conditions at the Site including, but not limited to manifests, reports, correspondence, or other documents or information related to the Work.

~~59.55.~~ Respondent may assert a claim that documents or other information submitted to Ohio EPA pursuant to these Orders is confidential under the provisions of OAC rule 3745-50-30(A) or ORC § 6111.05(A). If no such claim of confidentiality accompanies the documents or other information when such information is submitted to Ohio EPA, it may be made available to the public by Ohio EPA without notice to Respondent.

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~~60.56.~~ Respondent may assert that certain documents or other information are privileged or confidential under any privilege or confidentiality provision recognized by state or Federal law. If Respondent makes such an assertion, it shall provide Ohio EPA with the following: (1) the title of the document or information; (2) the date of the document or information; (3) the name and title of the author of the document or information; (4) the name and title of each addressee and recipient; (5) a general description of the contents of the document or information; and (6) the privilege or confidentiality provision being asserted by Respondent.

~~61.57.~~ No claim of confidentiality shall be made with respect to any data, including but not limited to, all sampling, analytical monitoring, or laboratory or interpretive reports.

~~62.58.~~ Respondent shall preserve for the duration of these Orders and for a minimum of ~~ten (10)~~seven (7) years after termination of these Orders, all documents and other information within its possession or control, or within the possession or control of its contractors or agents, which in any way relate to the Work, notwithstanding any document retention policy to the contrary. Respondent may preserve such documents by microfiche, or other electronic or photographic device. At the conclusion of this document retention period, Respondent shall notify Ohio EPA at least sixty (60) days prior to the destruction of these documents or other information; and upon request, shall deliver such documents and other information to Ohio EPA.

XXIII. OTHER CONTRACTS

~~63.59.~~ Ohio EPA shall not be considered a party to and shall not be held liable under any contract entered into by Respondent in carrying out the activities pursuant to these Orders.

XXIV. OTHER CLAIMS

~~64.60.~~ Nothing in these Orders shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership or corporation, not a Party to these Orders, for any liability arising from, or related to, the operation of the RVAAP or events or conditions at the Site.

XXV. OTHER APPLICABLE LAWS

~~65.61.~~ All actions required to be taken pursuant to these Orders shall be undertaken in accordance with the requirements of all applicable local, state and federal laws and regulations. These Orders do not waive or compromise the applicability and enforcement of any other statutes or regulations applicable to Respondent.

XXVI. WAIVER

~~66.62.~~ The Respondent agrees that these Orders are lawful and reasonable, that the times provided for compliance herein are reasonable and that the Respondent agrees to comply with these Orders. The Respondent, by acceptance of these Orders, agrees to comply with these Orders and acknowledges that the Respondent's failure to do so may result in immediate revocation of these Orders and further legal action by

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Ohio EPA. The Respondent hereby waives the right to appeal the issuance, terms and conditions, and service of these Orders, and it hereby waives any and all rights it might have, either in law or equity, to seek administrative or judicial review of these Orders.

~~67.63.~~ Notwithstanding the preceding, the Ohio EPA and the Respondent agree that, in the event that these Orders are appealed by any other party to the Environmental Review Appeals Commission or any court, the Respondent retains the right to intervene and participate in such appeal in support of these Orders. In such event, the Respondent shall continue to comply with these Orders, notwithstanding such appeal and intervention, unless these Orders are stayed, modified or vacated.

XXVII. MODIFICATION

~~68.64.~~ Except as provided in Section XXI, Reservation of Rights, these Orders may be modified only by agreement of the Parties. Any modification of these Orders shall be in writing, and shall be effective on the date entered in the journal of the Director of Ohio EPA.

~~69.~~ *Provision to address how mods will be handled if RVAAP transferred*
~~In February of 2005, and periodically (e.g., every three (3) years) thereafter, as appropriate, unless the Respondent and Ohio EPA mutually agree that no modification of these Orders is warranted, the Respondent and Ohio EPA shall conduct a good faith dialogue to determine whether the compliance schedule and funding structure of these Orders should be modified. Such dialogue shall consider the experiences and perspectives of the Respondent and Ohio EPA regarding the implementation of these Orders during the previous three federal fiscal years, the most recent information on current and projected funding availability, and the status of major technical issues that are expected to affect the management of the RVAAP's remediation activities. If the Respondent and Ohio EPA agree that modification of these Orders is warranted, the Respondent and Ohio EPA shall endeavor to complete and implement such modifications within six (6) months of the initiation of such dialogue. Subject to the first paragraph of this Section, if the Respondent and Ohio EPA disagree as to whether modification of these Orders is warranted, or regarding the extent to which these Orders should be modified, either the Respondent or Ohio EPA may invoke formal dispute resolution, pursuant to Section XVIII of these Orders.~~

XXVIII. REVOCATION

~~70.65.~~ The Director of Ohio EPA may revoke these Orders at any time upon ninety (90) days written notice to Respondent. Written notice of revocation will be sent, by certified mail or equivalent method that bears a return receipt, to the Program Manager designated pursuant to Section XII of these Orders. The notice of revocation will state the reason for revocation, and is subject to Section XVIII, Dispute Resolution. Revocation shall not affect the terms and conditions of Section XXI, Reservation of Rights, Section XXII, Access to Information, Section XXIII, Other Contracts and Section XXIV, Other ~~Claims.~~

Claims. In the event of revocation of these Orders, the Ohio EPA reserves the right to take any action, including but not limited to any enforcement action pursuant to any available legal authority to require compliance or remediation of RVAAP in accordance with state or federal laws or regulations.

XXIX. TERMINATION

71.66. Respondent's obligations under these Orders shall terminate when Respondent certifies in writing and demonstrates to the satisfaction of Ohio EPA that Respondent has performed all obligations under these Orders, including the payment of Response Costs, and the Chief of Ohio EPA's Office of Federal Facilities Oversight acknowledges, in writing, the termination of these Orders. If Ohio EPA does not agree that all obligations have been performed, then Ohio EPA will notify Respondent of the obligations that have not been performed, in which case Respondent shall have an opportunity to address any such deficiencies and seek termination as described above.

72.67. The certification shall contain the following attestation: "I certify that the information contained in or accompanying this certification is true, accurate and complete." This certification shall be submitted to Ohio EPA by Respondent and shall be signed by an authorized official of Respondent.

73.68. The termination of these Orders shall not affect the terms and conditions of Section XXI, Reservation of Rights, Section XXII, Access to Information, Section XXIII, Other Contracts, and Section XXIV, Other Claims.

XXX. EFFECTIVE DATE

74.69. The effective date of these Orders is the date these Orders are entered into the Journal of the Director of Ohio EPA.

XXXI. SIGNATORY AUTHORITY

75.70. Each undersigned representative of a Party to these Orders certifies that he or she is fully authorized to enter into these Orders and to legally bind such Party to these Orders.

IT IS SO ORDERED AND AGREED:

Ohio Environmental Protection Agency

Christopher Jones
Director

Date

IT IS SO AGREED:

United States Department of the Army, Ravenna Army Ammunition Plant

Signature

Printed or Typed Name

Title: Commanding Officer's Representative

Date

**Appendix A
Areas of Concern**

RVAAP-01	Ramsdell Quarry Landfill
RVAAP-02	Erie Burning Grounds
RVAAP-03	Demolition Area #1
RVAAP-04	Open Detonation Area #2
RVAAP-05	Winklepeck Burning Grounds (including Deactivation Furnace)
RVAAP-06	C-Block Quarry
RVAAP-08	Load Line 1 and Settling Pond
RVAAP-09	Load Line 2 and Settling Pond
RVAAP-10	Load Line 3 and Settling Pond
RVAAP-11	Load Line 4 and Settling Pond
RVAAP-12	Load Line 12 and Settling Pond
RVAAP-13	Building 1200 and Settling Pond
RVAAP-15	Load Line 6 Treatment Plant
RVAAP-16	Quarry Landfill /Former Fuze and Booster Burning Pits
RVAAP-18	Load Line 12 Treatment Plant
RVAAP-19	Landfill North of Winklepeck
RVAAP-26	Fuze and Booster Area Settling Tanks
RVAAP-28	Mustard Agent Burial Site
RVAAP-29	Upper and Lower Cobbs Pond
RVAAP-30	Load Line 7 Pink Water Treatment Plant
RVAAP-32	40- and 60- mm Firing Range
RVAAP-33	Firestone Test Facility
RVAAP-34	Sand Creek Disposal Road Landfill
RVAAP-35	Building 1037-Laundry Wastewater Sump
RVAAP-36	Pistol Range
RVAAP-37	Pesticide Building S-4452
RVAAP-38	NACA Test Area
RVAAP-39	Load Line 5 Fuze Line 1
RVAAP-40	Load Line 7 Booster Line 1
RVAAP-41	Load Line 8 Booster Line 2
RVAAP-42	Load Line 9 Detonator Line
RVAAP-43	Load Line 10 Percussion Element
RVAAP-44	Load Line 11 Artillery Primer
RVAAP-45	Wet Storage Area
RVAAP-46	Buildings F-15 and F-16
RVAAP-47	Building T-5301
RVAAP-48	Anchor Test Area
RVAAP-49	Central Burn Pits
RVAAP-50	Atlas Scrap Yard
RVAAP-51	Dump Along Paris-Windham Road

Appendix C

RVAAP Document Compendium

- i. (November 1978), "Installation Assessment of Ravenna Army Ammunition Plant. Report 132;
- ii. (November 1983), "Hazardous Waste Management Study No. 37-26-0442-84: Phase 2 of AMC Open Burning/Open Detonation Groundwater Evaluation, Ravenna Army Ammunition Plant, Ravenna, Ohio;
- iii. (October 1989), "Ravenna Army Ammunition Plant, Ravenna, Ohio. RCRA Facility Assessment Draft RR/VSI Report;
- iv. Final (February, 1996). "Facility-Wide Safety and Health Plan for the Ravenna Army Ammunition Plant, Ravenna, Ohio";
- v. Final (February, 1996), "Preliminary Assessment for the Characterization of Areas of Contamination, Ravenna Army Ammunition Plant, Ravenna, Ohio";
- vi. Final (March, 1996); "Action Plan for the Ravenna Army Ammunition Plant, Ravenna, Ohio";
- vii. (July 1996), "Phase I Remedial Investigation Sampling and Analyses Plan Addendum for High Priority Areas of Concern for the Ravenna Army Ammunition Plant, Ravenna, Ohio";
- viii. (July 1996), "Phase I Remedial Investigation Site Safety Addendum for High Priority Areas of Concern for the Ravenna Army Ammunition Plant, Ravenna, Ohio";
- ix. Final (April, 1996), "Facility-Wide Sampling and Analysis Plan for the Ravenna Army Ammunition Plant, Ravenna, Ohio";
- x. Final (July, 1996), "Phase I Remedial Investigation Sampling and Analysis Plan, Addendum for High Priority Areas of Concern for the Ravenna Army Ammunition Plant, Ravenna, Ohio";
- xi. Final (July, 1996), Phase I Remedial Investigation Site Safety and Health Plan, Addendum for High Priority Areas of Concern for the Ravenna Army Ammunition Plant, Ravenna, Ohio";
- xii. (October-November 1996). "Sampling Plan, Relative Risk Site Evaluation for Ravenna Army Ammunition Plant, Project Number 37-EF-5360-97, Ravenna, Ohio;

~~CONFIDENTIAL~~

REVISED DRAFT DATED 24 JAN 03

Appendix A: Areas of Concern

Appendix __: RVAAP Document Compendium

Appendix __: DSMOA

Appendix __: Installation Action Plan

**BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY**

In the matter of:

United States Department of the Army	:	<u>Director's Final</u>
Ravenna Army Ammunition Plant	:	<u>Findings and Orders</u>
8451 State Route 5	:	
Ravenna, Ohio 44244-9297	:	

Respondent

PREAMBLE

It is agreed by the Parties hereto as follows:

I. JURISDICTION

1. These Director's Final Findings and Orders ("Orders") are issued to the United States Department of the Army ("Army" or "Respondent") pursuant to the authority vested in the Director of Environmental Protection ("Director"), on behalf of the Ohio Environmental Protection Agency ("Ohio EPA"), under Chapters 3734, 3745 and 6111 of the Ohio Revised Code ("ORC").

II. PARTIES BOUND

These Orders shall apply to and be binding upon Respondent and its successors in interest liable under Ohio law. _____ change in ownership or operation of the Ravenna Army Ammunition Plant ("RVAAP") _____, _____ obligations under these Orders _____.

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- b. Observing, taking photographs, or otherwise recording information related to the implementation of these Orders, including the use of any mechanical or photographic device;
- c. Directing that the Work stop whenever the Project Manager for Ohio EPA determines that the activities at the Site may create or exacerbate a threat to public health or safety, or threaten to cause or contribute to air or water pollution or soil contamination;
- d. Conducting investigations and tests related to the implementation of these Orders;
- e. Inspecting and copying records, operating logs, contracts and/or other documents related to the implementation of these Orders; and
- f. Assessing Respondent's compliance with these Orders.

XV. PROGRESS REPORTS

31. Unless otherwise directed by Ohio EPA, Respondent shall submit a written progress report for every month to Ohio EPA by the tenth (10th) day of the following month. At a minimum, the progress reports shall:

- a. Describe the status of all projects being implemented under these Orders and actions taken toward achieving compliance with the Orders during the reporting period;
- b. Describe difficulties encountered during the reporting period and actions taken to rectify any difficulties;
- c. Describe activities planned for the following month;
- d. Identify changes in key personnel;
- e. List target and actual completion dates for each element of activity, including project completion;
- f. Provide an explanation for any deviation from any applicable schedules; and
- g. Indicate how much contaminated soil was removed and contaminated groundwater was pumped and indicate where such contaminated media were disposed of.

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It shall include the basis for well selection and the constituents and frequency of the monitoring program. The SWGWMPP shall include, but not be limited to, the following:

- i. A list of wells proposed for inclusion and maintenance in the Site-Wide ground water monitoring network. This list shall include background wells and wells located downgradient of the AOCs. The number and location of monitoring wells shall be sufficient to allow the detection of hazardous constituents that have migrated from all potential release pathways to the uppermost aquifer from the AOCs based on site-specific hydrogeologic characterization. Upgradient wells shall represent the quality of the background ground water unaffected by any AOC. Downgradient wells shall yield samples representative of the quality of ground water passing the AOCs' unit boundaries.
- ii. Well logs for all of the wells proposed for inclusion in the Site-Wide ground water monitoring network.
- iii. A list of the parameters for which the wells will be sampled. This list shall include Site-specific contaminants of concern and any breakdown products of those contaminants.
- iv. Proposed analytical methods and detection limits for each parameter.
- v. Proposed statistical procedures for determining whether naturally occurring constituents are elevated above background concentrations. Statistical methods shall be in accordance with U.S. EPA's "Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities" (April 1992) and/or ASTM guidance document number D 6312-98 entitled, "Standard Guide for Developing Appropriate Statistical Approaches for Ground Water Detection Monitoring Programs."
- vi. Proposed methods for determining whether contamination is migrating, including sample calculations for the rate of migration.
- v. Sampling and analytical procedures to be employed. These procedures shall be consistent with the procedures in the most current revision of the "Facility Wide Sampling and Analysis Plan" (FWSAP) and Ohio EPA's "Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring," Chapter 10 (February, 1995).

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- Should Respondent identify any inconsistency between _____ and guidance documents _____ which it is required to follow by these Orders. Respondent shall notify Ohio EPA in writing of each inconsistency and the effect of the inconsistencies upon the Work to be performed. Respondent shall also recommend, along with a supportable rationale justifying each recommendation, the requirement Respondent believes should be followed. Respondent shall implement the affected Work as directed by Ohio EPA _____.
- Ohio EPA will review the Work Plans pursuant to the procedures set forth in Section XVI, Review of Submittals. Upon approval of a Work Plan by Ohio EPA, Respondent shall implement the Work Plan. Respondent shall submit all plans, reports, or other deliverables required under the approved Work Plan, in accordance with the approved schedule, for review and approval pursuant to Section XVI, Review of Submittals.
- At the time that the Work Plan is submitted for each activity covered by these Orders, Respondent shall also submit to Ohio EPA for review a health and safety plan developed in conformance with _____. This health and safety plan shall cover all activities being performed under the Work Plan for which it is being issued.
- Respondent shall notify Ohio EPA within seven (7) days of the discovery of any placement or disposal or threatened placement or disposal of contaminants or waste materials at an AOC not listed in Appendix A of these Orders.
- **f.** Within sixty (60) days of the discovery of a _____ AOC, Respondent shall submit a Schedule for conducting a RRSE to Ohio EPA for review pursuant to these Orders. The purpose of such investigation shall be to gather necessary information in order to establish a relative priority for the new AOC compared to previously identified AOCs at the RVAAP. This priority shall then be used to determine when funding will be allocated to complete the Work required by these Orders to address the release or threat of release at or from the new AOC.

15. Site-Wide Ground Water Monitoring Program

- g. a.** Within 60 days of the effective date of these Orders _____, Respondent shall submit to Ohio EPA for review and approval, a schedule to develop and conduct a Site-Wide Ground Water Monitoring Program Plan (SWGWMPP). The SWGWMPP shall be developed in conformance with _____.

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~~a Respondent shall provide a copy of these Orders to all contractors, subcontractors, laboratories and consultants retained to perform any portion of the Work pursuant to these Orders. Respondent shall ensure that all contractors, subcontractors, laboratories and consultants retained to perform Work pursuant to these Orders also comply with the applicable provisions of these Orders.~~

III. PURPOSE

~~3. Pursuant to ORC 3734.02(G) and OAC rule 3745-50-31, the Director may by order exempt any person generating, storing, treating, disposing of or transporting solid or hazardous waste in such quantities or under such circumstances that, in the determination of the Director, are unlikely to adversely affect the public health or safety or the environment, from any requirement to obtain a permit or license or comply with the manifest system or other requirements of Chapter 3734.~~

~~4. The purpose of these Orders is as follows:~~

~~a. To establish an exemption from the requirements to (1) obtain a hazardous waste treatment, storage, and disposal permit, as required by ORC Section 3734.02 (E), prior to operation of Open Detonation Area #2 for storage, treatment, and disposal of the ordnance and explosives wastes and (2) obtain emergency permits for the destruction of ordnance and explosives wastes discovered at RVAAP that can not be safely transported to OD#2 provided, however, that Respondent shall comply with all applicable requirements of ORC chapter 3734 and OAC chapters 3745-50 through 3745-68.~~

~~b. To establish an exemption from the requirement to (1) conduct ground water investigation, monitoring, and remediation activities at OD#2 required by OAC rules 3745-54-90 through 3745-54-99 and 3745-55-011, (2) conduct all groundwater and soil investigation, monitoring, and remediation at the Deactivation Furnace required by OAC rules 3745-54-90 through 3745-54-99 and 3745-55-011, and (3) conduct all ground water monitoring activities at the RQL required by OSC Rule 3745-27-10 provided, however, that Respondent shall comply with the Site-wide CERCLA ground water investigation, monitoring, and remediation program as set forth in the SWGWMPP and AOC Work Plans.~~

~~c. To establish an exemption from the requirement to obtain a solid waste permit ORC § 3734.02 (E) and (G) to conduct the bioremediation of explosive contaminated soils.~~

~~d. To obtain a Federal Facility Air Exemption OAC Rules to conduct CERCLA related restoration activities.~~

~~e. To obtain an exemption from the wastewater treatment rules OAC to allow the onsite treatment of non-hazardous wastewater.~~

~~Pursuant to ORC Section 3734.02(G), the Director has determined that RVAAP investigative, monitoring and remedial activities, the Open Detonation Area #2 hazardous waste activities, and emergency destruction of ordnance and explosives wastes discovered at RVAAP, if conducted in accordance with the requirements of these Orders, are unlikely to adversely affect public health or safety or the environment. In~~

May replace w/ CERCLA rule

~~REVISED DRAFT~~

~~Ohio EPA—12/26/02~~

issuing these Orders, the Director has given consideration to, and based his determination on, evidence relating to the technical feasibility and economic reasonableness of complying with these Orders and to evidence relating to conditions calculated to result from compliance with these Orders, and their relation to benefits to the people of the State to be derived from such compliance.

III.V. DEFINITIONS

IS THE STATE WILLING TO USE THE CERCLA/NCP DEFINITION FOR "CERCLA" TERMS (E.G., ARAR, ETC.)?

6. Unless otherwise stated, all terms used in these Orders or in any of the Appendices attached hereto shall have the same meaning as defined in ORC Chapters 3734 and 6111 and rules promulgated thereunder, and CERCLA and the rules promulgated thereunder, including the NCP. Whenever the following terms are used in these Orders or in any of the Appendices hereto, the following definitions shall apply:

- a. "ARARs" shall mean applicable or relevant and appropriate requirements as those terms are used in CERCLA and the NCP.
- b. "Area of Concern" or "AOC" shall mean an area at the Site at which contaminants or waste materials are known or suspected to be present, requiring investigation or remediation.
- c. "Army" or "Respondent" shall mean the United States Department of the Army Ravenna Army Ammunition Plant.
- d. "CERCLA" shall mean...
- e. "Contaminants" or "waste materials" shall include (1) any "hazardous waste" under ORC § 3734.01(J); (2) any "solid waste" under ORC § 3734.01(E) including any "construction and demolition debris" as defined under ORC § 3714.01(C); (3) any "hazardous substances" as defined in ORC § 3746.01(F) or CERCLA § 101(14); (4) any "industrial waste" under ORC § 6111.01(C); and (5) any "other waste" under ORC § 6111.01(D). By way of example, contaminants may include, but are not limited to, chlorinated solvents, ordnance and explosives, heavy metals, unexploded ordnance, and chemical warfare agents.
- f. "Contractor" shall mean a contractor, retained by the Respondent to perform any portion of the Work pursuant to these Orders, and shall include any subcontractor, representative, agent, employee or designee thereof.
- g. "Day" shall mean a calendar day unless expressly stated to be a business day. "Business day" shall mean a day other than a Saturday, Sunday or State Holiday. In computing any period of time under these Orders, where the last day would fall on a Saturday, Sunday or

STATE OF OHIO
ADJUTANT GENERAL'S DEPARTMENT
2825 West Dublin Granville Road
Columbus, Ohio 43235-2789

~~January 24, 2003~~

RECEIVED
OHIO SPA

Deputy Chief of Staff for Operations and Plans

FEB 3 REC'D

SOUTHWEST DISTRICT

Mr. Graham E. Mitchell
401 East Fifth Street
Dayton, Ohio 454402-2911

Dear Mr. Mitchell:

I'm responding to your memorandum dated 25 September 2002, Subject: Ravenna Army Ammunition Plant **Future Land Use**. I want to provide you with an update regarding the Ohio Army National Guard's (OHARNG) intended future land use of the former Ravenna Army Ammunition Plant (RVAAP) so appropriate environmental restoration can be completed by the Army.

We understand that the RVAAP environmental restoration program is a risk-based closure and the remediation effort is based on the OHARNG's future use of the property. The OHARNG needs to provide the maximum amount of unencumbered training land at Ravenna for our soldiers to meet current and future training requirements. Naturally, any remediation plan must also provide adequately for the health and safety both of our troops and the general public. The OHARNG's goal is for RVAAP to be remediated by the Army to an "unrestricted use," not "industrial use" standards. This is because in the course of military training, our soldiers will walk on, dig into and drive over in tracked vehicles the contaminated soil at Ravenna.

We have identified eight proposed remedial actions we think are essential to support the OHARNG's current and known future (programmed 5-9 years) training requirements. These eight proposed actions are identified in the preliminary draft of our Environmental Assessment (EA). Based upon the eight proposed actions, we require that environmental restoration be completed to a standard that supports our most intrusive mission essential task our soldiers must perform - operate an M1 tank - 9'6" below ground surface (BGS). We further require the remediation of the 51 Areas of Concern (AOCs), removal of stormwater and sanitary sewer lines, and removal of both unexploded ordnance (UXO) and ordnance and explosives (OE). The ideal end state for the OHARNG includes no land use controls or deed restrictions and allows for the use of groundwater resources throughout the training site. The restoration must include not only those actions funded through the Installation Restoration Program (IRP), but also UXO / OE screening and removal, building demolition, and sewer and water line removal. Conducting a one-time, complete restoration is the most cost-effective and responsible mode of action; and the OHARNG believes this course to be consistent with the obligations of the Army.

-2-

We understand that total unencumbered training land and unrestricted use of ground water resources may not be possible in all areas of the RTLS (e.g.: where bedrock outcrops occur above 9'6" BGS), but it is possible for most of the property. In those specific areas, the OHARNG is open to discussions aimed at determining the most appropriate and acceptable restoration level. Our starting point must always be unencumbered training land, free of UXO / OE, free of underground sewer and water lines no longer in use that could collapse under the weight of a tracked vehicle, and free of unwanted buildings including concrete slabs, footers, and sidewalks. The OHARNG is willing to consider a less-than unencumbered state at specific AOC's; or phasing of cleanup of clusters of AOCs, if this is determined to be the best solution for all concerned stakeholders. We are unwilling to voluntarily accede to these alternatives based on arbitrarily-set funding levels and restoration schedules. The funding and schedules must be set to facilitate the restoration; not the opposite.

When valid reasons exist to remediate to less than our desired unencumbered training land scenario, the IRP team should submit an issue paper to the OHARNG detailing the impediments to full restoration and the proposed, alternate level of remediation. The OHARNG will review the issue paper and provide feedback to the IRP team on acceptable deviations from the desired end state. If agreement cannot be reached, all parties should meet to discuss the issue. Although cost is an important factor, cost and time should not be the sole drivers for deviations from the OHARNG's desired end state. Technological and safety limitations are in our view more valid reasons for deviating from the desired end state. Every effort should be made to reach the OHARNG's desired end state in a cost-effective manner.

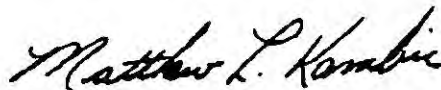
The OHARNG as a part of the US Army will continue to transform in order to meet future challenges. Unfortunately, we cannot predict what the future will bring. We do know that the US Army is leaning toward designing weapons systems and major end items that are smaller than the current systems; but have no idea when they might be fielded or to which units they might be fielded. We are confident however that environmental restoration to the 9'6" BGS standard will meet future environmental needs.

We concur with your recommendation that a meeting might help to resolve the environmental restoration issues. I have asked LTC Tom Tadsen, RTLS Training Site Administrator, to coordinate and schedule the meeting.

I am forwarding a copy of this letter to Mr. K. R. Youngman, US Army Operational Support Command, One Rock Island Arsenal, Rock Island, Illinois 61299-6000.

The point of contact is CPT Tom Daugherty, Environmental Specialist, (614) 336-7095.

Sincerely,



Matthew L. Kambic
Colonel
Deputy Chief of Staff for
Operations and Plans



May 15, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
GFPR INTERIM REMOVAL ACTION

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

Dear Mr. Patterson:

The purpose of this correspondence is to memorialize the position of Ohio Environmental Protection Agency (Ohio EPA) with respect to the status of **Load Lines 1, 2, 3, and 4**, subsequent to the completion of the Guaranteed Fixed Price Remediation (GFPR) process at each of these areas of concern (AOCs). This topic has been discussed during conference calls held between personnel from Ohio EPA, Ravenna Army Ammunition Plant (RVAAP), National Guard Bureau (NGB), Ohio Army National Guard (OHARNG), Army Environmental Center (AEC), U.S. Army Corps of Engineers (USACE), and MKM Engineers on April 23, 2003 and April 29, 2003.

Although the Army currently maintains control of these AOCs, it is their intent to transfer these areas to the OHARNG/NGB for their training mission. The OHARNG and NGB have clearly indicated that the desired end state for these four AOCs is to have the slabs and underground utilities removed such that these areas can be utilized for "Mounted Training - No Digging." Due to the nature of this specific training, the slabs (and potentially the underground utilities) need to be removed to prevent possible damage/destruction to the tracked vehicles and resulting injuries to the soldiers. Currently the Army has indicated that there is not sufficient funding in this contract to remove the slabs and utilities, and that they would be removed as funding became available. However, since the soils around these load lines may pose a risk to human health and the environment, the Army feels that limited actions, as described in the GFPR scope of work (SOW), should be completed.

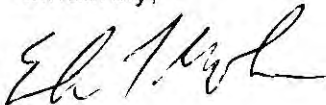
Due to the potential presence of contamination under the slabs and within subsurface utilities which will not be addressed under the GFPR SOW, Ohio EPA feels that the remedy being evaluated under the GFPR can only be an interim remedy for Load Lines 1, 2, 3, and 4. Therefore, these AOCs must remain open under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) until a final remedy can be implemented, which would include removal of these slabs and ensuring that any

Mr. Mark Patterson
May 15, 2003
Page 2

residual contamination is addressed by the Army. With respect to the underground utilities, a determination would need to be made as to whether or not they contain explosives or other site-related contaminants, and if they represent a preferential migration pathway for contaminants. If this is the case, remedial action would need to be undertaken. Another issue of concern with respect to the underground utilities is if they would interfere with the proposed training mission of the OHARNG.

I trust that this correspondence clarifies Ohio EPA's position on this matter. If you have any questions or concerns, please do not hesitate to contact Eileen Mohr at 330-963-1221 or Bonnie Buthker at 937-285-6469.

Sincerely,



Eileen T. Mohr
Project Coordinator
Ohio EPA, NEDO, DERR



Bonnie Buther
DSMOA Program Manager
Ohio EPA, SWDO, OFFO

MICHAEL J. EBERLE

ETM/ams

cc: Graham Mitchell, Ohio EPA, SWDO, OFFO
Mark Navarre, Ohio EPA, CO, Legal
LTC Tom Tadsen, RVAAP
MAJ Kim O'Keefe, NGB
Robin Fatz, NGB
JoAnn Watson, AEC
Bob Whelove, AEC
Tom Lederle, BRAC
Glen Beckham, USACE, Louisville
John Jent, USACE, Louisville
Paul Zorko, USACE, Louisville

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



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

November 26, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
FPRI AT LOAD LINES 1 - 4

Mr. Mark Patterson
Environmental Program 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); and Southwest District Office (SWDO), Office of Federal Facilities Oversight (OFFO), have received and provided a cursory review of the document entitled: "Proposal for Ravenna Army Ammunition Plant FPRI of Load Lines 1, 2, 3, and 4." This proposal was generated by Shaw Environmental, Inc. in reference to solicitation number DACA45-03-R-0027.

The above-referenced document was received by the Agency on November 17, 2003, the day prior to the kick-off meeting for the Fixed Price Remediation with Insurance (FPRI) initiative for Load Lines 1, 2, 3, and 4. Given the short turn-around time, the document was not reviewed prior to the meeting.

The purpose of this correspondence is to provide input to the Ravenna Army Ammunition Plant (RVAAP) regarding several issues that were identified in the cursory review of the above-referenced document, as well as during the November 18, 2003 meeting held at the installation. The issues detailed below represent the most important issues and may not be all-inclusive, due to the short review time. Other more minor issues identified during the review can be discussed during the work plan development stage.

Review Times - As stated in the proposal and during the kick-off meeting, the contractor has indicated the desire to reduce the 45 day regulatory review time, in order to compress schedules. The Agency clearly indicated during the FPRI contracting process and numerous times during the November 18, 2003 meeting that, due to resource limitations, we could not agree to reducing Agency review times to less than 45 days for this project. This target time frame is defined in the draft Findings and Orders, as well as in the Defense-State Memorandum of Agreement (DSMOA). Given the current projected Installation Restoration Program (IRP) work and the backlog of documents that will be received once the site wide Human Health Risk Assessment



(HHRA) work plan is final, Ohio EPA is also concerned that the 45 day target time frame may not be met. We have, therefore, asked that the Army meet with Ohio EPA to jointly prioritize upcoming work at RVAAP, including the work under this contract. Our position continues to be that those projects that meet the priorities and reuse needs of the Ohio Army National Guard (OHARNG) will be prioritized higher than those projects that do not meet the priorities and reuse needs of the OHARNG.

Finishing the Remedial Investigations (RI) - The technical approach indicates that there will be supplemental site investigation activities at Load line 4 to further evaluate the nature and extent of the constituents of concern (COCs). The text, in a later section of the proposal, indicates that additional limited investigations will focus on data gaps identified by Shaw. There is no indication in the initial part of the proposal that additional activities will be conducted at Load Lines 2 and 3, and no indication that data gaps identified by Ohio EPA would be investigated. This issue requires additional discussion, and may be held concurrently with comment resolution meetings on the various RI reports.

Remedy Selection - The proposal indicates that in order to achieve the interim action at the four Load Lines that "dig and haul" is the chosen remedial option. There is very little concrete documentation in the proposal to indicate why this is the preferred alternative, and why other options, for example, bioremediation of explosives, were not selected. Additionally, only in-situ bioremediation was evaluated, instead of ex-situ bioremediation of explosives, which was demonstrated to be a viable technology during on-site pilot testing. Another concern is that there wasn't any regulatory and public input prior to the decision that "dig and haul" was the most viable option. A member of the RVAAP Restoration Advisory Board (RAB) clearly questioned why this remedy was selected, when there was a brief overview of the FPRI presented during the October 15, 2003 RAB meeting. There needs to be more formal discussion as to the various alternatives that were evaluated, and compelling information presented as to why the "dig and haul" option was selected. In addition, before Ohio EPA will agree that this proposed remedial action is appropriate, public concerns about this approach must be addressed.

Cleanup Standards - In the proposal, as well as in the most recent RAB meeting, the contractor indicated that it is their intention to basically "negotiate down" cleanup levels, especially with respect to lead concentrations. There is the potential that this approach would be attempted for other COCs at the Load Lines. Clearly, any cleanup levels that are put into place for this interim remediation project must be protective of human health and the environment. The protectiveness issue is not negotiable from the perspective of Ohio EPA.

Final Land Use - The proposal indicates that the contractor will negotiate the final land use with the regulators. The final land use of the four Load Lines is not negotiable, and is based on the land use established by the OHARNG. Specifically, the OHARNG has clearly indicated that the desired end state for these four areas of concern (AOCs) is Mounted Training - No Digging. Given that the FPRI contract will not result in the land being in a condition where it can be transferred to the OHARNG, Ohio EPA reiterates that the FPRI project at Load Lines 1, 2, 3, and 4 will only result in an interim remedy. Therefore, these AOCs must remain open under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) until a final remedy can be completed.

Statistical Averaging - The proposal indicates that: "In addition to removal actions, it has been assumed that a portion of the areas located within each Load Line will be statistically averaged out as an AOC after revised risk scenarios have been completed for Load Line 1 and applied to the other three load line areas." The text further states: "Use of statistical-averaging under a risk-based approach to eliminate AOCs where possible." The intent of these sentences is not clear, and it is Ohio EPA's position that the AOCs will not be eliminated due to statistical averaging. Additional discussion regarding the concept of "statistical averaging" needs to occur, as it appears that it is solely being utilized to minimize the amount of excavation necessary. There needs to be discussion and agreement on generation of legitimate and workable Exposure Units (EU), delineation/remediation of hotspots, etc..

Use of Field Test Kits - Please advise Ohio EPA as to what field testing techniques are proposed in order to define the limits of the excavation areas. Currently, the only field testing methodology used at the installation is the Jenkins explosives methodology. Ohio EPA has not currently agreed to the use of X-Ray Fluorescence (XRF) techniques for metals determination.

Slabs Left in Place - The text indicates that the slabs that are left in place are considered "environmental protection barriers as they provide a barrier for infiltration to potentially impacted soils beneath the slab." The text further indicates that "major cracks" found during inspections will be patched. How is "major" being defined? How often will "periodic" inspections be conducted? Additionally, subsequent to the thermal decomposition (TD) of Load Lines 2, 3, and 4, the overall integrity of the concrete slabs may be quite suspect, and require significant repairs. There is also the possibility that some slabs may not be left in a repairable condition. Before Ohio EPA can agree with Shaw's approach, additional details as to how these damaged slabs are addressed must be provided.

Elimination of the Feasibility Study (FS) and Proposed Plan (PP) - The contractor has proposed eliminating preparation of a FS and PP for this FPRI contract. If the FS

is bypassed, then there will not be any developing and screening of alternatives (specifically: identifying potential treatment technologies; containment/disposal requirements; screen technologies; identify action-specific ARARs; assembling technologies into alternatives; and screening alternatives as necessary), as well as conducting a detailed analysis of alternatives. Ohio EPA will not support the elimination of the FS and PP process. Throughout this phase of the remedial effort, there needs to be documentation provided to Ohio EPA that details the methods, rationale and screening of the methods. Clearly, there needs to be approval by Ohio EPA regarding the technologies or processes and alternatives considered for implementation at the AOCs, as well as determining whether or not additional investigations are required prior to the commencement of the detailed alternatives. Additionally, community involvement and acceptance is crucial to implementation of a remedy and must be incorporated into this entire process.

Excavation Limits/Groundwater Monitoring - Due to the lack of detailed information in the text regarding the vertical and horizontal extent of contamination, the proposed excavation limits were not reviewed. This will require (if "dig and haul" is the remediation method agreed-upon) a more detailed analysis. Additionally, these sections also frequently specify the use of "statistical averaging" which has not been discussed among all the appropriate stakeholders. Additionally, the text indicates in several places that "little to no contamination" exists beneath the floor slabs, without mentioning that this supposition is based upon very limited data. At this point in time, Ohio EPA is not prepared to agree with the contractor's assessment.

With respect to groundwater monitoring, there is no clear understanding as to the criteria that would be utilized to determine whether or not groundwater would be sampled as part of this contract, how the number of wells was selected (the text indicates two wells), and how it would be determined which wells are sampled. Further clarification is needed. Additionally, the text indicates that the contractor wants to negotiate the number of wells and the frequency of monitoring as part of the Long Term Monitoring (LTM) program. Discussions will need to take place to determine how the monitoring schedule, frequency, number of wells sampled, constituents analyzed, etc., is interwoven with the sitewide groundwater plan which will be implemented, as well as the fact that the FPRI contract will only result in an interim, and not a permanent, remedy.

Revised Risk Scenarios - At several points in the proposal, there are references to revised risk scenarios. It is not clear to which scenarios the contractor is referring, and in one place it actually sounds like the contractor wants to negotiate the risk scenarios. Further clarification is needed.

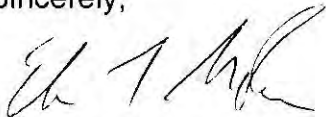
Unexploded Ordnance (UXO)/Ordnance and Explosives Waste (OEW) - There are no contingencies in the document as to how UXO, if encountered, will be handled.

Mr. Mark Patterson
November 26, 2003
Page 5

This could happen, as propellants are visible on the ground at Load line 1, and frequently scrap and OEW is found where it is not expected. How will UXO/OEW be handled if it is encountered? If UXO is found, be advised that it could severely impact the bid price for the contract.

If you have any questions concerning this correspondence and the issues raised, please do not hesitate to contact me at 330-963-1221.

Sincerely,



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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
LTC Tom Tadsen, OHARNG
MAJ Kim O'Keefe, NGB
JoAnn Watson, AEC
Glenn Beckham, USACE Louisville
John Jent, USACE Louisville
Paul Zorko, USACE Louisville
Mike Fitzgerald, Shaw

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



December 15, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
CONTRACTING INITIATIVES - FPRI/PCB

Mr. Mark Patterson
13497 Elton Road
North Lima, OH 44452

Dear Mr. Patterson:

During the October 15, 2003 Ravenna Army Ammunition Plant (RVAAP) Restoration Advisory Board (RAB) meeting, there was a presentation regarding the proposed scope of work for the Fixed Price Remediation with Insurance (FPRI) contract that is in place for **Load Lines 1, 2, 3, and 4**. Initiatives, such as the RVAAP FPRI, which is a type of Performance-Based Contracting (PBC), are being implemented nationwide at various Army sites and are spear-headed by the Army Environmental Center (AEC). The latest directive from the Army is that by the end of Federal fiscal year (FY) 05, the goal is to have 50% of the Army's active Installation Restoration Program (IRP) under some sort of PBC. This percentage will increase in subsequent fiscal years.

In addition to the FPRI contract all ready in place at the RVAAP, the installation is currently being considered for placing twelve additional Areas of Concern (AOCs) under a PBC contract by the end of June 2003.

One of the hallmarks of the RVAAP RAB has been open and honest communication among all of the involved stakeholders - regulators, contractors, the Army, the Ohio Army National Guard (OHARNG), and the general public. In that same spirit, enclosed you will find the following information, presenting different perspectives regarding PBC initiatives:

1. A copy of a letter from the Aberdeen Proving Ground RAB to their elected federal officials; and
2. A copy of an article entitled: "Guaranteed Fixed-Price Remediation" that appeared in the 2003 third quarter issue of Resource Management.

Our next RAB meeting is scheduled for January 21, 2004, from 6:00 p.m. to 8:00 p.m., at Freedom Township Hall.

RVAAP - CONTRACTING INITIATIVES - FPRI/PCB
DECEMBER 15, 2003
PAGE 2

If you have any questions or comments regarding the enclosed information, please do not hesitate to present your thoughts at the next RAB meeting, or contact me at 330-963-1221.

Sincerely,



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

ETM/kss

enclosures

cc: RVAAP, RAB Members
RVAAP, RAB File



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

June 30, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE / TRUMBULL COUNTIES
LOAD LINES 2, 3, 4 PRELIMINARY
DRAFT RI REPORTS

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

TO	7/1/03
✓	ENV
	CONCERN

Dear Mr. Patterson:

Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the following two-volume documents:

- a. "Preliminary-Draft, Phase II Remedial Investigation Report for the Load Line 2 at the Ravenna Army Ammunition Plant, Ravenna, Ohio."
- b. "Preliminary-Draft, Phase II Remedial Investigation Report for the Load Line 3 at the Ravenna Army Ammunition Plant, Ravenna, Ohio."
- c. "Preliminary-Draft, Phase II Remedial Investigation Report for the Load Line 4 at the Ravenna Army Ammunition Plant, Ravenna, Ohio."

These documents, dated May 2003 and received by the Ohio EPA on May 02, 2003, were prepared for the U.S. Army Corps of Engineers (USACE) - Louisville District by Science Applications International Corporation (SAIC) under contract number F44650-99-D-0007, delivery order number CY01.

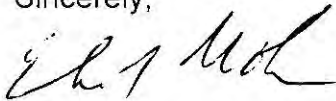
These documents were reviewed by personnel from Ohio EPA's Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) and Division of Drinking and Ground Waters (DDAGW). The attached comments represent a compilation of comments from the above-referenced personnel. Comments from Ohio EPA risk assessment personnel will be submitted to your attention under a separate cover at a later date.

The attached comments were submitted on June 26, 2003, in electronic format, to a significant number of people listed below on the correspondence copy (cc) list. In addition, a hard copy of the Load Line 2, 3, and 4 comments will be submitted only to you and Mr. Kevin Jago.

Mr. Mark Patterson
June 30, 2003
Page 2

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

Sincerely,



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

ETM/ams

cc: Bonnie Buthker, Ohio EPA, SWDO, OFFO
Laurie Eggert, Ohio EPA, SWDO, OFFO
Glen Beckham, USACE Louisville
Paul Zorko, USACE Louisville
John Jent, USACE Louisville
Dave Brancato, USACE Louisville
Kevin Jago, SAIC (with attachments)
Rick Callahan, MKM

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



State of Ohio Environmental Protection Agency
Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0788

Bob Taft, Governor
Christopher Jones, Director

October 30, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
DRAFT FY04 **INSTALLATION ACTION PLAN**
AND FPRI AOC END STATE

Ms. JoAnn Watson
SFIM-AEC-ER
U.S. Army Environmental Center
5170 Hoadley
Aberdeen Proving Ground, MD 21010-5401

Dear Ms. Watson:

On September 09, 2003, the Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), provided e-mail comments on the draft Fiscal Year (FY) 04 Installation Action Plan (IAP) for the Ravenna Army Ammunition Plant (RVAAP). The comments were provided to the majority of the RVAAP team members, including the Army Environmental Center (AEC), RVAAP, the Ohio Army National Guard (OHARNG), and the contractor preparing the IAP. The purpose of this correspondence is to update Ohio EPA's comments on the draft IAP, as a result of the recent issuance of a Fixed Price Remediation with Insurance (FPRI) contract for Load Lines 1, 2, 3, and 4, as well as re-iterating the Agency's position regarding the end state of the FPRI.

In the event that the IAP is to be revised based upon the recent developments resulting from the FPRI contract, Ohio EPA is requesting that a draft-final version of the IAP be submitted to all stakeholders for review and approval. Specifically, if Load Lines 2, 3, and 4 are to be shown as Response Complete (RC), and Load Line 1 becomes the designated "tracking" Area of Concern (AOC), with the current Installation Restoration Program (IRP) phase reported as Remedial Action (RA), Ohio EPA requests additional discussion and resolution as to how the IAP is being presented. Clearly, Load Lines 2, 3, and 4 are not RC from a technical perspective, nor is Load Line 1 in the RA phase. If these AOCs are presented as detailed above, please be advised that Ohio EPA will not provide regulatory concurrence with the FY04 IAP. Additionally, Ohio EPA will need to re-consider their participation in future IAP workshops.

The Memorandum of Agreement (MOA), dated 12 December 2001, between the Operations Support Command (OSC), US Property and Fiscal Officer (USP&FO) for Ohio, and the Ohio Army National Guard (OHARNG), states, in part :

"OSC retains 1,481 acres until those areas are remediated. As remediation of each increment is completed, each remaining area shall be deemed complete upon the receipt of 'clean closure' notification letter from Ohio EPA."

This acreage includes the four Load Lines under the FPRI contract. As previously detailed in correspondence from Ohio EPA (dated May 15, 2003), the remedy that is to be evaluated and conducted under the FPRI can only be an interim remedy for Load Lines 1, 2, 3, and 4. The

Ms. JoAnn Watson

October 30, 2003

Page 2

correspondence states: "Therefore, these AOCs must remain open under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) until a final remedy can be implemented, which would include removal of the slabs and ensuring that any residual contamination is addressed by the Army." Clearly, at the end of the FPRI contract, the land will not meet the end state required by the OHARNG. As such, at the end of the FPRI, as currently scoped, Ohio EPA will not be issuing a letter concurring that remediation is complete.

I trust that this correspondence clarifies Ohio EPA's position with respect to the IAP and the FPRI end state of Load Lines 1, 2, 3, and 4.

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

Sincerely,



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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, SWDO, OFFO
Graham Mitchell, Ohio EPA, SWDO, OFFO
Mark Patterson, RVAAP
LTC Tom Tadsen, OHARNG/RVAAP
MAJ Kim O'Keefe, NGB
Glen Beckham, USACE Louisville

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



MKM Engineers, Inc.

Safe, Quality Work Performed With Pride

- Facility Management

November 6, 2003

RE: SECTION L - INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS, ATTACHMENT L-6; CLIENT AUTHORIZATION LETTER FOR RAVENNA ARMY AMMUNITIONS PLANT

Dear US Army Joint Munitions Command:

- Turnkey Environmental

We are currently responding to the Department of Energy (DOE), Savannah River Operations Office, Request for Proposals No. DE-RP09-04SR22277 for the procurement of Environmental Remediation and Waste Management Services (ER/WM Services) and Deactivation, Demolition and Removal of Buildings (DD&R). DOE is placing increased emphasis in its procurements on past performance as a source selection factor. DOE has asked that current or former clients of Offerors responding to its solicitation be identified so that DOE can contact them. In the event you are contacted for information on work we have performed, you are hereby authorized to respond to those inquiries.

- Unexploded Ordnance

We have identified Mr. Mark Patterson of your organization as the point of contact based on his knowledge concerning our work. Please complete and return the Past Performance Questionnaire (enclosed) and return directly to the Source Evaluation Board in the enclosed envelope. The sealed envelope containing the completed Past Performance Questionnaire must be signed by the reference across the seal to ensure validity. Please return the Questionnaire to the Source Evaluation Board on or before December 5, 2003. Your cooperation is appreciated.

Please feel free to contact me at (505) 881-0123 or via e-mail at dan.kwiecinski@mkmengineers.com should you have any questions.

Sincerely,

Dan Kwiecinski, P.E.
Program Manager
Southwest Operations

- Radiological Services

SECTION L - INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS
ATTACHMENT L-4

PAST PERFORMANCE QUESTIONNAIRE

1. CONTRACT IDENTIFICATION

1. Contractor (Company/Division):

MKM Engineers, Inc.

2. Contract Number: DAAA-09-98G-0001; Ravenna AAP Delivery Orders: DO-7, 17, 21-28, 31,39,42,45-47 under contract to US Army Munitions Command

3. Brief Description of Requirement (Supplies/Services):

Characterization, and design and implementation of remedial actions, and waste management activities.

4. Contract Type: ID/IQ

5. Period of Performance (Basic and any options):

July 1998 – May 2003

6. Unusual Contract Features or Conditions:

None

7. Award Information:

(a) Competitive Award: X Yes No

(b) Basis for Selection, i.e., 1) Technically Acceptable/Lowest Reasonable Cost/Price, 2) Best Value – Specify relative order of importance of evaluation criteria, 3) Technical, 4) Cost or Price, 5) Other:

SBA 8 (a) BOA based on Technical Presentation: individual task orders based on competitive cost or sole source expertise.

8. Contract Revisions:

Were there any requirement descopes, partial terminations, major waivers/deviations, or other important changes to the contract terms and conditions? Why did they occur? Were any due to poor Contractor performance? What were the adverse impacts to program goals?

Period of performance extended to allow for additional work to be conducted. There are currently seven new contracts, totaling approximately \$5 Million, with an end date of September 2005.

ATTACHMENT L-4 (cont.)

9. Contract Value:

	<u>Initial Amount</u>	<u>Current Amount*</u>
Estimated Cost	\$ _____	\$ _____
Fixed Price	\$ _____	<u>\$5,715,663**</u>
Fee/Profit	\$ _____	\$ _____
Total Value	\$ _____	<u>\$5,715,663**</u>

*Should reflect any contract value increases/decreases since initial contract award

** **Ravenna Delivery Orders Completed**

II. PAST PERFORMANCE EVALUATION

Please rate the Contractor as "Outstanding" (O), "Good" (G), "Adequate" (A), "Poor" (P), "Unacceptable" (U), or "Not Applicable" (N/A) in the following areas. Please give a short narrative as to why you chose the adjective you did, especially for those areas which are other than "adequate."

A. QUALITY OF PRODUCT OR SERVICES

1. Overall performance in planning and controlling the program from a technical, cost, and business management perspective.

Rating 0 Comment Fully committed on-site staff

2. Quality of services and support provided.

Rating 0 Comment Overall best contractor service and support at RVAAP

3. Content and accuracy of technical, business, cost and/or other reports.

Rating 0 Comment Conscientious staff, very low error rate

4. Compliance with contract terms and conditions.

Rating 0 Comment Meets or exceeds detailed, complex terms/conditions with little supervision.

B. TIMELINESS OF PERFORMANCE

1. Timely completion of interim milestones on tasks.

Rating 0 Comment Often completes milestones ahead of schedule

ATTACHMENT L-4 (cont.)

2. Timely completion of final deliverables on tasks.
Rating G Comment Meets expectations
3. Timeliness of technical, business, cost and/or other reports.
Rating 0 Comment Exceeds schedules
4. Reliability.
Percentage of time the Contractor meets interim milestones, final deliverables, and reporting requirement schedules.
Rating 0 Comment Consistently meets objectives

C. COST CONTROL

1. Adherence to estimated costs and contract cost targets.
Rating 0 Comment Has always worked under fixed price contracts with no cost over runs
2. Adherence to estimated costs on individual Task Orders/assignments.
Rating 0 Comment No contract mods needed to complete fixed price contracts/SOWs
3. Cost Growth
Rating N/A Comment
4. Were there any contract revisions that impacted the contract value adversely, and what were they due to?
Rating NO Comment
5. Cost overrun and change proposals submitted reasonably priced and contained all appropriate supporting documentation.
Rating N/A Comment
6. Invoice submissions are current, accurate, complete, and submitted with all appropriate supporting documentation.
Rating G Comment Meet expectations
7. Does the Contract have ceiling rates? x YES NO
If yes, what are the rates and what were they applied to? ~~Rates as negotiated in the BOA by the KO. Applied to all labor rates for RVAAP contracts.~~
Has the Contractor overrun the rates? YES NO

ATTACHMENT L-4 (cont.)

8. Total amount of contract value increases: NONE
- a. Changes made by your organization: \$ 0
 - b. Cost growth due to Contractor: \$ 0
 - c. Increases in contract scope: \$ 0
 - d. Other causes (please explain):

D. BUSINESS PRACTICES

- 1. Please comment on the strong and weak points of the Contractor's performance.
Commitment to customer satisfaction, project objects, coordination with stakeholders, and compliance with environmental/safety regulations. No significant weaknesses noted.
- 2. Contractor's skills in efficiently and effectively allocating and directing personnel and resources.
Rating 0 Comment First RVAAP contractor to fully commit to on-site staff
- 3. Contractor's ability in developing and managing subcontracts and consulting agreements.
Rating 0 Comment Have provided some of the best subcontractor support/management
- 4. Contractor's effective use of small/small disadvantaged business subcontracting.
Rating 0 Comment MKM is 8(a) and often hires SDB subcontractors. Effectively uses subs to maximize value to RVAAP
- 5. Contractor's reasonable and cooperative behavior, flexibility, as well as their responsiveness to inquiries from your organization's technical and contract representatives.
Rating 0 Comment MKM has gained high praise from higher command, agencies and public for going the extra mile as a team member
- 6. Contractor demonstrates businesslike concern for your organization's interests.
Rating 0 Comment Always considers way to reduce cost, improve quality, expedite schedules and meeting RVAAP interests on projects

E. CUSTOMER SATISFACTION

- 1. Please comment on the overall satisfaction of your organization's technical monitors with final reports and products.
RVAAP as well as other stakeholders such as the Army Corps of Engineers and the Ohio EPA have been very satisfied with MKM's final reports and products. The documents have met or exceeded the technical requirements of the contracts. They have been thorough, logical, and easy to read.

ATTACHMENT L-4 (cont.)

III. RESPONDENT INFORMATION

1. Name of Evaluator(s): Mark Patterson
2. Position Title: Facility Manager
3. Organization Name and Mailing Address:
Ravenna Army Ammunition Plant
8451 State Route 5, Ravenna OH 44266
4. Telephone Number: 330-358-7311
5. Facsimile Number: 330-358-7314
6. Your Role in the Program/Contract: Program Manager
7. Length of Involvement in this Program/Contract: 5 Years
8. Date Questionnaire Completed: 11/25/03



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

September 23, 2003

**RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
MONAZITE SAND**

Mr. Mark Patterson
Environmental Program 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 two-volume document entitled: "Draft-Final Report, Ravenna Army Ammunition Plant, Monazite Sand Removal Project, Phase I and III." The report, dated December 07, 2001 and received at Ohio EPA on July 18, 2003, was prepared by New World Technology (NWT) for the Operations Support Command (OSC) under project number USA 00-005.

Please be advised that this correspondence solely represents the review of Ohio EPA, NEDO, DERR. This document is also undergoing review by personnel from the Ohio Department of Health (ODH). The ODH is the lead Agency on this project and, as such, they will be making the determination as to whether or not the removals which were conducted achieve the Derived Concentration Guideline Limit (DCGL) established by ODH for industrial release of this area of concern (AOC). The ODH comments on this document will be submitted to your attention when they are received by Ohio EPA.

General Comments:

1. During a meeting held at the Ravenna Army Ammunition Plant (RVAAP) on September 22, 2003, I was informed that an interim report had been issued that detailed the Phase 4 removal activities. Please send a copy of this report to my attention, as well as to Mr. Joe Crombie of the ODH.
2. Please provide an update as to the schedule of activities for the gridding of the AOC for Nuclear Regulatory Commission (NRC) surveys, when workplans for the NRC surveys will be received, and when sampling activities are scheduled to take place. Please be advised that Ohio EPA will want to conduct additional split sampling during the NRC activities and, as such, I will need to have enough lead time to make arrangements for laboratory support. Additionally, please note in your scheduling process that Ohio EPA has 45 days for the review of documents.

Mr. Mark Patterson
September 23, 2003
Page 2

3. Throughout the text of the document, please insert the term "industrial" in front of the acronym DCGL.
4. Throughout the document, please specify that the term "remediation" is actually "removal."
5. Specify in an appropriate portion of the text the difference between the industrial DCGL and "unrestricted use."
6. Provide a "Recommendation" section in the revised report.

Specific Comments:

7. Add DGCL to the acronym list. (page v)
8. The text indicates that the Monazite AOC is located in a "secure section" of the RVAAP (page 2, first line). This is not correct. The Monazite AOC does not have any restrictive fencing and, as such, there is the potential for unrestricted access by people that may already be on the installation. Adjust the language accordingly.
9. The text (page 2, second paragraph) indicates that NWT was contracted by OSC. However, on page 1, the text indicates that NWT was contracted by the Industrial Operations Command (IOC). Although they are one in the same, please be consistent with respect to the correct agency identifier at the time the contract was signed.
10. The U.S. Army Corps of Engineers (USACE) acronym, as presented on page 2 (USACOE), does not match the acronym list on page v. Please rectify the discrepancy.
11. Section 3.2 (page 3) indicates that this AOC has been remediated. This may or may not be the case, depending upon the review of this data and document by the ODH, as well as the position of the NRC. Adjust the text so that it is less definitive.
12. Section 4.1.2 (page 4) does not indicate that dosimetry, bioassays, and Radiation Worker Permits (RWPs) were required during Phase I activities. Please confirm whether or not this is the case. If these were not required, please provide the reason behind the decision. If they were required, add the appropriate verbiage to the revised text.
13. In Section 4.1.5 (page 5), define the term MDA as it appears in the equation on the middle of the page.

14. In Section 4.1.7, on page 6, please change "roll of" to "roll-off."
15. In Section 4.6.1 (page 18), does the 25 mrem/yr total effective dose equivalent (TEDE) result in "free-release" of the AOC? (Also applicable to page 19, Section 4.2.1.)
16. In Section 4.6.1 (page 18), please add the term "industrial" in the following sentence: "The DCGL for industrial release...."
17. The text in Section 6.4.4.1 (page 27) indicates that 11 soil samples were to be obtained from the Class I and Class II grids. However, in reviewing other portions of the text, there are indications that samples were to be obtained from F-21, E-24, F-18, E-28, E-23 (2), C-19, F-15, D-14, D-15 (2), F-13 (2), E-13, H-8, G-10, which would be a minimum of 16 samples. Please adjust the discrepancy.
18. In Section 6.4.1.2 (page 28), please provide an explanation as to why there weren't 16 subsurface samples to correspond with the surface samples. How were the six locations chosen for sub-surface sampling?
19. In the charts on pages 33, 34, 35, 36, and 37, please provide footnotes which describe what is meant by "R" and "S."
20. On page 34 (Section 8.2), please finish the second sentence in the first paragraph.
21. Appendix B - please provide copies of the chains of custody (COCs).
22. Appendix B - many of the copies of the faxes are not legible. Please provide legible copies.
23. Appendix B - Sample ID RAP 11 has a Thorium-232 concentration circled. Provide an explanation.
24. Appendix E - the straight bill of lading for shipment DLRU-053569 is not dated. Please provide this information.
25. Appendix E - for shipment MMFU-001174 (?), no truck or trailer number is specified. Please provide the information.
26. Appendix E - on several straight bills of lading, there is no indication as to whether or not the trucks were placarded. Please provide this information.
27. Appendix F - in a few cases, the chi-squared test of reliability data sheets had the calculations performed and reviewed by the same person. An independent review of the calculations should be conducted.

28. Appendix H - please ensure that, in future efforts, the proper protocol for making corrections to a document is followed, i.e., a one-line strike out followed by the initials of the person making the correction.
29. Appendix H - many of the submitted manifests are not legible. Please provide legible copies.
30. Appendix I - several of the certificates of calibration (for both alpha and beta) indicate they were calibrated in 1989. Please provide additional information as to how often these should be calibrated and, if these standards did not follow acceptable protocols, please provide an explanation.
31. Appendix I - the control charts provided are incomplete. Please provide completed charts.
32. Appendix J - on several survey reports, the license number was not recorded. Please provide this information.
33. Appendix J - on several survey reports, information such as tare weight, loaded weight, and net weight are not recorded. Please provide an explanation for the lack of information.
34. Appendix N - please ensure that in future efforts, the proper protocol for making corrections to a document is followed, i.e., a one-line strike out followed by the initials of the person making the correction.
35. Appendix Q - the following manifests are not legible: 0216385, 0266...(?). Please provide legible copies.
36. Appendix Q - shouldn't there be more certificates of disposal provided in this appendix?
37. Appendix Q - on the Texas Natural Resource Conservation Commission Uniform Hazardous Waste Manifest (# 01012??), no one signed for the receipt of the material. Please provide a form that it completely filled out.
38. Appendix T - please ensure that in future efforts that the proper protocol for making corrections to a document is followed, i.e., a one-line strike out followed by the initials of the person making the correction.
39. Appendix U - for end dumps 0238, 0722, 0239, 0241, and 0333, there is an indication to "see attached sheet for smear results." However, there were no attachments. Please provide this information.

40. Appendix W - one of the 09/11/01 straight bills of lading did not have a signed certification. Please provide a revised form with the certification section signed by the broker.
41. Appendix X - for gondola car # 5645, please provide the smear results readings.
42. Appendix Y - in the smear results section, the initial reading should be listed and then the vertical line can be drawn through the rest of the entries.
43. Appendix CC - please ensure that in future efforts, the proper protocol for making corrections to a document is followed, i.e., a one-line strike out followed by the initials of the person making the correction.
44. Appendix CC - at least one page is too dark to read. Please provide a legible copy.
45. Appendix EE - data results to be reviewed by ODH.
46. Appendix EE - page 1 of the 10/05/01 COC is missing. Please provide page 1.
47. Appendix EE - on the gamma spec, LCS results, it is unclear as to what is signified by the qualifier "P" (it may have been in the area where the binder punch obliterated it). Please provide the definition of this qualifier.
48. Appendix EE - the COCs for 10/08/01 are missing pages 1 and 2. Please provide these pages.
49. Appendix EE - on the COC (lab accession # 011064?), there is no signature indicating who the samples were relinquished to, nor by whom they were received. Please provide a completed COC.
50. Appendix FF - data results to be reviewed by the ODH.
51. Appendix GG - data results to be reviewed by the ODH.
52. Appendix HH - data results to be reviewed by the ODH.
53. Appendix II - data results to be reviewed by the ODH.
54. Appendix JJ - data results to be reviewed by the ODH.
55. Appendix MM - data results to be reviewed by the ODH.

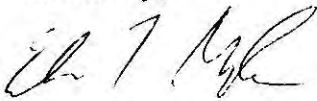
Mr. Mark Patterson
September 23, 2003
Page 6

56. Appendix NN - data results to be reviewed by the ODH.

57. Appendix OO - data results to be reviewed by the ODH.

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

Sincerely,



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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Irv Venger, RVAAP
LTC Tom Tadsen, RVAAP
Joe Crombie, ODH
Dan Spicuzza, NWT

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



State of Ohio Environmental Protection Agency

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TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

October 10, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
MONAZITE SAND PHASE IV PROJECT

Mr. Mark Patterson
Environmental Program 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: "Ravenna Army Ammunition Plant, Former West Tank Farm Area, Remediation of Elevated Areas of Activity, Draft Interim Report, Project No. USA 00-005, Monazite Sand Removal, Phase IV." This report, dated September 17, 2003 and received at Ohio EPA, NEDO, DERR, on September 22, 2003, was prepared by New World Technology (NWT).

Please be advised that this correspondence solely represents the review of Ohio EPA, NEDO, DERR. This document is also undergoing review by personnel from the Ohio Department of Health (ODH), as they are the lead regulatory agency on this project. The ODH comments on this document will be submitted to your attention when they are received by Ohio EPA.

Additionally, the following summary points/action items are based upon the conference call held on October 10, 2003 between Ohio EPA, Ravenna Army Ammunition Plant (RVAAP), NWT and ODH:

- A. Joe Crombie (ODH) verbally indicated that the 4 pCi/g of Th²³² Derived Concentration Guideline Limit (DCGL) is based upon a residential free release (for radiological constituents only) scenario. Joe will formally put this determination in writing (stand-alone correspondence) to Ohio EPA, NWT and RVAAP.
- B. Dan Spicuzza (NWT) will provide hard copies of the revised work plan to Ohio EPA, ODH, RVAAP, and the Nuclear Regulatory Commission (NRC). Subsequent to the receipt of this work plan, Irv Venger (RVAAP) will set up a conference call with the referenced parties to discuss the scope of the work plans, regulatory jurisdiction, close-out, etc.

Mr. Mark Patterson
October 10, 2003
Page 2

- C. Additionally (not discussed during the call), Ohio EPA and RVAAP will need to discuss any additional sampling (non-radiological) that will need to be done in order to obtain complete close-out of this Area of Concern (AOC). Subsequent to resolution of this issue, conversations can then commence regarding the backfilling and grading of this AOC.

Report Comments:

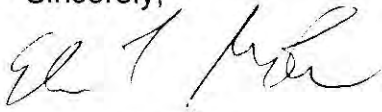
1. At an appropriate place in the document, please indicate that when the term "remediation" is utilized, it actually means "removal."
2. On page 2 (second full paragraph), the text implies that the RVAAP produced explosives. Although RVAAP did load, assemble, and pack (LAP) munitions and store explosives, the installation never produced explosives. Please make the necessary text change.
3. On page 2 (fourth full paragraph), please add additional text to the report that indicates that although this AOC is physically remote, there are no barriers (i.e., fencing) present and, as such, there is a potential to gain access to this AOC.
4. On page 2 (fourth full paragraph), please add additional text to the report which describes how it was determined that this AOC presents no threat to the environment.
5. Based upon the October 10, 2003 conference call, please revise the text on page 7 (Section 6.1.1, last paragraph) to indicate that the DCGL that was derived for this AOC is based upon a residential scenario.
6. On page 10, please provide the source for the 1.6 g/cm^3 that was used for soil density.
7. On page 11 (Sections 6.3 and 6.4):
 - a. The text indicates that the gamma count rate in the railroad track area increased to approximately 20,000 gross gamma counts per minute (cpm), which is above the 16,000 cpm action level. The text then indicates that all laboratory sample results were below the DCGL. Please provide clarification.
 - b. How were the sample locations, frequency (etc.) selected?
8. On page 12 (first full paragraph):
 - a. Please define DCGL_{EMC} .
 - b. Please clarify how the DCGL_{EMC} relates to the DCGL derived by ODH.

Mr. Mark Patterson
October 10, 2003
Page 3

9. On page 12 (table 1):
 - a. Please provide an explanation for the N/A that appears in the size of area (square meters) for the railroad track samples.
 - b. This would be an appropriate place in the report to summarize all the detections of target nuclides which appear in Appendix B. This would require the creation of an additional summary table.
10. On page 13 (Section 8.0), Ohio EPA concurs with the conclusion that additional work is warranted at this AOC.
11. In Appendix A, please provide legible copies of the waste shipment documentation. The reason this is requested is due to the fact that in two places it appears that six drums were sent for disposal, while on another sheet it looks like eight drums were sent for disposal.

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

Sincerely,



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

ETM/kss

- cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Irv Venger, RVAAP
LTC Tom Tadsen, RVAAP
Joe Crombie, ODH
Dan Spicuzza, NWT
- ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR



State of Ohio Environmental Protection Agency

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TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

October 31, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
MONAZITE SAND PHASE IV PROJECT
REVISIONS 1 AND 2

Mr. Mark Patterson
Environmental Program 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 two documents entitled: "Interim Report, Remediation (Removal) of Elevated Areas of Activity, Ravenna Army Ammunition Plant, Former West Tank Farm Area, Monazite Sand Removal, Phase IV." These reports, dated October 20, 2003 (revision 1) and October 24, 2003 (revision 2) and prepared by New World Technology (NWT), were received at Ohio EPA, NEDO, DERR, on October 22, 2003 and October 29, 2003, respectively. Both revisions of the report were compared to the draft report, dated September 17, 2003, and previous Ohio EPA comments mailed to your attention on October 10, 2003.

Please be advised that this correspondence solely represents the review of Ohio EPA, NEDO, DERR. These documents are also undergoing review by personnel from the Ohio Department of Health (ODH), as they are the lead regulatory agency on this project. The ODH comments on this document will be submitted to your attention when they are received by Ohio EPA.

Both documents were revised in accordance with previous Ohio EPA, NEDO, DERR, comments.

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

Sincerely,

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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Irv Venger, RVAAP
LTC Tom Tadsen, RVAAP
Joe Crombie, ODH
Dan Spicuzza, NWT

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



November 17, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
MONAZITE SAND STATUS SURVEY

Mr. Mark Patterson
Environmental Program 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: "Amended Final Status Survey Plan, Ravenna Army Ammunition Plant, Former West Tank Farm Area, Monazite Sand Removal Project, Phase IV." This report, dated October 31, 2003 and received at Ohio EPA, NEDO, DERR, on November 10, 2003, was prepared by New World Technology (NWT) under project order # USA 00-005.

Please be advised that this correspondence solely represents the review of Ohio EPA, NEDO, DERR. This document is also undergoing review by personnel from the Ohio Department of Health (ODH), as they are the lead regulatory agency on this project. The ODH's comments on this document will be submitted to your attention when they are received by Ohio EPA.

Ohio EPA, NEDO, DERR, has the following comments on the above-referenced report:

1. In several sections of the report, there are references made to the Derived Concentration Guideline Limit (DCGL) of 4.9 pCi/gram. In October 29, 2003, correspondence from NWT to Ohio EPA and the ODH, there is an indication that the "correct DCGL" of 4.9 pCi/gram" would be used, as was discussed in a conference call with ODH on the same date. This changed the DCGL from 4.0 pCi/gram to 4.9 pCi/gram. No one from Ohio EPA was in on the call or involved in the decision-making and, as such, the impact of this change will need to be discussed internally and agreed-upon between ODH and Ohio EPA, before Ohio EPA will concur with the change. This issue was previously brought to your attention in an e-mail dated November 12, 2003. This comment is applicable to the following pages: 1 (section 2.0); 3 (section 3.0); 4 (section 4.2.1); 9 (section 4.3.6); and 13 (section 5.1.2)
2. On September 7, 2001, an e-mail was sent to your attention regarding the issue of groundwater at this area of concern (AOC). Any thoughts on how this medium will be handled? This may impact upon the "free-release" (from radiological constituents only) that is being sought. (General comment on section 2.0, page 1)
3. Provide a discussion in the revised text which details the difference between a DCGL, a DCGL_w and a DCGL_{EMC}. (Page 3, section 3.0)

Mr. Mark Patterson
November 17, 2003
Page 2

4. In section 4.2.1 (page 4), please revise the text to clearly indicate that the free-release which is being sought is solely from radiological constituents.
5. In section 4.2.1 (page 5), as a point of information, the ODH will be sending all stakeholders formal correspondence which verifies that the DCGL was derived based upon a resident farmer scenario.
6. In section 4.3.6 (page 8), the text indicates that the modeling was utilized to "determine the net exposure rate produced by 4.0 pCi/gram of Th-232 and its daughters of contaminated soil." In the event that 4.9 pCi/gram is utilized, will these calculations need to be re-run?
7. Add LGBR (lower bound of the grey region) to the acronym list. (Page 9 section 4.3.7)
8. Section 5.1 (page 12) indicates that the number of soil samples to be obtained from each grid unit is 24; section 5.1.1.1 indicates that the number of samples to be obtained is 16. Please rectify the apparent discrepancy.
9. With respect to soil sampling at the grids and at the two reference areas, Ohio EPA will want to split sample a certain percentage. Please ensure that Ohio EPA has at least one month of lead time prior to sampling, such that the appropriate arrangements can be made with Ohio EPA's contract lab.
10. For figures 1 and 2, please ensure that the appropriate heading is paired with the correct figure.
11. On figure 4 (survey unit # 2), please ensure that the northernmost dimension of the unit is legible.

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

Sincerely,



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

ETM/kss

- cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Irv Venger, RVAAP
LTC Tom Tadsen, RVAAP
Joe Crombie, ODH
Dan Spicuzza, NWT
- ec: Mike Eberle, Ohio EPA, NEDO, DERR
Todd Fisher, Ohio EPA, NEDO, DERR



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

December 02, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
MONAZITE SAND REVISED PHASE I
AND III REPORT

Mr. Mark Patterson
Environmental Program 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 Report, Ravenna Army Ammunition Plant, Monazite Sand Removal Project, Phase I and III." This report, dated October 14, 2003 and received at Ohio EPA, NEDO, DERR, on November 12, 2003, was prepared by New World Technology (NWT) under project order # USA 00-005.

This document was compared to the draft document received by Ohio EPA on July 18, 2003; Ohio EPA comments on the draft report, dated September 23, 2003; and NWT's responses to Ohio EPA comments, dated October 14, 2003. The report has been revised in accordance with previous Ohio EPA comments.

Comments from the Ohio Department of Health (ODH) were previously transmitted to your attention via electronic mail on November 19, 2003. In his correspondence, Mr. Crombie indicates that a conference call to discuss issues such as survey units would be advisable. I will ask Mr. Irv Venger of the Ravenna Army Ammunition Plant (RVAAP) to make arrangements for scheduling this call.

On December 02, 2003, a call was held between Joe Crombie, ODH, and me, to discuss the issue of the Derived Concentration Guideline Limit (DCGL) changing from 4.0 pCi/gram to 4.9 pCi/gram. As this is the original DCGL calculated by ODH using the Residential Farmer scenario and has been determined by ODH to be protective of human health and the environment, Ohio EPA concurs with the use of 4.9 pCi/gram as the DCGL for the Monazite AOC.



MR. MARK PATTERSON
DECEMBER 02, 2003
PAGE 2

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

Sincerely,



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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Irv Venger, RVAAP
LTC Tom Tadsen, RVAAP
Joe Crombie, ODH
Dan Spicuzza, NWT

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



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

December 08, 2003

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
MONAZITE SAND REVISED
PHASE IV REPORT

Mr. Mark Patterson
Environmental Program 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: "Interim Report, Remediation (Removal) of Elevated Areas of Activity, Ravenna Army Ammunition Plant, Former West Tank Farm Area, Monazite Sand Removal Project, Phase IV." This report, dated October 29, 2003 and received at Ohio EPA, NEDO, DERR, on October 31, 2003, was prepared by New World Technology (NWT) under project order # USA 00-005.

This document was compared to the previous draft documents dated as follows: October 20, 2003 (revision 1) and October 24, 2003 (revision 2), as well as correspondence from Ohio EPA, dated October 31, 2003. The report is considered final, however, please note that on page 14 (in two places) the text should read 4.9 pCi/gram and not 4.9.0 pCi/gram.

Comments from Ohio Department of Health (ODH) were previously transmitted to your attention via electronic mail on November 19, 2003. In his correspondence, Mr. Crombie indicates that a conference call to discuss issues, such as survey units, would be advisable. I will ask Mr. Irv Venger of the Ravenna Army Ammunition Plant (RVAAP) to make arrangements for scheduling this call.

On December 02, 2003, a call was held between Joe Crombie, ODH, and me, to discuss the issue of the Derived Concentration Guideline Limit (DCGL) changing from 4.0 pCi/gram to 4.9 pCi/gram. As this is the original DCGL calculated by ODH using the Residential Farmer scenario and has been determined by ODH to be protective of human health and the environment, Ohio EPA concurs with the use of 4.9 pCi/gram as the DCGL for the Monazite AOC.



Mr. Mark Patterson
December 08, 2003
Page 2

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

Sincerely,



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

ETM/kss

cc: Bonnie Buthker, Ohio EPA, OFFO, SWDO
Irv Venger, RVAAP
LTC Tom Tadsen, RVAAP
Joe Crombie, ODH
Dan Spicuzza, NWT

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



State of Ohio Environmental Protection Agency

STREET ADDRESS:

Lazarus Government Center
122 South Front Street
Columbus, OH 43215

MAILING ADDRESS:

Lazarus Government Center
P.O. Box 1049
Columbus, OH 43216-1049

June 16, 2003

RAVENNA ARMY AMMUNITION PLANT US ARMY
8451 ST RT 5
RAVENNA, OH 44266

Re: Portage County
Ravenna Army Ammunition Plt/Office
Nontransient Noncommunity Water System
PWS ID:6784812
STU ID: 6761284
SMPID: EP001

Dear Public Water System Owner:

Ravenna Army Ammunition Plt/Office is in violation of Ohio Administrative Code (OAC) drinking water requirements for failing to monitor and report results of your drinking water during the January 1 to March 31, 2003 monitoring period for the following contaminant(s): Volatile Organic Chemicals.

In order to return to compliance, you must do each of the following:

- 1) Immediately submit a sample of your drinking water for analysis for all of the contaminants listed above to one of the state approved laboratories on the enclosed list. The sample should be collected from the first available tap after any treatment; **AND**
- 2) Notify the public of the violation using the enclosed instructions and public notice. If you wish to make any changes to the notice, telephone this office for verbal authorization before the public notice is issued. **Complete and return the enclosed verification form along with a copy of the public notice to this office.**

Continued noncompliance may result in enforcement actions. To avoid violations, perform all testing as required by your most recent monitoring schedule. Your public water system is responsible for ensuring that test results are reported to Ohio EPA no later than 10 days past the end of the monitoring period. Testing early within the scheduled time period will help your laboratory to complete the analysis and report the results to Ohio EPA within the deadline. If you have any questions regarding these requirements, or if the samples were collected and tested during the scheduled time period, please contact me at (614) 644-2752 or fax (614) 644-2909.

Sincerely,

Richard Ciotola
Compliance Assurance Section
Division of Drinking and Ground Waters

Enclosures: Public Notice; Public Notice Instructions and Verification Form; Laboratory List

cc: Superintendent/Manager; NEDO, DDAGW; Toni Buchanan, DDAGW

DRINKING WATER NOTICE

Monitoring requirements not met for Ravenna Army Ammunition Plt/Office

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the January 1 to March 31, 2003 time period we did not monitor for the following contaminants and therefore cannot be sure of the quality of our drinking water during that time: Volatile Organic Chemicals.

What Should I Do?

There is nothing you need to do at this time. You do not need to boil your water or take other corrective action.

This notice is to inform you that Ravenna Army Ammunition Plt/Office did not monitor and report results for the presence of the contaminants listed above in the public drinking water system during the January 1 to March 31, 2003 time period, as required by the Ohio Environmental Protection Agency.

What Is Being Done?

Upon being notified of this violation, the water supply was required to have the drinking water analyzed for the above mentioned parameters. The water supplier will take steps to ensure that adequate monitoring will be performed in the future.

Additional information may be obtained by contacting Ravenna Army Ammunition Plt/Office at:

Contact Person: _____

Phone Number: _____

Mailing Address: _____

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

PUBLIC NOTICE INSTRUCTIONS AND VERIFICATION FORM FOR NONCOMMUNITY PUBLIC WATER SYSTEMS WITH TIER 3 VIOLATIONS

The owner or operator of a noncommunity public water system with a Tier 3 violation or situation shall notify the persons served by the public water system as soon as practical but **no later than 30 days** after the system learns of the violation, unless the notice is included with the next bill to customers, then the notice shall be distributed no later than 90 days from the date of the violation. Public notice issued by posting shall remain in place as long as the violation or situation persists. Public notice issued by other methods shall be repeated annually as long as the violation or situation persists.

I HEREBY CERTIFY THAT THE PUBLIC WAS NOTIFIED BY THE FOLLOWING METHOD(S) INDICATED BELOW, AS DESCRIBED IN THE OHIO ADMINISTRATIVE CODE RULE 3745-81-32:

Required Method of Public Notification	Actual Method of Public Notification
<p>Use one or more of the following methods to reach all persons served by the public water system:</p> <ol style="list-style-type: none"> 1. Public notice issued by posting in conspicuous locations throughout the distribution system (required to remain posted for as long as the violation exists, but in no case less than 7 days) 2. Public notice issued by mail or other direct delivery to each customer and service connection (where known). 	<p>Describe actual methods used to notify public of the violation:</p> <p>1A. Dates of posting _____</p> <p>1B. Locations of posting _____</p> <p>_____</p> <p>_____</p> <p>2A. Date of mailing/delivery _____</p>
<p>If the above method does not reach all persons served, also use any other method reasonably calculated to reach other persons served by the system (e.g. publication in a local newspaper or newsletter, use of e-mail to notify employees or students, or delivery of multiple copies to central locations).</p>	<p>A. Method(s) _____</p> <p>_____</p> <p>_____</p> <p>B. Dates(s) _____</p> <p>_____</p>

Please check if the public notice used was provided by Ohio EPA (other side of this form) or another acceptable notice was used:

_____ A public notice as shown on the other side of this sheet was issued without changes.

_____ A different public notice was issued. **INCLUDE A COPY OF THE PUBLIC NOTICE.**

Signature of Responsible Person Date

Printed Name and Title of Responsible Person

For Ohio EPA use only:

Date PN received: _____

PN acceptable: _____ PN not acceptable: _____

PWS Name: Ravenna Army Ammunition Plt/Office
PWSID: 6784812
STUID: 6761284
Portage County
VOC M/R Violation
January 1 to March 31, 2003

	Aspartic Acid	Cyanide	Fluoride	Primary IOCs	Secondary IOCs	Nitrate	Nitrite	TOC (Alpha & Beta)	Radium 226 & 228	YOCs	TTHM	HAAs	Bromate	Chlorate	DOC & TOC	UV254	SOCs	SD	Diquat	Phthalate	Total Coliform	
COLUMBIANA CO. HEALTH DEPT - Lectonia: 330-427-8087																						✓
COSHOCTON ENVTL TESTING - Coshocton: 740-622-3328			✓	✓	✓	✓	✓	✓	✓				✓									✓
CUYAHOGA CO. WATER - Valley View: 216-443-8278																						✓
DATA CHEM LAB - Cincinnati: 513-733-5336																						✓
EASTERN LABORATORY - Fairlawn: 330-670-7920																						✓
ELCORP ENVTL. LABS - Zanesville: 740-452-9777																						✓
ENVIRONMENTAL ENTERPRISES - Cincinnati: 513-772-2818			✓	✓	✓	✓	✓	✓	✓				✓	✓					✓	✓	✓	✓
ERIE CO. SAN. ENG. LAB - Huron: 419-433-7303																						✓
FIRSTECH, INC - Warrensville Hts: 216-663-0808			✓	✓	✓	✓	✓	✓	✓													✓
GEAUGA CO. WATER LAB - Chardon: 440-285-2228 ext 3750									✓	✓												✓
GEL LABORATORIES OF OHIO, LLC - Cincinnati: 513-489-2001			✓	✓	✓	✓	✓	✓	✓				✓				✓	✓	✓	✓	✓	✓
GEO ANALYTICAL, INC - Twinsburg: 330-963-6990												✓	✓									✓
GREENE CO. SAN. ENG. LAB - Beavercreek: 937-426-6617									✓				✓									✓
JONES & HENRY LABS - Northwood: 419-666-0411			✓	✓	✓	✓	✓	✓	✓				✓	✓								✓
MASI LABORATORY - Dublin: 614-873-4654			✓	✓	✓	✓	✓	✓	✓													✓
MAHONING CO. HEALTH DEPT - Austintown: 330-270-2841									✓													✓
NOVACHEM LABS., INC. - Oxford: 513-523-3605															✓	✓						✓
OHIO DEPT. OF AGRICULTURE - Reynoldsburg: 614-728-6230			✓	✓	✓	✓	✓	✓	✓				✓							✓		✓
OHIO DEPT. OF HEALTH - Columbus: 614-466-2278											✓											✓
Q LABORATORIES - Cincinnati: 513-471-1300																						✓
REAM & HAAGER LAB - New Philadelphia: 330-343-3711			✓	✓	✓	✓	✓	✓	✓								✓	✓				✓
SEVERN TRENT LABS - North Canton: 330-497-9396			✓	✓	✓	✓	✓	✓	✓													✓
SPRINGFIELD ENVTL - Springfield: 937-324-8001																						✓
SUPERIOR LABORATORIES - Columbus: 614-793-8778																						✓
TCCI LABS - New Lexington: 740-342-1110									✓													✓
TEST AMERICA, INC - Dayton: 937-294-6856			✓	✓	✓	✓	✓	✓	✓				✓	✓								✓
WATER EVALUATION LAB - Wilberforce: 937-376-6193													✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ZANDE ENVTL. SERVICES - Columbus: 614-486-4383				✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



State of Ohio Environmental Protection Agency

STREET ADDRESS:

Lazarus Government Center
122 South Front Street
Columbus, OH 43215

MAILING ADDRESS:

Lazarus Government Center
P.O. Box 1049
Columbus, OH 43216-1049

August 25, 2003

RAVENNA ARMY AMMUNITION PLANT US ARMY
8451 ST RT 5
RAVENNA, OH 44266

Re: Portage County
Ravenna Army Ammunition Plt/Office
Nontransient Noncommunity Water System
PWS ID:6784812
STU ID: 6761284
SMPID: EP001

TO	8/29/03
✓	ENV
	CONTRACTORS 8/29/03
	RETURN FOR FILE

Dear Public Water System Owner:

Ravenna Army Ammunition Plt/Office is in violation of Ohio Administrative Code (OAC) drinking water requirements for failing to monitor and report results of your drinking water during the January 1 to June 30, 2003 monitoring period for the following contaminant(s): Asbestos, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cyanide, Fluoride, Mercury, Nickel, Selenium, and Thallium.

In order to return to compliance, you must do each of the following:

- 1) Immediately submit a sample of your drinking water for analysis for all of the contaminants listed above to one of the state approved laboratories on the enclosed list. The sample should be collected from the first available tap after any treatment; **AND**
- 2) Notify the public of the violation using the enclosed instructions and public notice. If you wish to make any changes to the notice, telephone this office for verbal authorization before the public notice is issued. **Complete and return the enclosed verification form along with a copy of the public notice to this office.**

Continued noncompliance may result in enforcement actions. To avoid violations, perform all testing as required by your most recent monitoring schedule. Your public water system is responsible for ensuring that test results are reported to Ohio EPA no later than 10 days past the end of the monitoring period. Testing early within the scheduled time period will help your laboratory to complete the analysis and report the results to Ohio EPA within the deadline. If you have any questions regarding these requirements, or if the samples were collected and tested during the scheduled time period, please contact me at (614) 644-2752 or fax (614) 644-2909.

Sincerely,
Kathleen Pinto

Kathleen Pinto
Compliance Assurance Section
Division of Drinking and Ground Waters

Enclosures: Public Notice; Public Notice Instructions and Verification Form; Laboratory List

cc: Superintendent/Manager; NEDO, DDAGW; Toni Buchanan, DDAGW

DRINKING WATER NOTICE

Monitoring requirements not met for Ravenna Army Ammunition Plt/Office

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the January 1 to June 30, 2003 time period we did not monitor for the following contaminants and therefore cannot be sure of the quality of our drinking water during that time: Asbestos, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cyanide, Fluoride, Mercury, Nickel, Selenium, and Thallium.

What Should I Do?

There is nothing you need to do at this time. You do not need to boil your water or take other corrective action.

This notice is to inform you that Ravenna Army Ammunition Plt/Office did not monitor and report results for the presence of the contaminants listed above in the public drinking water system during the January 1 to June 30, 2003 time period, as required by the Ohio Environmental Protection Agency.

What Is Being Done?

Upon being notified of this violation, the water supply was required to have the drinking water analyzed for the above mentioned parameters. The water supplier will take steps to ensure that adequate monitoring will be performed in the future.

Additional information may be obtained by contacting Ravenna Army Ammunition Plt/Office at:

Contact Person: _____

Phone Number: _____

Mailing Address: _____

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

DRINKING WATER NOTICE

Monitoring requirements not met for Ravenna Army Ammunition Plt/Office

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the January 1 to June 30, 2003 time period we did not monitor for the following contaminants and therefore cannot be sure of the quality of our drinking water during that time: Asbestos, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cyanide, Fluoride, Mercury, Nickel, Selenium, and Thallium.

What Should I Do?

There is nothing you need to do at this time. You do not need to boil your water or take other corrective action.

This notice is to inform you that Ravenna Army Ammunition Plt/Office did not monitor and report results for the presence of the contaminants listed above in the public drinking water system during the January 1 to June 30, 2003 time period, as required by the Ohio Environmental Protection Agency.

What Is Being Done?

Upon being notified of this violation, the water supply was required to have the drinking water analyzed for the above mentioned parameters. The water supplier will take steps to ensure that adequate monitoring will be performed in the future.

Additional information may be obtained by contacting Ravenna Army Ammunition Plt/Office at:

Contact Person: _____

Phone Number: _____

Mailing Address: _____

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

	Asbestos	Cyanide	Fluoride	Primary IOCs	Lead & Copper	Secondary IOCs	Nitrate	Nitrite	Total Alkalinity & Hardness	Radium 226 & 228	VOCs	TTHM	HAAs	Bromate	Chloride	DOC & TOC	UV254	SOCs	2,2,4-D	Diquat	Pthalate	Total Coliform	
COSHOCTON ENVTL. TESTING - Coshocton: 740-622-3328		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓										
CUYAHOGA CO. WATER - Valley View: 216-443-8278																							✓
DATA CHEM LAB - Cincinnati: 513-733-5336	✓																						
EASTERN LABORATORY - Fairlawn: 330-670-7920																							✓
ELCORP ENVTL. LABS - Zanesville: 740-452-9777																							✓
ENVIRONMENTAL ENTERPRISES - Cincinnati: 513-772-2818		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓				✓	✓	✓	✓	✓	✓
ERIE CO. SAN. ENG. LAB - Huron: 419-433-7303																							✓
FIRSTECH, INC - Warrensville Hts: 216-663-0808		✓	✓	✓	✓	✓	✓	✓	✓														
GEAUGA CO. WATER LAB - Chardon: 440-285-2228 ext 3750								✓	✓														✓
GEL LABORATORIES OF OHIO, LLC - Cincinnati: 513-489-2001		✓	✓	✓	✓			✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	
GEO ANALYTICAL, INC - Twinsburg: 330-963-6990												✓	✓										
GREENE CO. SAN. ENG. LAB - Beavercreek: 937-426-6617			✓					✓	✓			✓	✓										✓
JONES & HENRY LABS - Northwood: 419-666-0411		✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓									
MASI LABORATORY - Dublin: 614-873-4654		✓	✓	✓	✓	✓	✓	✓	✓														✓
MAHONING CO. HEALTH DEPT - Austintown: 330-270-2841						✓																	✓
NOVACHEM LABS., INC. - Oxford: 513-523-3605															✓	✓							
OHIO DEPT. OF AGRICULTURE - Reynoldsburg: 614-728-6230		✓	✓	✓	✓	✓	✓	✓	✓			✓	✓						✓				✓
OHIO DEPT. OF HEALTH - Columbus: 614-466-2278									✓	✓													
Q LABORATORIES - Cincinnati: 513-471-1300																							✓
REAM & HAAGER LAB - New Philadelphia: 330-343-3711		✓	✓					✓	✓								✓	✓					✓
SEVERN TRENT LABS - North Canton: 330-497-9396		✓	✓					✓	✓														
SUPERIOR LABORATORIES - Columbus: 614-793-8778																							✓
TCCI LABS - New Lexington: 740-342-1110			✓			✓		✓	✓														✓
TEST AMERICA, INC - Dayton: 937-294-6856		✓	✓	✓	✓			✓	✓			✓	✓										✓
TRI-STATE LABORATORIES, INC - Youngstown: 330-797-8844																							✓
WATER EVALUATION LAB - Wilberforce: 937-376-6193													✓	✓		✓	✓	✓					
ZANDE ENVTL. SERVICES - Columbus: 614-486-4383			✓	✓	✓	✓	✓	✓	✓			✓	✓	✓			✓	✓	✓	✓	✓	✓	✓



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

Bob Taft, Governor
Christopher Jones, Director

December 10, 2003

RE: PORTAGE COUNTY
RAVENNA ARMY AMMUNITION PLANT
NTNC WATER SYSTEM
PWS ID NO. 6784812

Mr. John Cicero, COR
Ravenna Army Ammunition Plant
8451 SR 5
Ravenna, Ohio 44266

Dear Mr. Cicero:

On December 2, 2003 I met with Mr. James McGee of TolTest, Inc. to conduct an evaluation of the Ravenna Army Ammunition Plant (RVAAP) public water supply system.

The purpose of this evaluation was to determine the ability of the facility to provide adequate, safe and potable water meeting the Ohio EPA primary and secondary drinking water rules. General supervision of the operation and maintenance of public water supply systems is a function of this agency as set forth in section 6109.04 of the Ohio Revised Code.

The evaluation revealed the following about which we have comment and/or recommendation:

1. **SYSTEM SUMMARY**

RVAAP is defined as a non-transient, non-community public water system. The system serves Building 1037 and Building 1038, both administration buildings, and Post 1, the guard building by the main gate. With the reduction in the number of national guard personnel assigned to this facility, the population presently served by the system over a twenty-four hour period is 25. On October 1, 2002 detailed plans for a new water treatment system were approved by the director. This new system includes one existing well located behind the fence behind Building 1039 (diagonally across the street from Building 1037) followed by one pressure tank and two green sand filters located in Building 1037. The flow rate is restricted to 3 gpm/ft² through the filters. After installation of the new treatment system, it was agreed that a small pressure tank could be installed after the filters to assist with pressure in the distribution system.



2. **SYSTEM OPERATION**

- A. Inside Building 1037, the water line from the well divides to feed the ceiling sprinklers and the potable water treatment system. We understand that the sprinkler system then divides into two lines, each with a single check valve. Single check valves are not considered adequate backflow prevention devices. An NSF approved "double check valve assembly" backflow prevention device should be installed on the line feeding the sprinkler system as close to the potable water line as possible. This will prevent potential backflow from the sprinkler lines into the potable water system. This backflow device should be tested annually to ensure that it remains in working condition.

- B. In reference to comments regarding system operation from the previous correspondence dated February 7, 2002, the ground around the well casing has been landscaped so that water no longer collects around the casing but is directed away from the area. The well water was analyzed for all parameters required in a complete well scan and the results were satisfactory. The old pressure tank and softeners were replaced with a new tank and green sand filters per detailed plan approval.

3. **BACTERIA SAMPLING REQUIREMENTS**

Bacteria samples have been collected as required during the past year. In summary, all NTNC water systems are required to submit water samples for analysis to an approved laboratory and to receive results indicating one "TOTAL COLIFORM NEGATIVE" sample per quarter. Any other result requires additional samples to be collected in accordance with the regulations. All sample results must be forwarded to this office. The quarters have been established as follows:

January 1 - March 31
April 1 - June 30
July 1 - September 30
October 1 - December 31

4. **BACTERIA SAMPLE SITING PLAN**

Bacteria sampling is to be conducted in accordance with a formal bacteria sample siting plan. This plan has been completed and was available for review at the time of this evaluation.

5. **CHEMICAL MONITORING CALENDAR**

All chemical samples have been collected in accordance with the 2003 chemical monitoring calendar. An inorganic chemical sample was collected on March 14, 2003. Nitrate, nitrite, asbestos and SOC samples were collected on September 16, 2003. Quarterly VOC samples were collected in March, June, September and November. You will be receiving your 2004 calendar in the next few weeks. Please review it carefully.

6. **LEAD AND COPPER MONITORING**

Lead and copper monitoring was conducted for the first two six-month monitoring periods as required. Samples were collected on March 14, 2003 and September 16, 2003 and all results were satisfactory. Monitoring has been reduced to once per year. The next set of five samples are required to be collected between **June and September 2004**. Please be reminded that when results are received they are to be recorded on the three page reporting form and the form forwarded to this office for review.

7. **SOURCE WATER ASSESSMENT PROGRAM (SWAP)**

The 1996 Amendments to the Safe Drinking Water Act require Ohio EPA to conduct source water assessments for all public water systems. The assessment of your water system will assist you in identifying the potential threats to your water supply and help you develop protective strategies. You will be contacted by our Ground Water section in the future regarding assistance with conducting this assessment.

8. **CERTIFIED OPERATOR REQUIREMENTS**

New regulations regarding requirements for a properly certified operator to be placed in responsible charge of the water system have been developed. As a NTNC water system, you have received the new classification as a Class A water system. We understand that Mr. McGee has applied for the Limited Class A operator license. You will be receiving confirmation of this application and information about continuing education requirements in the future.

I would like to thank Mr. McGee for his assistance with this evaluation. If additional information or assistance is desired, please contact me at the Northeast District Office, Twinsburg, (330) 963-1235.

Respectfully,



Leslie Otten
Environmental Specialist
Division of Drinking and Ground Waters

LAO:cla

pc: Portage County Health Department
Dave Evans, DDAGW, CO



State of Ohio Environmental Protection Agency

STREET ADDRESS:

Lazarus Government Center
122 S. Front Street
Columbus, Ohio 43215

TELE: (614) 644-3020 FAX: (614) 644-3184

MAILING ADDRESS:

P.O. Box 1049
Columbus, OH 43216-1049

December 10, 2003

Dear Public Water System Owner:

Enclosed you will find a copy of your water system's **2004 chemical monitoring requirements**. Please note that due to new monitoring requirements, this is the first year that many public water systems are receiving both an **Entry Point Schedule** and a **Distribution Schedule**. After reviewing these schedules, post them in a visible location to remind you of when to sample.

IMPORTANT REMINDERS ABOUT DRINKING WATER SAMPLING

- 1) Contact a laboratory that is certified by Ohio EPA to perform the drinking water testing. A list of certified laboratories is included with this letter. The laboratory list is updated once a quarter and can be found at <http://www.epa.state.oh.us/ddagw/Documents/chemlabs.pdf>.
- 2) Give the laboratory complete information needed for correct reporting. Much of this information is listed on the enclosed monitoring schedules. You may want to send a copy of your schedules to the laboratory. If this information is not provided to your laboratory, your water system may have problems in meeting the monitoring and reporting requirements.
- 3) Clearly identify the location where a sample is collected and the Sample Monitoring Point (SMP) for this location when you submit your samples to a laboratory. For the chemicals listed on the **Entry Point Schedule**, the samples should be collected at the entry point (first available tap AFTER ANY TREATMENT) and marked with the EP00# listed at the top of the schedule. For the **Distribution Schedule**, sampling location information is listed for each individual chemical. Because the sampling locations vary between the chemicals, please review the schedules carefully to make sure you sample in the correct location and use the correct SMP code.
- 4) If your system is required to monitor for disinfection by-products (DBPs), you may find additional monitoring and reporting information enclosed. This additional information is being sent to public water systems that have not previously been required to monitor for DBPs, and to those systems that have additional DBP monitoring requirements for 2004. Please read through this information carefully, and if you have any questions regarding your DBP monitoring, please contact Rich Ciotola, Ohio EPA, at (614) 644-2752.
- 5) Chemical results must be submitted to Ohio EPA by the tenth day following the end of the monitoring period. For example, if you are required to monitor nitrate during the January 1 to June 30 monitoring period, the nitrate results must be submitted to Ohio EPA by July 10. To ensure that you meet this reporting deadline, please make arrangements with your laboratory to **sample early in the monitoring period**. Sampling at the end of a monitoring period could result in your system receiving a reporting violation.

If you have any questions regarding this information, please contact your district office, or call (614) 644-2752 and ask to speak with a representative in the Chemical Monitoring and Compliance Unit.

Sincerely,

Todd Kelleher, Supervisor
Chemical Monitoring and Compliance Unit
Division of Drinking and Ground Waters

Bob Taft, Governor
Jennette Bradley, Lieutenant Governor
Christopher Jones, Director

2004 CHEMICAL MONITORING ENTRY POINT SCHEDULE

PWS NAME: Ravenna Army Ammunition Pit/Office PWS TYPE: Nontransient Noncommunity Ground Water

PWS ID: 6784812 **Sample Monitoring Point: EP001**

STU NAME: Ravenna Army Ammunition Plant/Office * STU ID: 6761284

Effective Date: 1/1/04

THIS SCHEDULE DOES NOT INCLUDE ALL MONITORING REQUIREMENTS FOR YOUR SYSTEM.

Contact Northeast District Office at (330) 963-1200 to review additional monitoring for coliform, monthly operating parameters, and/or other monitoring requirements not included on this schedule.

Chemicals	2004	Date Samples Taken
INORGANICS	Antimony, total Arsenic, total Barium, total Beryllium, total Cadmium, total Chromium, total Cyanide, total Fluoride, total Mercury, total Nickel, total Selenium, total Thallium, total	1 Sample between Jan 1 and Jun 30
NITRATE		1 Sample between Jul 1 and Dec 31
NITRITE		1 Sample between Jul 1 and Dec 31
BROMATE		Not Required
CHLORINE DIOXIDE		Not Required
CHLORITE		Not Required
VOLATILE ORGANIC CHEMICALS (VOC's)		1 Sample quarterly Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec
SYNTHETIC ORGANIC CHEMICALS (SOC's)		Not Required

* A paired sample set refers to one source water and one treated water sample. A source water alkalinity is also required at the same time the TOC sample is taken.

2004 CHEMICAL MONITORING DISTRIBUTION SCHEDULE
PWS ID: 6784812 PWS Name: Ravenna Army Ammunition Plt/Office
Nontransient Noncommunity Ground Water POPULATION: 25
Effective Date: 1/1/04

THIS SCHEDULE DOES NOT INCLUDE ALL MONITORING REQUIREMENTS FOR YOUR SYSTEM.

Contact your district representative at Northeast District Office at (330) 963-1200 to review additional monitoring for total coliform, minimum requirements for chemical analysis for your monthly operating reports, and/or other monitoring requirements not included on this schedule.

Chemicals	2004	Date Samples Taken
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Asbestos	Not Required	
Chlorite	Not Required	
Haloacetic Acids (five) (HAA5)	Not Required	
Total Trihalomethanes (TTHM)	Not Required	

Disinfectants and Disinfection Byproducts Sampling Information

Guidance on monitoring for the Disinfectants and Disinfection Byproducts rule and how to identify sampling locations and use of the Sample Monitoring Point Identifiers (SMPIDs) can be found in the "Ohio EPA Sample Monitoring Plan Template for Disinfectants and Disinfection Byproducts". An electronic version of the template is located at <http://www.epa.state.oh.us/ddagw/Documents/new-ddbp-smp3.PDF>. A copy of this document is also available from your local Ohio EPA District Office. Any questions concerning this schedule or the Disinfectants and Disinfection Byproducts Rule can be directed to Richard Ciotola of the Ohio EPA DDAGW Central Office at (614) 644-3387 or richard.ciotola@epa.state.oh.us. Your district office representative is also available to provide assistance.

Multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the number of TTHM and HAA5 samples required, with approval from Ohio EPA.

* Total chlorine samples are collected in the distribution system at the same time and place as total coliforms are sampled.

** One sample for Chlorite at each of the following locations: near the first customer, at a location representative of the average residence time, and at a location reflecting maximum residence time of the water in the distribution system.

Asbestos Sampling Information

Collect one sample at a tap served by asbestos-cement pipe. The sample monitoring point (smp) code is DS000. Due to limited Laboratory capacity and a 48 hour filtering requirement, contact your lab early in the monitoring period to schedule a sampling date.

	Asbestos	Cyanide	Fluoride	Primary IOCs	Lead & Copper	Secondary IOCs	Nitrate	Nitrite	Total Alpha & Beta	Radium 226 & 228	VOCs	TTHM	HAAs	Bromate	Chlorite	DOC & TOC	UV254	SOC Group 1	SOC Group 2	Total Coliform	
CANTON WATER LAB - Canton: 330-489-3035						✓		✓	✓												✓
CINCINNATI CITY HEALTH DEPT - Cincinnati: 513-357-7230																					✓
COLUMBIANA CO. HEALTH DEPT - Leontonia: 330-427-8087																					✓
COSHOCTON ENVTL. TESTING - Coshocton: 740-622-3328			✓	✓	✓	✓	✓	✓	✓			✓	✓								✓
CUYAHOGA CO. WATER - Valley View: 216-443-8278																					✓
DATA CHEM LAB - Cincinnati: 513-733-5336	✓																				✓
EASTERN LABORATORY - Fairlawn: 330-670-7920																					✓
ELCORP ENVTL. LABS - Zanesville: 740-452-9777																					✓
ENVIRONMENTAL ENTERPRISES - Cincinnati: 513-772-2818			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓
ERIE CO. SAN. ENG. LAB - Huron: 419-433-7303																					✓
FIRSTECH, INC - Warrensville Hts: 216-663-0808			✓	✓	✓	✓		✓	✓												✓
GEAUGA CO. WATER LAB - Chardon: 440-285-2228 ext 3750								✓	✓												✓
GEL LABORATORIES OF OHIO, LLC - Cincinnati: 513-489-2001			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓
GEO ANALYTICAL, INC - Twinsburg: 330-963-6990												✓	✓								✓
GREENE CO. SAN. ENG. LAB - Beavercreek: 937-426-6617				✓				✓	✓			✓	✓								✓
JONES & HENRY LABS - Northwood: 419-666-0411			✓	✓	✓	✓	✓	✓	✓			✓	✓	✓							✓
MASI LABORATORY - Dublin: 614-873-4654			✓	✓	✓	✓	✓	✓	✓												✓
MAHONING CO. HEALTH DEPT - Austintown: 330-270-2841						✓		✓	✓												✓
NOVACHEM LABS., INC. - Oxford: 513-523-3605															✓	✓					✓
OHIO DEPT. OF AGRICULTURE - Reynoldsburg: 614-728-6230			✓	✓	✓	✓	✓	✓	✓			✓	✓							✓	✓
OHIO DEPT. OF HEALTH - Columbus: 614-466-2278										✓	✓										✓
Q LABORATORIES - Cincinnati: 513-471-1300																					✓
REAM & HAAGER LAB - New Philadelphia: 330-343-3711			✓	✓				✓	✓									✓	✓		✓
SEVERN TRENT LABS - North Canton: 330-497-9396			✓	✓				✓	✓												✓
SUPERIOR LABORATORIES - Columbus: 614-793-8778																					✓
TCCI LABS - New Lexington: 740-342-1110				✓	✓	✓		✓	✓												✓
TEST AMERICA, INC - Dayton: 937-294-6856			✓	✓	✓	✓		✓	✓			✓	✓								✓
TRI-STATE LABORATORIES, INC - Youngstown: 330-797-8844						✓															✓
ZANDE ENVTL. SERVICES - Columbus: 614-486-4383				✓	✓	✓	✓	✓	✓	✓		✓	✓	✓				✓		✓	✓



Ohio Department of Commerce

Division of State Fire Marshal
Bureau of Underground Storage Tank Regulations
8895 E. Main St. • P.O. Box 687
Reynoldsburg, OH 43068-9009
(614) 752-7938 FAX (614) 752-7942
www.com.state.oh.us

Bob Taft
Governor

Gary C. Suhadolnik
Director

January 08, 2003

MARK PETTERSON
DEPT OF THE ARMY
8451 STATE ROUTE 5
RAVENNA, OH 44266

SITE: RAVENNA ARMY AMMUNITION PLANT
1993 REMOVAL OF 1-550 GALLON
DIESEL UST (WATER WORKS BLDG #4)
8451 ST RT 5
RAVENNA OH
PORTAGE COUNTY
RELEASE #67000501-N00008

RE: NO FURTHER ACTION STATUS REGARDING CLOSURE REQUIREMENTS

Dear Mr. Petterson:

The Bureau of Underground Storage Tank Regulations (BUSTR) has reviewed all information submitted for the referenced release. Based on this information, BUSTR requires no further action under Ohio Administrative Code 1301:7-9-12, effective September 1992.

Thank you for your cooperation. If you have any questions, please contact our office at (614) 752-7938.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kelly J. Gill".

Kelly J. Gill
Corrective Action Supervisor

xc: Site File