Ohio Environmental Protection Agency (OEPA)

And

Ravenna Army Ammunition Plant (RVAAP)

1998 Correspondences

Inter-Office Communication

TO: JARNAL SINGH, ENVIRONMENTAL SPECIALIST, DSIWM

FROM: DIANE KURLICH, HYDROGEOLOGIST, DDAGW-NEDO

SUBJECT: RAMSDELL QUARRY LANDFILL, RAVENNA ARMY AMMUNITION PLANT, PORTAGE COUNTY, DRAFT GROUNDWATER INVESTIGATION SOW (STATEMENT OF WORK)

DATE: FEBRUARY 12, 1998

INTRODUCTION

The Army has submitted a draft SOW for a ground water investigation it is proposing to conduct at the Ramsdell Quarry Landfill at the Ravenna Army Ammunition Plant. The SOW is not a workplan, but is the scoping document used by the Army to procure bids. To ensure that the Ohio EPA and the Army agree on the scope of the work to be completed, the SOW has been submitted for Agency input prior to being submitted to the contractor for bid.

The facility has been monitoring ground water under the 1990 rules (OAC 3745-27-10). The facility has consistently "triggered" for the indicator parameters, total organic carbon, specific conductance, and total dissolved solids in monitoring wells MW-3 and MW-5. However, as summarized in IOCs from DDAGW to DSIWM dated July 30, and December 15, 1997, there are possibly problems with the monitoring system and/or the statistical methods that may be contributing to these triggers. In the SOW, the facility indicates that they will propose changing their ground water monitoring program to comply with OAC 3745-27-10 as revised in June 1994. The facility plans to make this change so that they will be able to use site specific parameters in its statistical analyses rather than the indicator parameters. DSIWM and the DDAGW are investigating what procedures will be necessary to facilitate changing the monitoring program to the 1994 revision of the rules and to revising the sampling parameters to include the site specific explosive compounds. The investigation proposed in the SOW includes activities to determine the possible source(s) of the explosives compounds that periodically are detected in all of the site monitoring wells.

At the request of DSIWM, the DDAGW has reviewed the SOW and has the following comments.

COMMENTS

1. The elevation of the bottom of waste placement is still unclear. Although the DDAGW agrees that monitoring wells screened at a shallower depth are needed, having an approximate elevation for the bottom of waste placement will aid in evaluating the proposed depths of the wells and also in determining whether there may be communication between the waste and the ground water. Determining if the ground water is in periodic contact with the waste, may be of assistance in determining why explosive compounds sometimes are detected in the ground water samples collected

from the site wells. Historic information concerning the construction of the landfill should be researched to determine the approximate elevation for the bottom of the waste if possible. If the approximate limits of the waste placement can be determined, the cross-sections should be revised to show where the waste is in relation to the ground water table. Because of safety concerns, the DDAGW is not recommending that any intrusive methods be used for this determination.

2. The facility recently resurveyed the top of casing and ground surface elevations for the present monitoring well system. The values obtained do not match the values obtained in 1990 when the system was originally surveyed. The discrepancies between the results of the 1990 and 1997 surveys range from 0.08 feet to 5.1 feet. It is recommended that the wells be resurveyed to confirm which of the data are correct. The facility should explain why there is such a large difference between the elevations measured in 1990 and 1997. If the 1997 survey results are confirmed, the facility should reevaluate the historical ground water elevation data and ground water flow directions. Current water level elevation data also should be collected, water level elevations calculated, and ground water flow direction(s) calculated. The reevaluated historical and the current ground water elevation data and accompanying ground water flow maps should be submitted to the Ohio EPA for review.

   Until the facility has provided the above corrected ground water flow maps, the Ohio EPA cannot comment on the adequacy of the proposed ground water monitoring system. One of the primary DDAGW concerns about the present monitoring system is that there are not a sufficient number of downgradient wells. The above study concerning the present and historic ground water flow directions should be completed prior to proposing monitoring well locations. The monitoring system proposed should have, at a minimum, three downgradient wells.

   Enclosure 7, showing the location of proposed well MW-10, does not include a scale and, thus, it is not possible to determine how far from the Ramsdell Quarry Landfill it will be located. To adequately evaluate the proposed location of this well, this information is required.

3. On page 3, the facility states that ground water monitoring has been preformed in accordance with a ground water monitoring program revised in October 1997. It is unclear to what revised ground water monitoring program the facility is referring. The most recent ground water monitoring program plan for the Ramsdell Quarry Landfill on file at the Ohio EPA is from March 1995. This should be clarified. The Ohio EPA should be notified, in writing, in advance of any changes in the approved ground water monitoring plan for the Ramsdell Quarry Landfill.

4. Cyanide samples are not typically field filtered. The facility should explain why it proposes to field filter these samples.

5. It is unclear if the explosives method proposed is SW-846 Modified Method 8330. This should be clarified.

CONCLUSIONS

In order to better evaluate potential sources of the explosive compounds that periodically are detected in the site wells, a search of the historical records should be completed to determine where the bottom of the waste is in relation to the ground water table. This information will also be of assistance in evaluating the proposed depths of the additional wells. If possible, the cross-sections should be modified to show the approximate limits of waste placement in relation to the ground water table. In addition, the DDAGW cannot adequately evaluate the proposed locations for the additional wells until the confusion concerning the surveyed elevations of the wells is resolved and the historical ground water elevation data and ground water flow directions are reevaluated with respect to the new well elevations. The facility should ensure that any proposed monitoring system has, at a minimum, three downgradient wells. The proposed distance of MW-10 from the landfill should be specified and a scale should be added to Enclosure 7. The clarifications requested in comments 3, 4, and 5 also should be submitted.

Reviewed by Scott Williams, Lead Worker, DDAGW-NEDO.

DEK:ca

pc: Jeff Patzke, Unit Supervisor, DDAGW-CO
Chris Khourey, Geology Program Supervisor, DDAGW-NEDO
Kurt Princic, Group Leader, DSIWM-NEDO
Eileen Mohr, Site Coordinator, DERR-NEDO
Tracking ID#: DDAGW 02-11-98-03-1-20-2 DSIWM 1986

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 FAX (330) 487-0769

George V. Voinovich
Governor

2/20/98
DIRECTOR
PROGRAM
LAND
ENV
Cy. 2/20/98

February 18, 1998

RE: Draft Ground Water Investigation SOW
Ramsdell Landfill
Ravenna Army Ammunition Plant

Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

Attn.: Mr. John Jent.

Dear Mr. Jent:

The Ohio EPA Northeast District Office, Division of Drinking and Ground Waters (NEDO-DDAGW) has reviewed the draft SOW for the proposed ground water investigation to be conducted at the Ramsdell Quarry Landfill situated at the Ravenna Army Ammunition Plant. The SOW is not a work plan, but is the scoping document used by the Army to procure bids. The draft SOW was received by the Northeast District Office (NEDO) on February 2, 1998. This document was submitted to Ohio EPA for input prior to it being submitted to the contractor for bid.

The attached February 12, 1998 Inter-Office Communication (IOC) from Diane Kurlich of DDAGW-NEDO discusses the findings of the DDAGW review.

If you have any other questions or concerns regarding the findings of the DDAGW review, please do not hesitate to contact either Diane Kurlich at (330) 963-1292 or me at (330) 963-1276.

Sincerely,

Jarnal Singh

Jarnal Singh, RS
Environmental Specialist
Division of Solid and Infectious
Waste Management

JS:cl
Enclosure

cc: Diane Kurlich, DDAGW-NEDO
Virginia Wilson, DSIWM-NEDO
Eileen Mohr, DERR-NEDO
Duwayne Porter, Portage County HD
SEND COPIES TO: ~~Robert J. Kasper,~~ Ravenna Ammunition Plant
Robert Whelove, HQ-IOC
File: [LAND/Ramsdell/GRO/67]

CC: AMSIO-IRG (K DERINGER)
AMSIO-TRI (W. INGOLD)
COE, LOUISVILLE (JASPER)

INTER-OFFICE COMMUNICATION

TO: JARNAL SINGH, ENVIRONMENTAL SPECIALIST, DSIWM-NEDO

FROM: DIANE KURLICH, HYDROGEOLOGIST, DDAGW-NEDO

SUBJECT: RAMSDELL QUARRY LANDFILL (67-00-06), PORTAGE COUNTY, SAMPLING AND ANALYSIS PLAN ADDENDUM FOR THE GROUND WATER INVESTIGATION OF THE FORMER RAMSDELL QUARRY LANDFILL, DATED MAY 1998

DATE: JUNE 16, 1998

INTRODUCTION

The Army has submitted the above referenced workplan for modifying the ground water monitoring system at the Ramsdell Quarry Landfill and for performing additional work to better define the hydrogeology at the site. A meeting with the facility was held on June 4 to discuss preliminary comments concerning the workplan. The comments discussed at that meeting are summarized below. In addition, several additional comments not addressed at the meeting have been added in a separate section below.

COMMENTS DISCUSSED AT THE JUNE 4 MEETING

1. The facility proposes to install six new ground water monitoring wells at the site. The six new wells will be sampled six times during the first year--quarterly plus one sampling event during a particularly dry period and one sampling event during a particularly wet period. The company should be aware that ground water sampling in accordance with OAC 3745-27-10 must continue after this year long study is completed. Whether this sampling is quarterly or semiannually will depend on whether or not there is evidence that the landfill is affecting the quality of ground water at the site. There cannot, however, be a hiatus from sampling while a report of the results of the study are prepared and reviewed.

2. On page 3-2, the facility mentions the use of site wide background, meaning the background data currently being collected for the CERCLA portions of the larger Ravenna Army Ammunition Plant site, in the decision making process. The facility is reminded that the downgradient data collected at the Ramsdell Quarry Landfill will be compared to the upgradient data also collected at the Ramsdell Quarry Landfill in determining whether the landfill is affecting the quality of ground water at the site. The site wide background will not be used in these decisions. This section should be modified accordingly.

3. Page 4-2 mentions that after the ground water investigation is completed, that sampling will be conducted in accordance with OAC 3745-27-10 as revised in June 1994. The facility is reminded that the only way to switch to the rules as revised in June 1994, may be to sign a Consent Order with the Ohio EPA. The facility should work with DSIWM in determining the advantages and disadvantages of this change and the mechanisms that might be used to allow the company to change from the rules as revised in 1990 to the rules as revised in 1994. This section should be modified to indicate that ground water monitoring in accordance with OAC 2745-27-10 will continue after the hydrogeologic study is completed, however, it has not yet been decided whether this monitoring will be under the rules as revised in 1990 or 1994.

4. The DDAGW had concerns about the proposed placement of the downgradient wells at the site. Two of the wells were only marginally downgradient, none of the wells were particularly close to the edge of the landfill, and the one well that truly was downgradient of the landfill was also downgradient of a pond at the site. During discussions at the June 4 meeting, mutually acceptable locations for the wells were found. The site will have one upgradient well instead of the proposed three upgradient wells. Three of the downgradient wells will be placed between the base of the landfill and the pond. Two other downgradient wells will be placed downgradient of the pond. The one upgradient well plus the three downgradient wells located between the base of the landfill and the pond will be considered to be the ground water monitoring system for the landfill. The two wells downgradient of the pond, however, will also be sampled during the six sampling events proposed in the workplan for the hydrogeologic investigation. The workplan should be modified to document the agreed upon well locations.

5. On pages 1-6 and 4-2, it states that the facility is currently sampling ground water on a quarterly basis. These references should be changed to semiannual.

6. On page 1-8, it indicates that triggers of the indicator parameters have been sporadic. Actually MW-5 and/or MW-3 have regularly triggered for several of the indicator parameters. Detection of explosives, however, has been sporadic. This section should be modified accordingly.

7. On page 4-7, the facility indicates that the cores obtained during the drilling of the monitoring wells may be stored at the Ohio EPA. The Ohio EPA does not have a repository for cores and, thus, reference to possibly storing the cores at the Ohio EPA should be removed from the document.

8. On page 4-9, it indicates that sampling should follow well development within 24 hours. This should be changed to indicate that a minimum of 24 hours should pass between well development and well sampling. This section should be modified accordingly.

9. The workplan proposed to measure pond surface elevations to an accuracy of 0.1 foot. Because the pond surface elevations are being compared to the water level elevations obtained from the monitoring wells, they should be measured to an accuracy of 0.01 foot. The workplan should be modified accordingly.

10. On Table 1-2, page 1-3 of the QAPP Addendum, it appears that the "13" on the next to the last line of the table should be "14." This should be corrected.

ADDITIONAL COMMENTS NOT ADDRESSED AT THE JUNE 4 MEETING

1. The following sentence should be added to the end of the first paragraph in Section 4.1.1.2 on page 4-2: "Water level measurements will be collected from all of the site wells within a 24 hour period."

2. Because the depth to the water table may be very shallow in the area between the base of the landfill and the pond, the second paragraph of Section 4.1.2.3 should be revised to document screen placement in the event that the screen cannot be placed with three feet of screen remaining above the water table.

CONCLUSIONS

The workplan for the hydrogeologic study to be conducted at Ramsdell Quarry Landfill should be modified as per the comments above and should be resubmitted for review.

Reviewed by Eric Adams, Geologist 4, DDAGW-NEDO.

DK:bo

pc: Jeff Patzke, Unit Supervisor, DDAGW-CO
Christopher Khourey, Geology Program Supervisor, DDAGW-NEDO
Kurt Princic, Group Leader, DSIWM-NEDO
Tracking ID#: Ground Water 06-03-98-03-1-20-2 Solid Waste 2083

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 FAX (330) 487-0769

George V. Voinovich
Governor

June 23, 1998

Re: Sampling & Analysis Plan Addendum
Ramsdell Landfill
Ravenna Army Ammunition Plant

U.S. Army Corps of Engineers
600 Martin Luther King Place
P.O. Box 59
Attn.. CEORL-ED-GS
Louiseville, KY. 40201-0059

Attn.: Mr. John Jent. P.E.

Dear Mr. Jent:

The Ohio EPA Northeast District Office, Division of Drinking and Ground Waters (NEDO-DDAGW) has reviewed the facilities sampling and analysis workplan and addendum for the ground water investigation of the former Ramsdell Quarry Landfill, dated May 1998. A meeting was held at the facility to discuss the preliminary review of the workplan on June 4, 1998. The workplan was received at the NEDO on April 27, 1998.

The attached June 16, 1998 Inter-Office Communication (IOC) from Diane Kurlich of DDAGW-NEDO discusses the findings of the DDAGW review. In addition to the comments that were discussed during the June 4 meeting, the facility should also address the following comments concerning the workplan:

1. On page 3-1, the text indicates that "Note that because RQL is not currently an AOC with associated CERCLA requirements on data collection, a rigorous DQO process is not necessary for this investigation." Further explanation of this statement should be provided. Obtained data should be of high quality, and sufficient to support risk assessment purposes.

2. On page 4-2, the following sentence should be added to the end of the first paragraph in Section 4.1.1.2. "Water level measurements will be collected from all of the site wells within a 24 hour period."

3. On page 4-7, because the depth to the water table may be very shallow in the area between the base of the landfill and the pond, the second paragraph of Section 4.1.2.3 should be revised to document screen placement in the event that the screen cannot be placed with three feet of screen remaining above the water table.

4. On page 4-10, the term "surface" should be struck from the text that indicates that "Only those portions of each instrument that come in contact with potentially contaminated surface water will be decontaminated." This section deals with groundwater sampling.

5. On page 4-17, sediments samples obtained from the quarry pond should also be analyzed for TOC and grain size.

6. On page 7-1, the text should be changed to read "Within twelve weeks of the conclusion of the initial field effort, the waste hauler shall dispose of all IDW in accordance with all applicable State and Federal rules, laws, and regulations."

Please review and address the above comments and those in the attached IOC. If you have any questions or concerns regarding the findings of the DDAGW review, please do not hesitate to contact either Diane Kurlich at (330) 963-1292 or me at (330) 963-1276.

Sincerely,

Jarnal Singh

Jarnal Singh, RS
Environmental Specialist
Division of Solid and Infectious
Waste Management

JS:cl
Enclosure

cc: Diane Kurlich, DDAGW-NEDO
Virginia Wilson, DSIWM-NEDO
Eileen Mohr, DERR-NEDO
Duwayne Porter, Portage County HD
Mark Patterson, IOC- RVAAP
Bill Ingold, Rock Island Arsenal
File: [LAND/Ramsdell/GRO/67]

DEPARTMENT OF THE ARMY
RAVENNA ARMY AMMUNITION PLANT
8451 STATE ROUTE 5
RAVENNA, OHIO 44266-9297

REPLY TO
ATTENTION OF

June 24, 1998

SIORV-CR (200-1a)

Subject: Ohio Administrative Code 3745-27-13 - Generic Request for Authorization for the Ravenna Army Ammunition Plant

6/24/98
FOR
CF ENV 6/24

Mr. Donald Schregardus, Director
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216-1049

Dear Sir:

Please find enclosed the revised generic request for authorization to conduct investigative activities at the Ramsdell Quarry Landfill at RVAAP that is regulated under the Ohio Administrative Code 3745-27-13.

This request is forwarded for your review and concurrence.

Point of contact is Mr. John Cicero, (330) 358-7311.

Sincerely,

John A. Cicero, Jr.
Commander's Representative

Enclosures

Copies Furnished:
Ms. Eileen Mohr, Ohio Environmental Protection Agency, Division of Emergency and Remedial Response, Northeast District Office, 2110 East Aurora Road, Twinsburg, Ohio 44087
Mr. Jarnal Singh, Ohio Environmental Protection Agency, Division of Solid and Infectious Waste Management, Northeast District Office, 2110 East Aurora Road,Twinsburg, Ohio 44087
Mr. Stephen R. Uecke, Portage County Combined Health Department, Portage County Administration Building, 449 S. Meridian, 3rd Floor, Ravenna, OH 44266
Mr. Mark Patterson, Environmental Coordinator, Ravenna Army Ammunition Plant, Ravenna, Ohio 44266-9297
Commander, U.S. Army Industrial Operations Command, ATTN: AMSIO-EQE (Mr. Whelove, Jr.), Rock Island, IL 61299-6000
Commander, U.S. Army Industrial Operations Command, ATTN: AMSIO-IRG (Ms. Vermost), Rock Island, IL 61299-6000
LTC Tom Tadsen, Commander, Ravenna Training and Logistics Site, 1488 Newton Falls-Portage Road, Newton Falls, OH 44444
Mr. Jim McGee, Mason and Hanger Corporation, 8451 State Route 5, Ravenna, OH 44266-9297
Mr. John Jent, U.S. Army Corps of Engineers, Louisville District, P.O. Box 59 Louisville, KY 40201
Mr. Steve Selecman, Science Applications International Corporation, P.O. Box 2502, Oak Ridge, TN 37830

OHIO ADMINISTRATIVE CODE 3745-27-13

REQUEST FOR AUTHORIZATION
FOR THE
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

1. INTRODUCTION

This is a generic request for authorization from the Ohio Environmental Protection Agency (OEPA) to conduct investigative activities at the former Ramsdell Quarry Landfill, Area of Concern (AOC-1) at the Ravenna Army Ammunition Plant (RVAAP) that is regulated under the Ohio Administrative Code (OAC) 3745-27-13 (Authorization to engage in filling, grading, excavating, building, drilling, or mining on land where a hazardous waste facility or solid waste facility was operated), hereinafter referred to OAC Rule 13. The request for authorization under OAC Rule 13 addresses measures necessary to ensure that investigative activities (groundwater sampling, surface water sampling, and sediment sampling, etc.), necessary to evaluate this site are conducted according to OEPA environmental guidelines, and protective of human health and the environment.

The site was opened in 1941 as a landfill. From 1946 to 1950, the site was used to thermally treat waste explosives from Load Line 1 and napalm bombs. From 1976 to 1989, the site was used as a nonhazardous solid waste landfill. The sanitary landfill was closed in May 1990 under the State of Ohio Solid Waste Regulations. The current investigation aims at characterizing environmental conditions directly adjacent to the former landfill and the pond adjacent to the former landfill.

The status, plans, and schedule for current characterization activities of AOCs at RVAAP are presented in the *Action Plan for the Ravenna Army Ammunition Plant, Ravenna, Ohio* (USAEC, 1996). The facility Action Plan is revised annually to reflect current and planned environmental activities.

The following sections include the information required under an OAC Rule 13 authorization request, in the order in which it is specified. Because much of the information required under the provisions of OAC Rule 13 is contained in existing facility documents and sampling plans developed for conducting environmental investigations of AOCs at RVAAP, references to existing documentation are used where appropriate to meet the requirements of the rule.

2. LOCATION AND DESCRIPTION - OAC 3745-27-13(C)(1)

RVAAP is located in northeastern Ohio within Portage and Trumbull Counties, approximately 4. 8 kilometers (3 miles) east-northeast of the Town of Ravenna and approximately 1.61 kilometers (1 mile) northwest of the Town of Newton Falls. The installation consists of 21,419 acres (8668 hectares) contained in a 17.7-kilometers-long (11-mile-long), 5.63 kilometers-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 land use surrounding the installation is primarily farmland with sparse private residences. The Michael J. Kirwan Reservoir is located immediately south of the facility.

RVAAP is a government-owned, contractor-operated, U.S. Army Industrial Operations Command (IOC) facility. Currently, RVAAP is inactive, maintained by the contracted caretaker Mason and Hanger Corporation. Table 2-1 presents the RVAAP Command Organization, IRP executing agencies, and lead regulatory agencies.

Over the years, RVAAP handled and stored strategic and critical materials for various government agencies and received, stored, maintained, transported, and demilitarized military ammunition and explosive items.

The location of the RVAAP facility on a 7.5 minute USGS topographic map is provided in the *Preliminary Assessment for the Ravenna Army Ammunition Plant, Ravenna, Ohio* (SAIC 1996). The location, description, and operating history of the AOCs at RVAAP, including the one covered under this OAC Rule 13 request for authorization, are also included in the Preliminary Assessment. Figure 1 is an installation map showing the general location of the AOCs, and Figure 2 is a large scale map of the AOC currently proposed under this request, as required.

Table 2-1. RVAAP Organizational Responsibilities

Command Organization
Major Command: U.S. Army Materiel Command Major Subordinate Command: U.S. Army Industrial Operations Command Installation: RVAAP, Commander's Representative Installation Contractor: Mason & Hanger Corporation
Installation Restoration Program Executing Agency
U.S. Army Corps of Engineers, Louisville District
Regulatory Agencies
Ohio Environmental Protection Agency, Northeast District U.S. Environmental Protection Agency, Region V

3. INVESTIGATION ACTIVITIES - OAC 3745-27-13(C)(2)

The activities for which authorization is requested are necessary to evaluate environmental conditions at and adjacent to the former Ramsdell Quarry Landfill. The sampling at this AOC is expected to include investigative activities to evaluate potential sources of contamination and their impact on adjacent soils, groundwater, surface water, and sediment. The specific investigation activities for this AOC will be defined in an investigation specific sampling plan and submitted in draft for OEPA review and comment prior to conducting any investigative activities at an AOC.

The sampling is part of a Remedial Investigation (RI) and also to satisfy waste concerns (issues). Data generated during this project will be used for IRP management/environmental purposes.

Planned investigative activities at the AOC addressed under this request are: (1) installation and subsequent sampling of ground water monitoring wells, and (2) surface water and sediment sampling. Following is a brief description of the investigative activities planned:

Installation and sampling of six ground water monitoring wells Six (6) ground water monitoring wells will be installed and subsequently sampled. Samples will be forwarded to a laboratory for analyses. Analyses will include explosives, propellants, TAL metals, cyanide, VOC's, and SVOC's.

Surface water and sediment sampling - Surface water and sediment samples will be collected from the Ramsdell Quarry pond and submitted for laboratory analysis to characterize potential impacts on these areas.

4. PREVIOUS AND EXISTING PERMITS, APPROVALS, AND ORDERS - OAC 3745-27-13(C)(3)

Closure of the permitted sanitary Ramsdell Quarry Landfill was completed in May 1990 under State of Ohio solid waste regulations, OAC 3745-27-10, and RVAAP has monitored groundwater monitoring wells installed during closure since 1990.

5. LETTERS OF ACKNOWLEDGMENTS - OAC 3745-27-13(C)(4)

All parcels of land to which this request pertains are owned by the U. S. Army. Consequently, no letters of acknowledgment are included in this request for authorization under OAC Rule 13.

6. LETTERS OF NOTICE - OAC 3745-27-13(C)(5)

Letters of notice of this request for authorization are required, under the provisions of the OAC Rule 13, to be sent to the board of health for the health district for the area within which the facility is located. The Portage County Combined General Health District has been notified and a copy of this letter of notice is attached to this request for authorization as Attachment I. Because the Federal Government owns the RVAAP, local zoning authorities do not have jurisdiction over the facility; therefore, notices of this request for authorization were not sent to these agencies. The local zoning authorities were contacted to confirm their jurisdiction at RVAAP.

7. HISTORY OF HAZARDOUS WASTE OR SOLID WASTE TREATMENT, STORAGE OR DISPOSAL OPERATIONS - OAC 3745-27-13(C)(6)

A summary of all currently known hazardous waste and solid waste treatment, storage and disposal facilities at RVAAP is presented in the Preliminary Assessment. The history of the AOC proposed under this authorization request is included in the introduction to this document.

8. CLOSURE ACTIVITIES - OAC 3745-27-13(C)(7)

The Ramsdell Quarry Landfill (67-00-06) was closed in May 1990 under State of Ohio solid waste regulations. Hazardous waste and solid waste treatment, storage and disposal operations have ceased at all AOCs at RVAAP. A summary of all known previous closure activities for AOCs at RVAAP is presented in the Preliminary Assessment, and additional information is presented in the facility Action Plan.

9. INVESTIGATION METHODS AND PROCEDURES - OAC 3745-27-13(C)(8)

The investigation of this AOC at RVAAP will be conducted in accordance with a Facility-Wide Sampling and Analysis Plan, dated April 1996 and an AOC-specific sampling plan. This plan contains detailed methods and procedures for performing the described investigation activities.

10. ENVIRONMENTAL PROTECTION - OAC 3745-27-13(C)(9)

As previously described in Section 9 of this request, the investigation of this AOC will be conducted in accordance with the investigation specific sampling plan. This plan contains detailed methods and procedures for performing investigation activities. These procedures contain provisions for protection of the environment from investigative activities. In addition the sampling plan will detail that investigation derived wastes (IDWs) will be collected, containerized, sampled, and disposed of in accordance with all applicable state and federal rules, laws, and regulations.

11. REMOVAL OF SOLID OR HAZARDOUS WASTE, OR POTENTIALLY CONTAMINATED SOILS - OAC 3745-27-13(C)(10)

The only potentially contaminated material to be generated during the investigation of this AOC at RVAAP is expected to be soil/rock cuttings, purged groundwater and sampling equipment decontamination water. The sampling plan will contain provisions for sampling and analysis of IDW in accordance with applicable state and federal rules, laws, and regulations. If the IDW generated during the investigation is determined to be a hazardous waste, a copy of a letter of acceptance from a disposal facility will be submitted to the director prior to any removal of waste from the property.

12. CLOSURE PROCEDURES - OAC 3745-27-13(C)(11)

The information gathered through sampling and analysis is to be used as a management/environmental tool.

13. OAC RULE 13 AUTHORIZATION REQUEST SIGNATURES - OAC 3745-27-13(C)(12)(D)(l)(d)

The statements and assertions of fact made in this application are true and complete to my knowledge and comply fully with applicable state requirements as stated in OAC Rule 3745-27-13.

John A. Cicero, Jr.
Commander's Representative
Ravenna Army Ammunition Plant

Sworn to before me, by John A. Cicero, Jr., this
24th day of June, 1998.

Notary Public, My commission expires: 6-5-2002

DEPARTMENT OF THE ARMY
RAVENNA ARMY AMMUNITION PLANT
8451 STATE ROUTE 5
RAVENNA, OHIO 44266-9297

REPLY TO
ATTENTION OF

6/24/98

June 24, 1998

SIORV-CR (200-1a)

CJ ENV 6/24

Portage County Combined Health Department
Portage County Administration Building
449 South Meridian Street
Ravenna, Ohio 44266

Dear Sir or Madam:

This correspondence serves as notice, as required, under the Ohio Administrative Code (OAC) 3745-27-13 (authorized to engage in filling, grading, excavating, building, drilling, or mining on land where a hazardous waste facility or solid waste facility was operated) that a generic authorization is being requested from the Ohio Environmental Protection Agency (OEPA), Northeast District, to conduct investigative activities (drilling and soil sampling, monitoring well installation and groundwater sampling, trenching to collect waste material and soil samples, piezometer and well point installation, surface water and sediment sampling, and surface soil sampling) necessary to characterize an Area of Concern (AOC), the former Ramsdell Quarry Landfill, at the Ravenna Army Ammunition Plant, Ravenna, Ohio, under Comprehensive Environmental Response, Compensation, and Liability Act leading to the environmental restoration of AOC's under the U.S. Department of Defense Installation Restoration Program. The request for authorization is submitted as part of the Facility-Wide Sampling and Analysis Plan for the Ravenna Army Ammunition Plant, Ravenna, Ohio, (U.S. Army Corps of Engineers, 1996).

The Ravenna Army Ammunition Plant is located in northeastern Ohio within Portage and Trumbull Counties, approximately 4.8 kilometers (3 miles) east/northeast of the Town of Ravenna and approximately 1.61 kilometers (1 mile) northwest of the Town of Newton Falls. The installation consists of 8,668 hectares (21,419 acres), contained in a 17.7-kilometer-long (11-mile-long), 5.63-kilometer-wide (3.5-mile-wide) tract bounded by State Route 5, the Michael J. Kirwan Reservoir, 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 land use surrounding the installation is primarily farmland with sparse private residences. The Michael J. Kirwan Reservoir is located immediately south of the facility. A map of the facility is attached to this correspondence.

The Ravenna Army Ammunition Plant is a government-owned, contractor-operated U.S. Army Industrial Operations Command facility. Currently, the Ravenna Army Ammunition Plant is an inactive facility maintained by a contracted caretaker, Mason and Hanger Corporation.

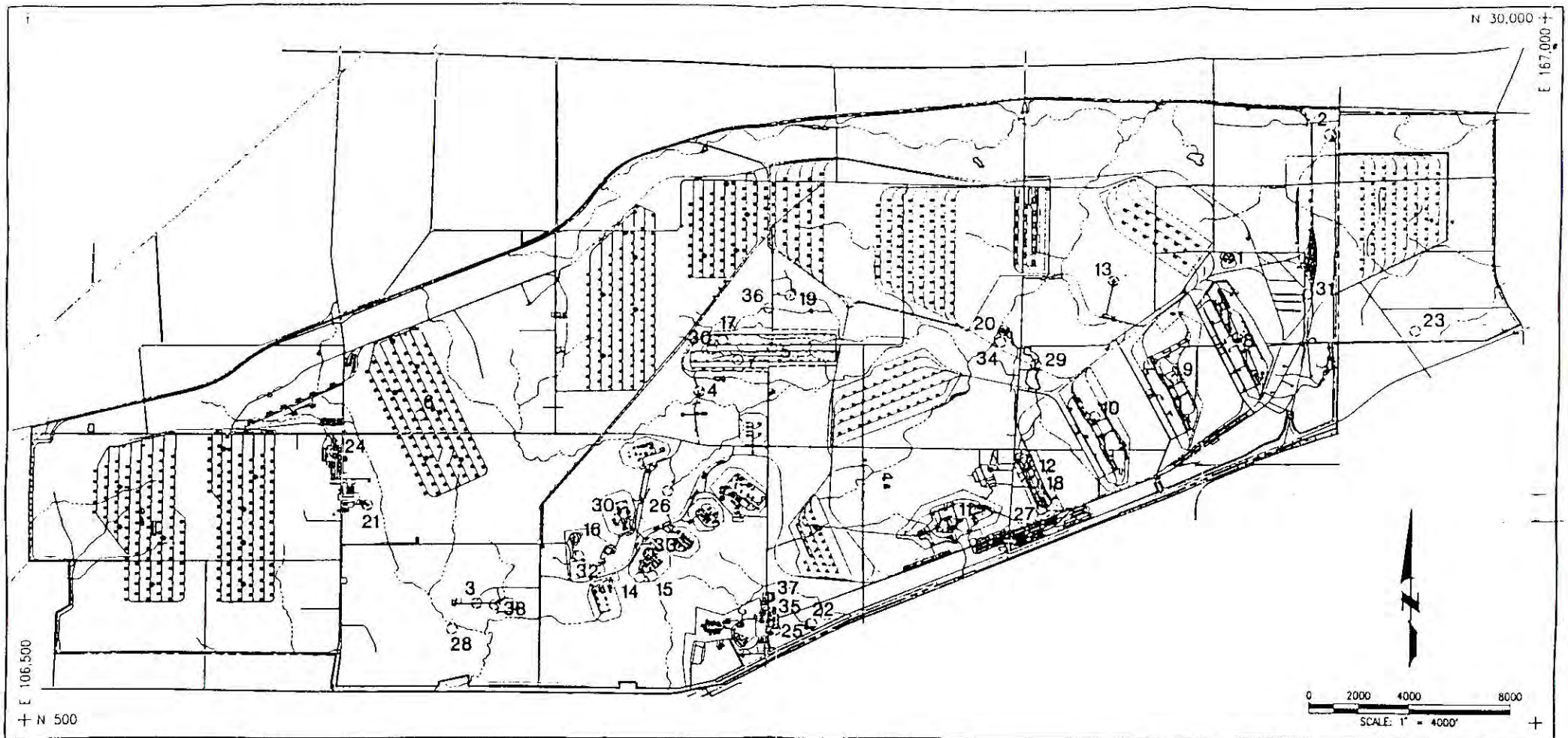
If you have any questions or concerns pertaining to this request for authorization under OAC 3745-27-13, you may contact me at (330) 358-7311, or Ms. Eileen Mohr with the OEPA in Twinsburg, Ohio at (330) 963-1221.

Sincerely,

John A. Cicero, Jr.
Commander's Representative

Enclosure

Copies Furnished:
Commander, U.S. Army Industrial Operations Command, ATTN: AMSIO-EQE (Mr. Whelove), Rock Island, IL 61299-6000
Commander, U.S. Army Industrial Operations Command, ATTN: AMSIO-IRB (Ms. Vermost), Rock Island, IL 61299-6000
LTC Tom Tadsen, Commander, Ravenna Training and Logistics Site, 1488 Newton Falls-Portage Road, Newton Falls, OH 44444
Mr. Jim McGee, Mason and Hanger Corporation, 8451 State Route 5, Ravenna, OH 44266-9297
Mr. John Jent, U.S. Army Corps of Engineers, Louisville District, CELRL-EN-EK, P.O. Box 59, Louisville, KY 40201
Mr. Steven Selecman, Science Applications International Corporation, P.O. Box 2502, Oak Ridge, TN 37831



LEGEND OF SITES:

1. RAMSDELL QUARRY LANDFILL
2. ERIE BURNING GROUNDS
3. DEMOLITIONS AREA #1
4. DEMOLITIONS AREA #2
5. WINKLEPECK BURNING GROUNDS
6. C BLOCK QUARRY
7. BLDG 1601 HAZARDOUS WASTE STORAGE
8. LOAD LINE 1 AND DILUTION/SETTLING POND
9. LOAD LINE 2 AND DILUTION/SETTLING POND
10. LOAD LINE 3 AND DILUTION/SETTLING POND
11. LOAD LINE 4 AND DILUTION/SETTLING POND
12. LOAD LINE 12 AND DILUTION/SETTLING POND
13. BLDG 1200 AND DILUTION/SETTLING POND
14. LOAD LINE 6, EVAPORATION UNIT
15. LOAD LINE 6, TREATMENT PLANT
16. QUARRY LANDFILL/FORMER FUZE & BOOSTER BURNING PITS
17. DEACTIVATION FURNACE
18. LOAD LINE 12 PINK WASTE WATER TREATMENT
19. LANDFILL NORTH OF WINKLEPECK BURNING GROUND
20. SAND CREEK SEWAGE TREATMENT PLANT
21. DEPOT SEWAGE TREATMENT PLANT
22. GEORGE ROAD SEWAGE TREATMENT PLANT
23. UNIT TRAINING SITE WASTE OIL TANK
24. RESERVE UNIT MAINTENANCE AREA WASTE OIL TANK
25. BLDG 1034 MOTOR POOL WASTE OIL TANK
26. FUZE BOOSTER AREA SETTLING TANKS
27. BLDG 854-PCB STORAGE
28. MUSTARD AGENT BURIAL SITE
29. UPPER AND LOWER COBBS POND COMPLEX
30. LOAD LINE 7 PINK WATER TREATMENT PLANT
31. ORE PILE RETENTION POND
32. 40 AND 60 MM FIRING RANGE
33. FIRESTONE TEST FACILITY
34. SAND CREEK DISPOSAL ROAD LANDFILL
35. 1037 BUILDING-LAUNDRY WASTEWATER SUMP
36. PISTOL RANGE
37. PESTICIDE BUILDING S-4452
38. NACA TEST AREA

US Army Corps of Engineers Nashville District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
NASHVILLE, TENNESSEE

RAVENNA ORDNANCE PLANT
AKRON, OHIO

FACILITY MAP

DRAWN BY	REV NO /DATE	CAD FILE
R BEELER	REV 0/02-09-96	95021/DWGS/19111X1/

Figure 4-1. Facility Map

OhioEPA
State of Ohio Environmental Protection Agency

STREET ADDRESS:
1800 WaterMark Drive
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

July 20, 1998

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
RAMSDELL QUARRY LANDFILL

Mr. John Cicero
Commander's Representative
Department of the Army
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna OH 44266-9279

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.
By: Jona L Clemins Date 7-20-98

Dear Mr. Cicero:

By written submissions dated June 11, 1998 and revised June 23, 1998, the Ravenna Army Ammunition Plant (RVAAP) has requested authorization, pursuant to Ohio Administrative Code (OAC) 3745-27-13, to fill, grade, excavate, drill, build, or mine at the Ramsdell Quarry Landfill Area of Concern (AOC) on the installation property.

The activities to be undertaken at the Ramsdell Quarry Landfill include: surface and sub-surface soil sampling; monitoring well installation and groundwater sampling; and, surface water and sediment sampling. These activities are being conducted under the Department of Defense (DOD) Installation Restoration Program (IRP) in order to investigate the quarry area in the vicinity of the landfill, and to supplement existing data on the sanitary landfill. The investigative workplan reviews and oversight are being provided by personnel from the Ohio Environmental Protection Agency's (OEPA) Division of Solid and Infectious Waste Management (DSIWM) and the Division of Drinking and Ground Waters (DDAGW). In addition, the OEPA Division of Emergency and Remedial Response (DERR) is providing technical assistance to the Department of the Army, as specified under the Defense - State Memorandum of Agreement (DSMOA).

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JUL 20 1998
O.E.P.A.

As part of the technical assistance provided by OEPA DERR, the following documents prepared by Science Applications International Corporation (SAIC), on behalf of the U.S. Army Corps of Engineers (USACE), have been reviewed and found to be acceptable submissions:

1. Final (March, 1996), "Action Plan for the Ravenna Army Ammunition Plant, Ravenna, Ohio";

2. Final (February, 1996), "Preliminary Assessment for the Ravenna Army Ammunition Plant, Ravenna, Ohio";

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7. This approval shall allow the RVAAP to conduct the described investigative activities in accordance with the above-referenced documents. The RVAAP must obtain prior approval from the Ohio EPA to perform any other additional activities at the above-referenced AOC beyond those being approved under this authorization, and prior to commencing intrusive activities at the other AOCs identified at the installation.

You are hereby notified that this action of the Director is final, and may be appealed to the Environmental Review Appeals Commission pursuant to ORC Section 3745.04. The appeal must be in writing and set forth the action complained of and the ground upon which the appeal is based. It must be filed with the Environmental Review Appeals Commission within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of Environmental Protection within three (3) days of filing with the Board. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
236 East Town Street
Room 300
Columbus OH 43215

Sincerely,

Donald R. Schregardus
Director

cc: Jamal Singh, OEPA, NEDO, DDAGW
Diane Kurlich, OEPA, NEDO, DERR
Bonnie Buthker, OEPA, SWDO, OFFO
Bob Princic, OEPA, NEDO, DERR
Eileen T. Mohr, OEPA, NEDO, DERR
John Jent, USACE Louisville

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JUL 20 98
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OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

September 3, 1998

Re: Sampling & Analysis Plan Addendum
Ramsdell Landfill
Ravenna Army Ammunition Plant

U. S. Army Corps of Engineers
600 Martin Luther King Place
P.O. Box 59
Attn.. CARL-ED-GS
Louiseville, KY. 40201-0059

Attn.: Mr. John Jent P.E.

Dear Mr. Jent:

The Ohio Environmental Protection Agency (Ohio EPA) has completed a review of the Sampling and Analysis Plan Addendum for the Ground Water Investigation of the former Ramsdell Quarry Landfill. The report was received at the Northeast District Office (NEDO) on June 26, 1998, and was reviewed by the Division of Drinking and Ground Waters (DDAGW) on August 11, 1998. This addendum was submitted in response to Ohio EPA's comments concerning a draft version of this document from a June 4, 1998 meeting and additional comments contained in a June 23, 1998 Ohio EPA letter. Ground water at the site is being monitored under the 1990 municipal waste rules (OAC 3745-27-10).

Upon review of this document, the following comments were made:

1. All of the comments conveyed to the facility during the June 4, 1998 meeting have been adequately addressed.

2. Comments 3 and 4 from the June 1998 Ohio EPA letter to the facility have been adequately addressed.

3. To adequately address comment 1 from the June 1998 Ohio EPA letter, the facility should explain the following statement from Section 3.2: "Note that because RQL is not currently an AOC with associated CERCLA requirements on data collection, a rigorous DQO process is not necessary for this investigation." Please be aware that all obtained data should be of high quality, and sufficient to support risk assessment purposes. The first paragraph of Section 3.2 should be modified accordingly and a replacement page submitted to Ohio EPA for insertion into the document.

4. To adequately address comment 2 from the June 1998 Ohio EPA letter, the facility should submit a replacement page with the requested modification to the first paragraph of Section 4.1.1.2 added. The requested modification is the addition of the sentence, "Water level measurements will be collected from all of the site wells within a 24 hour period."

5. To adequately address comment 5 from the June 1998 Ohio EPA letter, the facility should submit a replacement page with the requested modification to Section 4.3.2.2 added. The requested modification is adding TOC and grain size to the parameters analyzed for sediments samples from the quarry pond.

6. To adequately address comment 6 from the June 1998 Ohio EPA letter, the facility should submit a replacement page with the requested modification to Section 7.3 incorporated. The requested modification is changing the last sentence in the first paragraph to read, "Within twelve weeks of the conclusion of the initial field effort, the waste hauler shall dispose of all IDW in accordance with all applicable State and Federal rules, laws, and regulations."

Please address the above deficiencies and provide Ohio EPA with the replacement pages of the above requested modifications within 30 days of receipt of this letter.

If you have any technical questions regarding this review please contact Diane Kurlich at 330-963-1150. Please submit all correspondence to Jarnal Singh, at Division of Solid and Infectious Waste Management, Northeast District Office, Ohio EPA, 2110 East Aurora Road, Twinsburg, Ohio 44087.

Sincerely,

Jarnal Singh.

Jarnal Singh, R.S.
Environmental Specialist
Division of Solid and Infectious
Waste Management

JS:cl

pc: Kurt Princic, DSIWM-NEDO
Virginia Wilson, DSIWM-NEDO
Diane Kurlich, DDAGW-NEDO
Duwayne Porter, Portage Co. HD
Mark Patterson, IOC-RVAAP
File: [LAND/Ramsdell/GRO/67]

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171
FAX (330) 487-0769

George V. Voinovich
Governor

September 18, 1998

Re: Ground Water Monitoring
Ramsdell Landfill
Ravenna Army Ammunition Plant

U.S. Army Corps of Engineers
600 Martin Luther King Place
P.O. Box 59
Attn.. CARL-ED-GS
Louiseville, KY 40201-0059

Attn.: Mr. John Jent P.E.

Dear Mr. Jent:

The Ohio Environmental Protection Agency (Ohio EPA) has completed a review of the draft response to comments included in an Ohio EPA letter dated August 21, 1997, which concerned the review of a number of data submitals from the facility. This response was received during a meeting at the Ravenna Army Ammunition Plant (RVAAP) on December 4, 1997. Ohio EPA has not yet received a final version of this draft response letter. Since the December 4, 1998 meeting the facility has installed a new ground water monitoring system and has begun a hydrogeologic investigation to better define the geology and hydrogeology at the site. Many of the comments in the August 21, 1997 letter have been addressed by the additional work already completed at the site. Please ensure that item #5 below receives your immediate attention. A response to comment #5 should be submitted for review to Ohio EPA within 60 days of receipt of this letter.

The following comments concern the review of the draft RVAAP submittal

1. On the first page of the letter, the facility states that, "We believe now that based on the collected data, none of the five ground water monitoring wells is truly 'upgradient'."

   This statement is based on the fact that explosive compounds have been detected in all of the site wells including upgradient well MW-4. Ground water flow maps, however, indicate the MW-4, as well as MW-2, are hydraulically upgradient of the landfill. As previously discussed with the facility, the occurrence of explosive compounds in an upgradient well does not necessarily preclude its use as a background monitoring point. It may be used to indicate that there is contamination moving toward the landfill from some off-site source. The real measure of the contamination from the landfill itself comes in the statistical analysis of downgradient concentrations of possible contaminants to upgradient/background concentrations. Thus, the facility statement that there are no truly upgradient wells may not be accurate. A new upgradient well has been installed at the site as part of

upgrading the monitoring system as mentioned above. An evaluation of the adequacy of the new upgradient well will be completed in the future when the facility submits data from the well along with installation information (e.g., well boring and construction logs).

The purpose of this comment is to provide additional information to the facility. No action by the facility concerning this issue is required at this time.

2. Additional ground water flow maps submitted with the response letter indicate that the flow at the site is radially toward the pond located in a depression downgradient of the landfill. This is a reasonable interpretation of the ground water flow given the water level elevation data and the topography at the site. However, this interpretation also indicates that there are no truly downgradient wells at the site. The recent installation of additional monitoring wells immediately downgradient of the limits of waste placement should alleviate this problem. The new ground water monitoring system should be in compliance with OAC 3745-27-10 (B)(1)(b). Final evaluation of the adequacy of the new monitoring system, however, will be completed when water level, chemical data, and well installation information (e.g., well boring and construction logs) are submitted for review.

   The purpose of this comment is to provide additional information to the facility. No immediate action is required by the facility concerning this issue at this time.

3. Ohio EPA General Comment 2 included in the August 21, 1997, letter indicated that triggers for the indicator parameters in MW-5 might be due to it being screened in gray to brown sandstone, while upgradient well MW-4 is screened in a white sandstone. The facility's response cites an August 1987 report in which the geologist that installed the wells noted that the differences in color reflect changes in mineralization of the rock or the oxygenation of the minerals in the rock by the ground water. The facility also states that the light sandstones at MW-1 through 5 were selected as the first laterally continuous layer. A cross-section has been submitted to show the relationship between the different sandstone layers, the water table, and the well screens to support this conclusion.

   First it should be noted that the well log for MW-5 states that the well was installed in January 1988, after the date of the cited report. However, more importantly, the facility appears to have missed that the well screen of MW-5 actually monitors a layer of gray and brown sandstone rather than the white sandstone found in MW-4. Reference to the cross-section submitted by the facility graphically shows this relationship. In addition, the Ohio EPA does not dispute that the color variation in the sandstone may be due to changes in mineralization and/or the oxygenation of such minerals by the ground water. The Ohio EPA was only indicating that such differences may have caused the observed triggers of the indicator parameters at the

The purpose of this comment is to provide additional information to the facility. No additional action is required by the facility concerning this comment at this time.

4. The facility has clarified that metals samples are not field filtered and, thus, the data are for total metals, not dissolved metals. No further action is required by the facility concerning this issue at this time.

5. General Comment 6 from the August 1997 letter, requested additional information concerning historical disposal practices at the landfill. In response, the facility states that Ramsdell Landfill is one of the "areas of concern (AOC)" that are being investigated under the CERCLA program and that it prefers to treat the site as a whole.

The facility is reminded that, although the area around the Ramsdell Landfill is part of the CERCLA investigation, the landfill itself is under the jurisdiction of the Division of Solid and Infectious Waste Management (DSIWM) and is regulated under the applicable portions of the solid waste regulations included in Chapter 3745-27 of the OAC. The Ohio EPA, when it is feasible, is committed to working with the facility to coordinate the activities required by the different regulatory programs. However, compliance with the regulations and the submittal of additional requested information must be accomplished in a timely manner with respect to the needs of the regulated unit (i.e., Ramsdell Quarry Landfill) regardless of whether it fits into the site wide schedule of CERCLA activities. Therefore, the facility should attempt to locate the additional information originally requested. This information should be submitted to the Ohio EPA for review.

6. In the facility's response to several comments, it indicates that since explosives are not naturally occurring compounds, it is not necessary to perform statistical analyses of the explosives data. The facility is reminded that the goal of statistical analyses, as required by the municipal waste regulations, is to determine if there is contamination coming from the regulated unit itself. Therefore, statistical comparisons of upgradient concentrations to downgradient concentrations are important in determining whether detected contamination is coming from the regulated unit or from some other source (e.g., historical activities in the area around, but not part of, the regulated unit). If the contamination is coming from the regulated unit, the remediation will have to meet the requirements and timetables of the applicable portion(s) of the regulatory code. If the contamination is coming from some other source, the remediation will probably be conducted under the CERCLA program. That is why statistical analyses are important even though explosives are not naturally occurring compounds and, therefore, must be there due to anthropogenic activities.

The purpose of this comment is to furnish information to the facility. No immediate action by the facility concerning this issue is necessary at this time.

7. General Comment 9d concerned the pooling of downgradient historical data for statistical analyses. The facility responds that "statistical analyses are performed on data values obtained over time. If we were to use data only obtained from the current sampling period, we would not have enough observations to perform a valid statistical test."

   Although Ohio EPA does allow the pooling of historical data if allowed by the assumptions of the statistical method chosen, the pool of data should be limited to the eight most recent sampling events. In addition, the facility should be performing time trend analyses to ensure that there is not a gradual upward trend of the data that using a pooled data set may mask. The facility should consider these stipulations when proposing statistical methods for the analysis of the data from the new monitoring system. Until sufficient data are available from the upgraded monitoring system, no additional action is required by the facility concerning this issue.

If you have any technical questions regarding this review, please contact Diane Kurlich (DDAGW) at 330-963-1150. Please submit all correspondence to Jarnal Singh, at Ohio EPA, Northeast District Office, Division of Solid and Infectious Waste Management, 2110 East Aurora Road, Twinsburg, Ohio 44087.

Sincerely

Jarnal Singh

Jarnal Singh, RS
Environmental Specialist
Division of Solid and Infectious
Waste Management

JS:cl

pc: Kurt Princic, DSIWM-NEDO
Virginia Wilson, DSIWM-NEDO
Diane Kurlich, DDAGW-NEDO
Eileen Mohr, Site Coordinator, DERR, NEDO
Duwayne Porter, Portage Co. HD
Mark Patterson, IOC-RVAAP
File: [LAND/Ramsdell/GRO/67]

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

November 17, 1998

Re: Ground Water Monitoring
Ramsdell Quarry Landfill
Ravenna Army Ammunition Plant

U.S. Army Corps of Engineers
600 Martin Luther King Place
P.O. Box 59
Attn: CEORL-ED-GS
Louisville, KY 40201-0059

Attn: Mr. John Jent P.E.

Dear Mr. Jent:

On October 22, 1998, representatives of the Ohio EPA and the Army met at the Ravenna Army Ammunition Plant to discuss issues concerning the statistical analysis of the RCRA ground water monitoring data. During this meeting, it was mentioned that the newly installed ground water monitoring wells at the Ramsdell Quarry Landfill (regulated under the Division of Solid and Infectious Waste Management) are not being monitored for general chemistry parameters (e.g., chloride, nitrate, sulfate, etc.). Because the purpose of the on-going hydrogeologic investigation at the site is to determine whether site specific contaminants are present in the ground water, the general chemistry parameters are not included in the analyte list for the investigation. The old monitoring system at the site is still being sampled on a semiannual basis for the parameters required by OAC 3745-27-10 (D)(1) and for site specific parameters that include explosives. As part of the hydrogeologic investigation, the newly installed ground water monitoring wells will be sampled six times over the next year. It is assumed that at the end of the hydrogeologic investigation, the ground water monitoring system will be modified to consist of newly installed wells RQLmw-006 through -009. In addition, the facility is considering a request to change its monitoring program to meet the requirements of the 1994 municipal waste rules rather than the 1990 municipal waste rules under which it is currently regulated. The question was raised as to whether the general chemistry parameters should be added to the list of analytes for the newly installed wells.

COMPLIANCE

Because the facility continues to sample the old ground water monitoring system for all of the parameters included in OAC 3745-27-10 (D)(1) of the rule effective March 1, 1990, this is not a compliance issue at this time. Comment 1 below summarizes the options the facility has regarding the addition of parameters to the analytes being sampled during the hydrogeologic investigation at the site. As noted in previous letters to the facility, the old ground water monitoring system composed of wells MW-1 through MW-5 does not meet the requirements of OAC 3745-27-10 (B)(1). The recently installed monitoring wells, when incorporated into the monitoring system, should resolve this compliance issue.

COMMENT

The following comment concerns the question of whether the facility should modify the parameter list to include all of the parameters required by OAC 3745-27-10 for samples collected from the newly installed monitoring wells during the year that the hydrogeologic investigation is being conducted. This question was raised during a meeting with the facility on October 22, 1998. The facility is monitoring ground water under the 1990 municipal waste rules (OAC 3745-27-10) which require that the parameters included in OAC 3745-27-10 (D) are analyzed. Because the old monitoring system (MW-1 through MW-5) is still being monitored for the parameters included in this portion of the rule, there are no compliance issues involved at the present time. The facility is also considering a future request to change its ground water monitoring program to comply with the 1994 municipal waste rules.

1. Although the 1990 municipal waste rules require the analysis of all of the parameters listed in OAC 3745-27-10 (D)(1), it only requires the statistical analysis of the parameters included in OAC 3745-27-10 (D)(1) (b), (c), (d), (e), and (gg). Of these analytes, it appears that total organic carbon and total dissolved solids as well as some of the volatile organic compounds(e.g., acrolein, acrylonitrile, ethyl methacrylate, 1-chloroethyl vinyl ether, dichlorodifluoromethane, trans-1,2-dichloroethene, trichlorofluoromethane, 1,2,3-trichloropropane, and vinyl acetate) are not being analyzed as part of the hydrogeologic investigation. Thus, if after the hydrogeologic investigation is completed, the facility intends to continue monitoring ground water under the 1990 rules using the newly installed monitoring wells RQLmw-006 through RQLmw-009, then it is recommended that total organic carbon and total dissolved solids, and the additional volatile organic compounds be added to the list of constituents being sampled during the investigation. This will ensure that there is a valid data base for all of the parameters required to be statistically analyzed when the monitoring system is redefined and may alleviate the necessity of extra sampling events to collect the required background data.

   However, if the facility intends to revise its ground water monitoring program to meet the requirements of OAC 3745-27-10 as revised in 1994 and it receives Ohio EPA approval for this change, then a background data base for all of the parameters listed in Appendix I of OAC 3745-27-10 as revised in 1994 will be needed. The municipal waste rules as revised in 1994 requires the statistical analysis of all of the parameters analyzed. Therefore a background data base will be needed for all of the parameters listed in Appendix I. If that background data base is not compiled during the course of the hydrogeologic investigation, then the facility will have 180 days from the date that it receives approval to change to the 1994 rules to collect the required data. This would involve a minimum of four additional sampling events during that 180 day period for all of the parameters for which there are insufficient data. At the present time, it appears that Appendix I includes the general chemistry parameters (e.g., ammonia, chloride, sodium, chemical oxygen demand, total dissolved solids, total alkalinity, nitrate-nitrite, sulfate, etc.) as well as some volatile and semi-volatile organic parameters (e.g., trichloroflouromethane, 1,2,3-trichloropropane, methylene bromide, etc.) that are not currently being analyzed as part of the hydro-investigation. Thus, if the facility intends to modify its ground water sampling and analysis program to meet the requirements of OAC 3745-27-10 as revised in 1994, it is recommended that it modify the analytical parameters included in the hydro-investigation to

include all of the analytes in Appendix I (as revised in 1994). Although failure to do this will not preclude changing to the 1994 rules, it seems that it is more cost effective to collect the data now rather than during four additional sampling events later.

It should be noted, however, that if the results of the hydrogeologic investigation indicate that site specific contaminants attributable to the landfill are present in the ground water at the site, then the monitoring program, regardless of whether the 1990 or 1994 rules are followed, will move from detection to assessment/remedial action protocols and the focus will be on site specific parameters.

CONCLUSIONS

Ramsdell Quarry Landfill (RQL) is meeting the requirements of OAC 3745-27-10 (D) by monitoring the old ground water monitoring system (MW-1 through MW-5) for the required parameters during the period needed to complete the hydrogeologic investigation at the site. However, in order to ensure that it has a sufficient background data base to perform statistical analyses when the monitoring system is revised to include newly installed wells RQLmw-006 through -009, it is recommended that the facility add parameters to the list of analytes sampled during the hydro-investigation. If RQL chooses to add parameters, you should consult OAC 3745-27-10 (D) and Appendix I from the 1990 rules and/or Appendix I of OAC 3745-27-10 of the 1994 rules to determine which parameters should be added so that a sufficient background data base exists for performing statistical analyses.

If you have any technical questions regarding this review, please contact Diane Kurlich at 330-963-1150. Please submit all correspondence to Jarnal Singh, Ohio EPA, Northeast District Office, Division of Solid and Infectious Waste Management, 2110 East Aurora Road, Twinsburg, Ohio 44087.

Sincerely,

Jarnal Singh

Jarnal Singh, RS
Environmental Specialist
Division of Solid and Infectious
Waste Management

JS:cl

pc: Kurt Princic, DSIWM-NEDO
Virginia Wilson, DSIWM-NEDO
Diane Kurlich, DDAGW-NEDO
Eileen Mohr, Site Coordinator, DERR, NEDO
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File: [LAND/Ramsdell/GRO/67]

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
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George V. Voinovich
Governor

November 18, 1998

Re: Ground Water Monitoring
Ramsdell Landfill
Ravenna Army Ammunition Plant

U.S. Army Corps of Engineers
600 Martin Luther King Place
P.O. Box 59
Attn.. CEORL-ED-GS
Louisville, KY 40201-0059

Attn.: Mr. John Jent P.E.

Dear Mr. Jent:

The Ohio Environmental Protection Agency (Ohio EPA) has completed a review of the June 1998 Ground Water Monitoring Data, which was received at the Northeast District Office (NEDO) on August 17, 1998, and reviewed by the Division of Drinking and Ground Waters (DDAGW) on October 29, 1998. This submittal documents the facility's routine, semi-annual sampling event. Ground water at the site is being monitored under the 1990 municipal waste rules (OAC 3745-27-10). Statistical analysis of the indicator parameters indicate that MW-3 exceeds the lower prediction limit for pH. As discussed below, OhioEPA still has some concerns regarding the statistical analysis of the data. Low concentrations of explosives were detected in MW-2 (HMX, 0.74 ug/L) and MW-3 (RDX, 0.93 ug/L; 2,4,6-TNT, 0.26 ug/L). Ramsdell Quarry Landfill (RQL) is in the process of conducting a hydrogeologic investigation to better define the hydrogeology at the site and is installing a new ground water monitoring system.

COMMENTS

The following comments concern the review of June 1998 ground water sampling results, dated August 12, 1998, and received August 17, 1998. RQL is monitoring ground water under the 1990 municipal waste rules (OAC 3745-27-10).

1. The letter accompanying the data submittal indicates that the indicator parameter, pH, has triggered in MW-3. The data were analyzed using a parametric Prediction Interval. In determining normality, it appears that the company has used the data from all of the wells at the site. The Prediction Interval statistical test assumes that the background data come from the same normal distribution. Therefore, the normality calculations should use only the data from the background well(s). RQL shall determine the distribution of the background data to determine if it is normally distributed. If it is normally distributed, the trigger for the pH data will be considered to be valid. RQL should then collect and analyze a confirmation sample from MW-3 for pH as per OAC 3745-27-10 (D)(8)(b). Statistical analysis of the resulting data should be completed. The statistical analysis of normality and, if necessary, the resampling and confirmation or rejection of the trigger should be completed within 30 days.

If the confirmation sample confirms that MW-3 has triggered for pH, the facility shall enter assessment monitoring as per OAC 3745-27-10 (E). The activities currently being conducted as part the hydrogeologic investigation at the site may fulfill, at least in part, the assessment monitoring investigatory requirements. Any ground water quality assessment plan submitted to fulfill the requirements of OAC 3745-27-10 (E) should incorporate the applicable portions of the hydrogeologic workplan. If the resampling of the well does not confirm the trigger, the facility may continue in detection monitoring.

If the background data are not normally distributed, the facility should reanalyze the pH data using an appropriate statistical test (non-parametric). If the data still trigger, the company should follow the confirmation process summarized above. If the data do not trigger using a non-parametric statistical test, the Ohio EPA should be notified in writing of this result and the monitoring program can continue in detection monitoring.

In the future, it is important that the statistical analysis of the data be completed as per the requirements of the statistical method being used. In addition, if a parameter triggers, the facility is required by OAC 3745-27-10 (D)(8)(a) to notify the Director within 15 days of receiving the statistical or analytical results that a trigger has occurred. Resampling of the affected well(s) within 15 days of notifying the Director of the trigger is required by OAC 3745-27-10 (D)(8)(b). In addition, within 60 days of resampling, the facility must notify the Director as to whether the trigger is confirmed or rejected (OAC 3745-27-10 (D)(8)(c)). In the future the facility should follow the rules as summarized here.

2. RQL is using a parametric Prediction Interval test to statistically analyze its ground water monitoring data. The following items document DDAGW concerns with the statistical analyses conducted.

   a. **Ohio Administrative Code (OAC) 3745-27-10(C)(6)(a)** states in part that, "the statistical method used to evaluate the ground water monitoring data shall be appropriate for the distribution of chemical parameters. . ."

      Although the normality tests used by the facility indicate that the TDS, TOC, and nickel data are not normally distributed, the facility used a parametric Prediction Interval to analyze the data. In addition, it appears that the company included all of the data from both background and downgradient wells in the calculation of the normality of the data. The assumption of the Prediction Interval statistical test is that the **background** data follow the same normal distribution. Thus, the test of normality should be used to determine if the background data, not the entire pool of data, are normally distributed.

      If RQL is going to use the Prediction Interval method of statistical analysis, it should determine the distribution of the background data rather than the distribution of the entire pool of data. Depending on the distribution of the background data, either a parametric or a non-parametric Prediction Interval test should be chosen. Alternatively, another statistical test may be selected for data that do not meet the distribution requirements of the Prediction Interval test.

In summary, the company should re-evaluate the statistical analysis of each of the indicator parameters and also nickel for the June 1998 data. A test(s) to determine the normality of the **background** data should be completed. For those parameters in which the background data are not normally distributed and cannot be transformed to fit a normal distribution (e.g., the logarithms of the data), the company should choose an alternative statistical test that is appropriate for the distribution of the data. It is possible that more than one statistical test may be required to analyze the data. The calculations and the results of the reanalysis of the data should be submitted for review. In the future, the facility should ensure that statistical tests are accurately performed and that the tests are appropriate given the characteristics of the data.

b. **Ohio Administrative Code (OAC) 3745-27-10 (C)(6)(d)** states that, "If a tolerance interval or predication interval is used to evaluate ground water monitoring data, the levels of confidence, and for tolerance intervals, the percentage of the population that the interval must contain, shall be proposed by the permittee and approved by the director or his authorized representative. These parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern."

RQL has not proposed the level of confidence it plans to use in the statistical analysis of its ground water data.

Because RQL is using a Prediction Interval to analyze its ground water data, it should submit for approval, the confidence level it plans to use in the statistical analysis of its ground water data.

c. It is unclear how RQL has accounted for data below the detection limit in the statistical analysis of the ground water data. This should be clarified. As per OAC 3745-27-10 (C)(6)(e), RQL should use "one or more statistical procedures that ensure protection of human health and the environment." This may involve substituting one half of the detection limit or one half of the PQL for the non-detect value.

d. The significance of the Probability Plots included with this submittal is unclear. This should be clarified. The facility also should clarify what is meant by "Selected Background Wells" in the titles of these plots. If all of the available background data were not used, the wells and sampling dates included should be specified and the reasons for deleting some of the data should be documented. If all of the available background data were used, the facility should modify the titles of the plots. Information such as requested in this comment should routinely be included in the text accompanying the data submittal.

e. RQL is using the background data from the last 8 sampling events. It is unclear why the number of background observations is 10 or 14 rather than 8. This should be explained. In addition, the facility should submit a tabulation of the background data used in the

calculations. This will aid in the review and evaluation of the calculations and results. In the future, such a table should be submitted with each data report.

3. The chain-of-custody/sample submission form has not been properly completed. Each sample collected should be listed on a separate line of the form. The time the sample was collected should be included on the form in the column with the heading, "Time." The total volume of sample should be specified in the column titled, "Total Volume." The specific number and type of sample containers being submitted for each sample should be indicated under the columns headed "Containers: Type and No." The specific preservatives used for each sample should be documented under the column titled, "Preservatives." The facility is using the Quanterra Laboratory for the analysis of its ground water samples. Quanterra includes instructions on how to properly complete a sample submission/chain-of-custody form with its sample container shipments. It is recommended that the facility follow the laboratory's directions. In the future, the chain-of-custody/sample submission form must be properly completed or the sampling results may be considered invalid.

4. The top of casing elevations used in determining water level elevations do not agree with the top of casing elevations submitted as part of the Draft Initial Phase Report Ground Water Investigation Ramsdell Quarry Landfill. The calculated ground water flow direction also differs from that presented in the referenced report. The facility should explain these discrepancies. The facility should determine which set of top of casing elevations is correct and these should be used for all submittals in the future. If both are accurate and the difference is due to using a different datum, then the elevations listed in the Initial Phase Report should be used.

5. The sampling and analysis plan indicates that three well volumes will be purged from each well prior to sampling. The field sampling sheets also indicate that a minimum of three well volumes will be purged from each well prior to sampling. It appears that the facility did not calculate the required volume of water to remove from each well during purging. The field sampling sheets indicate that 6 gallons were purged from each of the wells. Six gallons does not total three well volumes for any of the wells sampled. In the future, the minimum volume of water (three well volumes) to be purged from each well should be calculated prior to the commencement of purging. RQL should ensure that a minimum of three well volumes is removed prior to sampling. Consecutive measurements of pH, temperature, and specific conductance should be used to determine when purging is complete. Each parameter should be measured and recorded on the field sampling form following the removal of each consecutive well volume. Purging should continue until three consecutive measurements of each of these parameters differs by not more that 10% or a maximum of five well volumes are removed. In the future, data may be determined to be invalid if proper purging protocol are not followed.

6. The supplemental QA information indicates that the temperatures of the coolers when they arrived at the laboratory ranged from 2.5 C to 19.8 C. In addition, the field log sheets indicate that the temperatures of the coolers in the field and at the time of shipping exceeded 4 C. Many of the parameters analyzed require that the samples are maintained at a temperature of 4 C at all times after collection and prior to analysis. In the future, failure to ensure that the samples are maintained at the proper temperature may result in the data being ruled to be invalid.

7. The matrix spike and/or matrix spike duplicate recoveries for chloride, nitrate, total Kjeldahl nitrogen, nitrate/nitrite, total phosphorus, phenolics, and nitrogen ammonia were outside acceptable limits. The laboratory indicates that this was probably due to matrix interferences. RQL should work with the laboratory to ensure that the recoveries for the QA/QC samples are within acceptable limits. RQL also should request that a ground water sample from the RAAP is used for the matrix spike/matrix spike duplicate in each analytical batch of samples that includes samples from the facility. This will aid in determining whether the RAAP samples have a matrix problem that needs to be corrected or whether the problem was due to the matrix of samples from some other facility. The results of the analysis of samples that do not have acceptable QA/QC data may not be accepted in the future.

CONCLUSIONS

Ramsdell Quarry Landfill (RQL) is not in compliance with the requirements of OAC 3745-27-10 (C)(6)(a) and (d). To return to compliance, the facility should submit the information requested in Comments 2a and 2b above. Comment 1 requires the facility to check the statistical analysis of the pH data from well MW-3. If the statistical reanalysis of the data confirm that pH has triggered, RQL should confirm the trigger by resampling the well for pH and statistically analyzing the resulting data. If the trigger is confirmed, RQL should enter assessment monitoring as per OAC 3745-27-10 (E). Comments 2c, 2d, 2e, and 4 require written responses from the facility. The information required to return to compliance, the reanalysis of the statistical data for pH for MW-3, the confirmation of the trigger of pH at MW-3 if necessary, as well as the written responses to the specified comments should be submitted to the Ohio EPA within 30 days.

Comments 3, 5, 6, and 7 above, require the company to only modify specific procedures during future sampling events and do not require written responses at this time.

If you have any technical questions regarding this review, please contact Diane Kurlich at 330-963-1150. Please submit all correspondence to Jarnal Singh, Division of Solid and Infectious Waste Management, Northeast District Office, OhioEPA, 2110 East Aurora Road, Twinsburg, Ohio 44087.

Sincerely

Jarnal Singh

Jarnal Singh, RS
Environmental Specialist
Division of Solid and Infectious
Waste Management

JS:cl
pc: Kurt Princic, DSIWM-NEDO
Virginia Wilson, DSIWM-NEDO
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File :[LAND/Ramsdell/GRO/67]

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George V. Voinovich
Governor

FAX Transmittal Sheet

TO: Mark Patterson / RVAAP

FAX NUMBER: 330 358 7314

SUBJECT: RQL

FROM: Eileen Mohr

DATE: 11/24/98

PAGES TO FOLLOW: 7
(Include Cover Sheet)

If you have any questions, call (330) 963-1200, ask for sender

Return FAX number (330) 487-0769

Groundwater comments

INTER-OFFICE COMMUNICATION

TO: JARNAL SINGH, ENVIRONMENTAL SPECIALIST, DSIWM, NEDO

FROM: DIANE KURLICH, HYDROGEOLOGIST, THROUGH ERIC ADAMS, GEOLOGIST 4, DDAGW, NEDO

DATE: NOVEMBER 23, 1998

SUBJECT: RAMSDELL QUARRY LANDFILL (67-00-06), PORTAGE COUNTY, DRAFT INITIAL PHASE REPORT GROUND WATER INVESTIGATION RAMSDELL QUARRY LANDFILL, DATED SEPTEMBER 1998, RECEIVED SEPTEMBER 28, 1998

INTRODUCTION

The above referenced document, Draft Initial Phase Report, Ground Water Investigation, Ramsdell Quarry Landfill, was received on September 28, 1998, and reviewed on November 19, 1998. Ground water at the site is being monitored under the 1990 municipal waste rules (OAC 3745-27-10). The ground water investigation is being conducted in response to Ohio EPA concerns about the adequacy of the ground water monitoring system and the information available concerning the site specific hydrogeology. A July 1997 IOC from DDAGW to DSIWM should be consulted for additional information concerning the deficiencies in the ground water monitoring system and in the hydrogeologic characterization of the site.

COMPLIANCE

No compliance issues were identified. The following comments document deficiencies in the document under review.

COMMENTS

The following comments concern the review of the document Draft Initial Phase Report, Ground Water Investigation, Ramsdell Quarry Landfill, dated September 1998 and received September 28, 1998. The facility is monitoring ground water under the 1990 municipal waste rules (OAC 3745-27-10).

1. On page vi, the facility states that the ground water flow direction, based on the water level measurements from the six new wells, is to the northeast. It further states that this flow direction is consistent with the flow direction calculated using the water level measurements from the five original monitoring wells "for these dates." The facility should define what is meant by "these dates." In addition, the most recent semi-annual sampling reports submitted by the facility for the Ramsdell Quarry Landfill using data from only the five original monitoring wells have consistently indicate that the ground water flow direction is radially inward toward the quarry pond. The facility should rectify these different interpretations of the

ground water flow direction arrived at using data from the same wells. The facility should determine whether the flow direction has really changed or if the differences are a matter of interpretation. If the differences are a matter of interpretation, the facility should decide which interpretation is best supported by the available data and should maintain consistency between the document presently under review and the semi-annual reports submitted. The most recent semi-annual report submitted was for data collected in June 1998. If the flow direction did vary radically within the span of several months (time between the collection of data for the semi-annual report and the collection of data for the hydrogeologic investigation), then the facility should attempt to determine what factors may be causing these changes.

2. On page 1-1, the facility states, "With this evaluation, the USACE seeks to fulfill all Ohio EPA requirements regarding landfill closure and post-closure ground water monitoring. . ." It is unclear what the facility means by this statement. Although this investigation will hopefully fill in the data gaps in the hydrogeologic characterization of the site and will provide the facility with a ground water monitoring system that meets the requirements of OAC 3745-27-10 (B), it will not fulfill all of the Ohio EPA requirements regarding landfill closure and post-closure ground water monitoring. The facility will still be required to fulfill all the applicable ground water monitoring requirements contained in OAC 3745-27-10 during the unit's post closure care period. As defined in OAC 3745-27-14 (A), the post closure care period lasts a minimum of 30 years. During this thirty year period, the ground water monitoring system must continue to be operated and maintained (OAC 3745-27-14 (A)(1)) and all of the monitoring and reporting requirements of OAC 3745-27-10 must be fulfilled. This section of the report should be modified accordingly.

3. On page 1-8, the facility states that semi-annual ground water monitoring is conducted according to a ground water monitoring program plan as revised in October 1997. The last ground water monitoring program plan for the Ramsdell Quarry Landfill that was submitted to the Ohio EPA for review is dated March 9, 1995. Thus, the agency was unaware that the sampling and analysis plan had been revised. The revised ground water monitoring program plan should be submitted to the Ohio EPA for review of its compliance with OAC 3745-27-10 (C)(1). This submittal should include an explanation of what procedures have been changed and why the changes were necessary. It is imperative that the sampling contractor also is provided with a copy of the revised ground water monitoring program plan.

4. Table 1-1 lists the parameters that have been included in the semi-annual sampling of the ground water monitoring system at the Ramsdell Quarry Landfill. On this table, 1-butanone should be 2-butanone. In addition, the following analytes included as semi-annual sampling parameters, have been omitted from Table 1-1: temperature, nitrate-nitrite, potassium, phosphorus, phenols, cyanide, turbidity, zinc, copper, nickel, and silver. Table 1-1 should be modified to include these analytes.

5. On page 2-1, the facility states that a graywacke occurs within the Sharon Sandstone at the site. Graywacke is not normally associated with the Sharon Sandstone. The Sharon Sandstone is normally considered to be a very mature unit composed almost entirely of silica. Graywackes

are normally associated with immature deposits. The nature of the "graywacke" deposits should be further explained in this report. In addition, the Ohio EPA would like to view the cores from the borings containing the "graywacke" during the next meeting with the facility (December 1998).

6. On page 2-5, the facility states that shallow perched water-bearing zones were observed during drilling of RQLmw-006, -010, and -011. The approximate depths and extents of these perched zones should be documented and a determination should be made as to whether they constitute significant zones of saturation that should be monitored.

7. The modified surface casing design mentioned in Bullet 2 of Section 2.1.1 on page 2-5 should be more fully documented.

8. The last sentence on page 2-5 should be modified to document that the well screens in the newly installed wells vary from 10 to 20 feet in length.

9. On page 2-6, it states that the well screens for the new wells were placed at depths ranging from 5.9 to 39.4 feet below ground surface. It also states that the screens of the old wells were set from 35 to 55 feet below the ground surface. It is unclear if these references refer to the placement of the tops of the screens or the span of the intervals screened by the wells. This should be clarified.

10. On page 2-6, it states, "Some differences in chemical quality are to be expected between the water from the new monitoring wells and the water from the original wells." Reasons that differences in chemical quality are to be expected should be documented.

11. The surveyed ground surface elevations for each of the wells at the site should be added to Table 2-1. The water level elevation for the pond should be added to Table 2-1 and should be represented on Figure 2-3. Because it was mentioned previously in this report that the water level elevations from the old wells also indicated a ground water flow direction toward the northeast, a potentiometric surface map constructed using the data from the old wells should be added to this report. Such a map should also be included in the quarterly reports submitted to the Ohio EPA. The title for this figure indicates that these are the water levels measurements from July 23 through 28. It is unclear whether the values reported are averages for the period, how many measurements were actually taken, or whether it took five days to obtain measurements from the eleven wells. This should be clarified. In the future, all of the water level measurements for all of the wells should be completed within a 24 hour period.

12. The discussion of the water level data on page 2-6 leaves some unanswered questions concerning the hydrogeology at the site and also the adequacy of RQLmw-006 as an upgradient well. In this section, it states that the static water levels in all of the original wells and in RQLmw-007 through -009 are above the tops of the well screens. It further states that this may be due to confined or semi-confined conditions or hydraulic communication among the fractures

in the sandstone. It is unclear if the facility is also implying that the other wells (RQL-006, -010, and -011) exhibit unconfined conditions because the water levels in these wells are within the screened interval. Thus, it is unclear whether all of the new wells monitor the same zone of the aquifer. This is particularly important because RQL-006 is the upgradient well to which downgradient wells RQL-007 through -009 will be compared to determine whether the unit has affected the quality of ground water at the site. This is also significant because it appears that RQLmw-006, -010, and -011 are screened higher in the aquifer than the other wells. It is also unclear whether these wells screen the perched zones mentioned previously in addition to the uppermost aquifer. This issue should be more fully examined and explained. The appropriateness of RQLmw-006 as an upgradient well to which RQLmw-007 through -009 are statistically compared should be determined and documented. In addition, this section also indicates that the disparities in water levels between the new wells and the old wells may be due to the two sets of wells being in two or more different water bearing zones. The facility has historically indicated that there is only one water bearing zone. The idea of two or more water bearing zones should be more thoroughly examined, explained, and documented. If there are indeed several water bearing zones, the ground water monitoring system may need to be modified to ensure that all of the zones, including any significant zones of saturation are identified and monitored.

13. It is stated on page 2-8 that the data are presented in Appendix C. The results of the analysis of QA/QC samples are not included in Appendix C. The results of the QA/QC analyses, including but not necessarily limited to matrix spike/matrix spike duplicates, surrogate recoveries, laboratory control samples, and laboratory blanks, should be added to this report. In addition, Appendix C includes numerous symbols (e.g., U, J, =, B, F06, G04, H03, etc). A comprehensive key to these symbols should be added to this Appendix.

14. On page 2-9, it states that 4-nitrotoluene was detected at 0.082 ug/L at RQLmw-006. From the data presented in Appendix C, it appears that this should be RQLmw-005. This should be verified and the text modified accordingly.

15. There appears to be several errors in the reporting of the metals results on page 2-9. In the second paragraph, MW-4 should be added to the list of wells in which cobalt was detected. The data in Appendix C indicates that cobalt was detected at 29.7 ug/L in this well. The range of concentrations at which cobalt was detected should be changed to 29.7 to 196 ug/L. In the third paragraph, it states that arsenic was detected above its MCL in eight of the unfiltered samples. This should indicate that arsenic was detected in three of the unfiltered samples (MW-2, 108 ug/L; RQLmw-007, 59.4 ug/L; and RQLmw-008, 51.6 ug/L) at concentrations above the MCL. In this same paragraph, beryllium should be removed from the list of parameters detected above MCLs in MW-2, and nickel and arsenic should be added to this list. In paragraph 4, cadmium and copper should be removed from the list of metals not detected in filtered ground water samples. The data in Appendix C indicates that cadmium was detected in the sample from MW-2 at a concentration of 2.4 ug/L and copper was detected in the sample from MW-4 at a concentration of 3.4 ug/L. Table 2-2 should also be modified accordingly. In addition, it is

unclear whether the number of detects indicated on Table 2-2 includes duplicates as well as primary samples. If it includes both, the number of detects for nickel should be 11 instead of 9 and the number of detects for thallium should be 5 instead of 4. If it does not include duplicates, then the number of detects for mercury should be 8 instead of 9. This should be clarified and the table modified accordingly.

16. In the section discussing VOC results on page 2-12, RQLmw-008 should be removed from the list of well in which no VOCs were detected. Acetone was detected at a concentration of 9 ug/L in the sample from this well.

17. Because of the apparent errors noted above in the discussions of the ground water results, it is recommended that the sections summarizing the surface water and sediment results (Sections 2.2.1 through 2.2.2.5) be critically evaluated by the facility for such errors. The sections should be modified accordingly.

18. On page 3-1, filtered cyanide surface water samples are mentioned. Cyanide samples are not normally filtered. This should be clarified. The facility also should clarify whether the ground water cyanide samples were filtered.

19. The monitoring well construction diagrams for RQLmw-006, -010, and -011 do not show concrete from the frost line to the surface and extending into a surface apron. It appears that this space was filled with the bentonite/cement grout. This should be clarified. If concrete was not used in the annular space from the frost line to the surface (see Figure 4-5 of the Site Wide Sampling and Analysis Plan), the facility should explain this deviation from the approved monitoring well installation procedures. If the diagrams are in error, they should be corrected.

20. The section that discusses the SVOC results for ground water on page 2-12 should be expanded to explain why there are two sets of SVOC data in Appendix C for each of the monitoring wells. The exceedences of holding times indicated on one set of the data should be explained. The rejection of some of the values on the other set of data also should be explained.

21. In Appendix C, it appears that the entire suite of explosives was not analyzed for RQLsd-012(p)-0064-SD 0.0-0.0 ft (see the sample result summary in section C2 of Appendix C). This should be explained or the additional data added to the table. This same comment applies to the semi-volatile data for RQLsd-019(p)-0029-SD) 0.0-0.5 ft.

22. In the "Contact Report" that documents discussions with Eric Adams and Jarnal Singh concerning the modifications to the well construction for RQLmw-007 through -009, it states that an FCO would be written to allow for this modification to the facility-wide sampling and analysis plan. It should be noted that this modifications was allowed specifically for these three wells only because of their close proximity to the pond at the site. This is not a general modification for the site wide sampling and analysis plan. This modification has not been approved for any other wells at the Ramsdell Quarry site or any of the other AOCs at the RAAP.

CONCLUSIONS

The above comments document deficiencies in the report, Initial Phase Report, Ground Water Investigation, Ramsdell Quarry Landfill. The comments should be addressed and the report should be resubmitted. The revised ground water monitoring program plan mentioned in comment 3 above should be submitted for Ohio EPA review. The DDAGW recognizes that the hydrogeologic investigation is on- going through about July 1999 and that some of the questions regarding the site specific geology and hydrogeology may not be answerable at this time. The comments above should be addressed as fully as possible with the available data, however, a caveat that interpretations may change as additional data are obtained and evaluated may be appropriate in some instances.

If you have any technical questions regarding this review, please contact Diane Kurlich at 330-963-1150. Please submit all correspondence to Jarnal Singh, Ohio EPA, Northeast District Office, Division of Solid and Infectious Waste Management, 2110 East Aurora Road, Twinsburg, Ohio 44087.

DK:bo

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George V. Voinovich
Governor

December 3, 1998

Re: Ground Water Monitoring
Ramsdell Landfill
Ravenna Army Ammunition Plant

U.S. Army Corps of Engineers
600 Martin Luther King Place
P.O. Box 59
Attn.. CEORL-ED-GS
Louiseville, KY 40201-0059

Attn.: Mr. John Jent P.E.

Dear Mr. Jent:

The Ohio Environmental Protection Agency (Ohio EPA) has completed a review of the Draft Initial Phase Report Ground Water Investigation, Ramsdell Quarry Landfill, which was received at the Northeast District Office (NEDO) on September 28, 1998, and reviewed by the Division of Drinking and Ground Waters (DDAGW) on November 19, 1998. Ground water at the site is being monitored under the 1990 municipal waste rules (OAC 3745-27-10). The ground water investigation is being conducted in response to OhioEPA concerns about the adequacy of the ground water monitoring system and the information available concerning the site specific hydrogeology.

COMMENTS

The following comments concern the review of the document Draft Initial Phase Report, Ground Water Investigation, Ramsdell Quarry Landfill, dated September 1998 and received September 28, 1998.

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radically within the span of several months (time between the collection of data for the semi-annual report and the collection of data for the hydrogeologic investigation), then the facility should attempt to determine what factors may be causing these changes.

2. On page 1-1, the facility states, "With this evaluation, the USACE seeks to fulfill all Ohio EPA requirements regarding landfill closure and post-closure ground water monitoring. . ." It is unclear what the facility means by this statement. Although this investigation will hopefully fill in the data gaps in the hydrogeologic characterization of the site and will provide the facility with a ground water monitoring system that meets the requirements of OAC 3745-27-10 (B), it will not fulfill all of the Ohio EPA requirements regarding landfill closure and post-closure ground water monitoring. The facility will still be required to fulfill all the applicable ground water monitoring requirements contained in OAC 3745-27-10 during the unit's post closure care period. As defined in OAC 3745-27-14 (A), the post closure care period lasts a minimum of 30 years. During this thirty year period, the ground water monitoring system must continue to be operated and maintained (OAC 3745-27-14 (A)(1)) and all of the monitoring and reporting requirements of OAC 3745-27-10 must be fulfilled. This section of the report should be modified accordingly.

3. On page 1-8, the facility states that semi-annual ground water monitoring is conducted according to a ground water monitoring program plan as revised in October 1997. The last ground water monitoring program plan for the Ramsdell Quarry Landfill that was submitted to the Ohio EPA for review is dated March 9, 1995. Thus, the agency was unaware that the sampling and analysis plan had been revised. The revised ground water monitoring program plan should be submitted to the Ohio EPA for review of its compliance with OAC 3745-27-10 (C)(1). This submittal should include an explanation of what procedures have been changed and why the changes were necessary. It is imperative that the sampling contractor also is provided with a copy of the revised ground water monitoring program plan.

4. Table 1-1 lists the parameters that have been included in the semi-annual sampling of the ground water monitoring system at the Ramsdell Quarry Landfill. On this table, 1-butanone should be 2-butanone. In addition, the following analytes included as semi-annual sampling parameters, have been omitted from Table 1-1: temperature, nitrate-nitrite, potassium, phosphorus, phenols, cyanide, turbidity, zinc, copper, nickel, and silver. Table 1-1 should be modified to include these analytes.

5. On page 2-1, the facility states that a graywacke occurs within the Sharon Sandstone at the site. Graywacke is not normally associated with the Sharon Sandstone. The Sharon Sandstone is normally considered to be a very mature unit composed almost entirely of silica. Graywackes are normally associated with immature deposits. The nature of the "graywacke" deposits should be further explained in this report. In addition, the Ohio EPA would like to view the cores from the borings containing the "graywacke" during the next meeting with the facility (December 1998).

6. On page 2-5, the facility states that shallow perched water-bearing zones were observed during drilling of RQLmw-006, -010, and -011. The approximate depths and extents of these perched zones should be documented and a determination should be made as to whether they constitute significant zones of saturation that should be monitored.

7. The modified surface casing design mentioned in Bullet 2 of Section 2.1.1 on page 2-5 should be more fully documented.

8. The last sentence on page 2-5 should be modified to document that the well screens in the newly installed wells vary from 10 to 20 feet in length.

9. On page 2-6, it states that the well screens for the new wells were placed at depths ranging from 5.9 to 39.4 feet below ground surface. It also states that the screens of the old wells were set from 35 to 55 feet below the ground surface. It is unclear if these references refer to the placement of the tops of the screens or the span of the intervals screened by the wells. This should be clarified.

10. On page 2-6, it states, "Some differences in chemical quality are to be expected between the water from the new monitoring wells and the water from the original wells." Reasons that differences in chemical quality are to be expected should be documented.

11. The surveyed ground surface elevations for each of the wells at the site should be added to Table 2-1. The water level elevation for the pond should be added to Table 2-1 and should be represented on Figure 2-3. Because it was mentioned previously in this report that the water level elevations from the old wells also indicated a ground water flow direction toward the northeast, a potentiometric surface map constructed using the data from the old wells should be added to this report. Such a map should also be included in the quarterly reports submitted to the Ohio EPA. The title for this figure indicates that these are the water levels measurements from July 23 through 28. It is unclear whether the values reported are averages for the period, how many measurements were actually taken, or whether it took five days to obtain measurements from the eleven wells. This should be clarified. In the future, all of the water level measurements for all of the wells should be completed within a 24 hour period.

12. The discussion of the water level data on page 2-6 leaves some unanswered questions concerning the hydrogeology at the site and also the adequacy of RQLmw-006 as an upgradient well. In this section, it states that the static water levels in all of the original wells and in RQLmw-007 through -009 are above the tops of the well screens. It further states that this may be due to confined or semi-confined conditions or hydraulic communication among the fractures in the sandstone. It is unclear if the facility is also implying that the other wells (RQL-006, -010, and -011) exhibit unconfined conditions because the water levels in these wells are within the screened interval. Thus, it is unclear whether all of the new wells monitor the same zone of

the aquifer. This is particularly important because RQL-006 is the upgradient well to which downgradient wells RQL-007 through -009 will be compared to determine whether the unit has affected the quality of ground water at the site. This is also significant because it appears that RQLmw-006, -010, and -011 are screened higher in the aquifer than the other wells. It is also unclear whether these wells screen the perched zones mentioned previously in addition to the uppermost aquifer. This issue should be more fully examined and explained. The appropriateness of RQLmw-006 as an upgradient well to which RQLmw-007 through -009 are statistically compared should be determined and documented. In addition, this section also indicates that the disparities in water levels between the new wells and the old wells may be due to the two sets of wells being in two or more different water bearing zones. The facility has historically indicated that there is only one water bearing zone. The idea of two or more water bearing zones should be more thoroughly examined, explained, and documented. If there are indeed several water bearing zones, the ground water monitoring system may need to be modified to ensure that all of the zones, including any significant zones of saturation are identified and monitored.

13. It is stated on page 2-8 that the data are presented in Appendix C. The results of the analysis of QA/QC samples are not included in Appendix C. The results of the QA/QC analyses, including but not necessarily limited to matrix spike/matrix spike duplicates, surrogate recoveries, laboratory control samples, and laboratory blanks, should be added to this report. In addition, Appendix C includes numerous symbols (e.g., U, J, =, B, F06, G04, H03, etc). A comprehensive key to these symbols should be added to this Appendix.

14. On page 2-9, it states that 4-nitrotoluene was detected at 0.082 ug/L at RQLmw-006. From the data presented in Appendix C, it appears that this should be RQLmw-005. This should be verified and the text modified accordingly. Also page 2-9, revise the text in the TAL Metals and Cyanide Section to read "... and RQLmw-010 at concentrations ranging from 3.35 (or 33.5???) to 108 ug/l."

15. There appears to be several errors in the reporting of the metals results on page 2-9. In the second paragraph, MW-4 should be added to the list of wells in which cobalt was detected. The data in Appendix C indicates that cobalt was detected at 29.7 ug/L in this well. The range of concentrations at which cobalt was detected should be changed to 29.7 to 196 ug/L. In the third paragraph, it states that arsenic was detected above its MCL in eight of the unfiltered samples. This should indicate that arsenic was detected in three of the unfiltered samples (MW-2, 108 ug/L; RQLmw-007, 59.4 ug/L; and RQLmw-008, 51.6 ug/L) at concentrations above the MCL. In this same paragraph, beryllium should be removed from the list of parameters detected above MCLs in MW-2, and nickel and arsenic should be added to this list. In paragraph 4, cadmium and copper should be removed from the list of metals not detected in filtered ground water samples. The data in Appendix C indicates that cadmium was detected in the sample from MW-2 at a concentration of 2.4 ug/L and copper was detected in the sample from MW-4 at a concentration of 3.4 ug/L. Table 2-2 should also be modified accordingly. In addition, it is

unclear whether the number of detects indicated on Table 2-2 includes duplicates as well as primary samples. If it includes both, the number of detects for nickel should be 11 instead of 9 and the number of detects for thallium should be 5 instead of 4. If it does not include duplicates, then the number of detects for mercury should be 8 instead of 9. This should be clarified and the table modified accordingly.

16. In the section discussing VOC results on page 2-12, RQLmw-008 should be removed from the list of well in which no VOCs were detected. Acetone was detected at a concentration of 9 ug/L in the sample from this well.

17. Because of the apparent errors noted above in the discussions of the ground water results, it is recommended that the sections summarizing the surface water and sediment results (Sections 2.2.1 through 2.2.2.5) be critically evaluated by the facility for such errors. The sections should be modified accordingly.

18. On Page 2-14, please provide further information in the text of the report regarding the sediments overlying the bedrock in the quarry. For example: the lateral extent of the sediment; whether or not it is continuous; the permeability; how it is determined that it may be affecting the hydraulic communication, etc..

19. On page 2-14, the text of the report indicates that only one water sample will be collected from the pond during the subsequent phases of the investigation. How will the location of the surface water sample be determined?

20. On page 2-15, surface water analytical sampling results should be compared to Ohio Water Quality Standards, not the Drinking Water Maximum Contaminant Levels (MCLs).

21. On page 2-15, please provide an explanation for the presence of barium in the laboratory blanks.

22. On page 2-16, were TOC analyses run on the sediment samples?

23. On page 2-17, please strike the following sentence from the text "Because, these values are too close to the method detection levels, they are not considered significant."

24. On page 3-1, filtered cyanide surface water samples are mentioned. Cyanide samples are not normally filtered. This should be clarified. The facility also should clarify whether the ground water cyanide samples were filtered.

25. The monitoring well construction diagrams for RQLmw-006, -010, and -011 do not show concrete from the frost line to the surface and extending into a surface apron. It appears that this space was filled with the bentonite/cement grout. This should be clarified. If concrete was not

used in the annular space from the frost line to the surface (see Figure 4-5 of the Site Wide Sampling and Analysis Plan), the facility should explain this deviation from the approved monitoring well installation procedures. If the diagrams are in error, they should be corrected.

26. In Appendix B, please provide an explanation for the 12-day timeframe for the development of monitoring well RQLmw-006.

27. The section that discusses the SVOC results for ground water on page 2-12 should be expanded to explain why there are two sets of SVOC data in Appendix C for each of the monitoring wells. The exceedences of holding times indicated on one set of the data should be explained. The rejection of some of the values on the other set of data also should be explained.

28. In Appendix C, it appears that the entire suite of explosives was not analyzed for RQLsd-012(p)-0064-SD 0.0-0.0 ft (see the sample result summary in section C2 of Appendix C). This should be explained or the additional data added to the table. This same comment applies to the semi-volatile data for RQLsd-019(p)-0029-SD) 0.0-0.5 ft.

29. Also, with respect to Appendix C:

    a. a list of laboratory qualifiers should be provided;

    b. an explanation should be provided for the detection limits that were above the applicable MCLs in several of the monitoring wells (ex. for vinyl chloride, PCE, TCE., etc.);

    c. are sediments being reported on a dry-weight or wet-weight basis?; and,

    d. the report should contain copies of the chain of custody (COC) forms, case narratives, etc..

30. In the "Contact Report" that documents discussions with Eric Adams and Jarnal Singh concerning the modifications to the well construction for RQLmw-007 through -009, it states that an FCO would be written to allow for this modification to the facility-wide sampling and analysis plan. It should be noted that this modifications was allowed specifically for these three wells only because of their close proximity to the pond at the site. This is not a general modification for the site wide sampling and analysis plan. This modification has not been approved for any other wells at the Ramsdell Quarry site or any of the other AOCs at the RAAP.

The above comments document deficiencies in the report, Initial Phase Report, Ground Water Investigation, Ramsdell Quarry Landfill. The comments should be addressed and the report should be resubmitted. The revised ground water monitoring program plan mentioned in comment 3 above should be submitted for Ohio EPA review. The DDAGW recognizes that the hydrogeologic

investigation is on-going through about July 1999 and that some of the questions regarding the site specific geology and hydrogeology may not be answerable at this time. The comments above should be addressed as fully as possible with the available data, however, a caveat that interpretations may change as additional data are obtained and evaluated may be appropriate in some instances.

If you have any technical questions regarding this review, please contact Diane Kurlich at 330-963-1150. Please submit all correspondence to Jarnal Singh, Division of Solid and Infectious Waste Management, Northeast District Office, OhioEPA, 2110 East Aurora Road, Twinsburg, Ohio 44087.

Sincerely

J. Singl

Jarnal Singh, RS
Environmental Specialist
Division of Solid and Infectious
Waste Management

JS:cl

pc: Kurt Princic, DSIWM-NEDO
Virginia Wilson, DSIWM-NEDO
Diane Kurlich, DDAGW-NEDO
Eileen Mohr, Site Coordinator, DERR, NEDO
Duwayne Porter, Portage Co. HD
Mark Patterson, IOC-RVAAP
File :[LAND/Ramsdell/GRO/67]

R&R INTERNATIONAL, INC.
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266
Tel. (330) 358-3005
Fax (330) 358-2021

December 4, 1998

MRP 12-4-98

THRU: Contracting Officer's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, Ohio 44266-9297

TO: Ohio Environmental Protection Agency
Northeast District Office.
2110 E. Aurora road
Twinsburg, Ohio 44087
Attn: Mr. Jarnal Singh, Solid Wastes

Subject: Groundwater Monitoring, Ramsdell Landfill
Ravenna Army Ammunition Plant

Dear Mr. Singh:

This letter will serve to confirm that we will be conducting the second semi-annual groundwater sampling at the above referenced site on December 17 and 18, 1998. The current plan is to conduct monitor well purging operations on December 17. The monitor well sampling operations will commence on December 18.

Should you have any questions or comments regarding this matter then please do not hesitate to contact the undersigned at 330-358-3005. The Army IOC point of contact is Mr. John Cicero Jr., COR at 330-358-7311.

Respectfully,

R&R International, Inc.

Stan Levenger
Site Manager

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2-01

R&R INTERNATIONAL, INC.
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266
Tel. (330) 358-3005
Fax (330) 358-2021

INTERNATIONAL, INC.

December 15, 1998

THRU: Contracting Officer's Representative
Ravenna Army Ammunition
8451 State Route 5
Ravenna , Ohio 44266-9297

TO: Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087
Attn: Mr. Jarnal Singh, Solid Wastes

Subject: Groundwater Monitoring, Ramsdell Landfill
Ravenna Army Ammunition Plant

Dear Mr. Singh:

This letter will serve to confirm that we will be conducting the second semi-annual groundwater sampling at the above referenced site on December 21 and 22, 1998. The current plan is to conduct monitor well purging operations on December 21. The monitor well sampling operations will commence on December 22.

Should you have any questions or comments regarding this matter, please do not hesitate to contact the undersigned at (33) 358-3005. The Army IOC point of contact is Mr. John Cicero Jr., COR at (330) 358-7311.

Respectfully,
R&R INTERNATIONAL, INC.

Stan Levenger,
Site Manager

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 FAX (330) 487-0769

1/7/98
EN

George V. Voinovich
Governor

January 6, ~~1997~~ 1998

RE: DRAFT CLOSURE PLAN COMMENTS
RAVENNA ARMY AMMUNITION PLAN
OPEN DETONATION AREA
CONTAINER STORAGE AREA
OPEN BURNING GROUNDS

John Cicero, Jr.
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Cicero:

On October 31, 1997 the Ohio EPA received your documents dated October 1997, regarding the Draft Revised Closure Plans for the Ravenna Army Ammunition Plant's (RVAAP) Container Storage Area Unit (Building 1601), Open Burning Grounds (OB), and Open Detonation Area (OD), located within the RVAAP installation at 8451 State Route 5, Ravenna, Ohio.

Pursuant to the Ohio Administrative Code (OAC) rule 3745-66-12(D)(4), I am providing you with a statement of deficiencies in the draft revised closure plans, outlined in Attachment A (Container Storage Unit (Building 1601)); Attachment B (Open Detonation Area). There are no comments for the Open Burning Ground Hazardous Waste Treatment Unit Draft Revised Closure Plan. Ground water comments are forthcoming.

As in these drafts the final modified closure plans should be prepared in accordance with the following editorial protocol or convention:

1. Old language is overstruck, but not obliterated.

2. New Language is capitalized.

3. Page headers should indicate date of submission.

4. If significant changes are necessary, pages should be re-numbered, table of contents revised, and complete sections provided as required.

The final modified closure plan should be submitted to: Ohio Environmental Protection Agency, Division of Hazardous Waste Management, Attn: Tom Crepeau, Manager, Data Management Section, P.O. Box 1049, Columbus, Ohio 43216-1049. A copy, with an additional copy to facilitate ground water review, should be sent to : Gregory Orr, Ohio EPA, Northeast District Office, 2110 East Aurora Road, Twinsburg, Ohio 44087.

CF:
AMSIO-IRG (PUERMOST)
AMSIO-EGE (MR WHELOVE
AMSIO-IRI (MR INGOLD)
COE, LOUISVILLE (JASPER/JENT)
} Fax'd 1/7/98

Upon review of the resubmittal, the Ohio EPA will prepare and issue a final action approving or modifying such plan. If you wish to arrange a meeting to discuss your responses to this letter, please feel free to contact me at (330) 963-1189.

Sincerely,

Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddb

cc: Carolyn Princic, DHWM, NEDO
Bob Princic, DERR, NEDO
Diane Kurlich, DGW, NEDO
Eileen Mohr, DERR, NEDO
Mark Navarre, Legal, CO
Montee Suleiman, DHWM, CO
Katheryn Dominic, SAIC
Tim Leet, SAIC

Attachments

ATTACHMENT A

COMMENTS ON THE OCTOBER 1997 "DRAFT REVISED CLOSURE PLAN FOR THE RAVENNA ARMY AMMUNITION PLANT (RVAAP) CONTAINER STORAGE UNIT HAZARDOUS WASTE TREATMENT UNIT"

1. **SECTION 2.3.3 (PAGE 2-4)**

   The closure plan mentions that the storage unit (i.e. walls, ceiling and floor) and equipment (i.e. brooms, squeegees and vacuum) will be triple washed and decontaminated. The plan should state what the unit will be triple washed with.

2. Ground water comments are forthcoming.

ATTACHMENT B

COMMENTS ON THE OCTOBER 1997 DRAFT REVISED CLOSURE PLAN FOR THE RAVENNA ARMY AMMUNITION PLANT (RVAAP) OPEN DETONATION (OD) AREA HAZARDOUS WASTE TREATMENT UNIT

1. **SECTION 1.5 (PAGE 1-15)**

   The first sentence which states that "There were no detections of explosives or metals above site-wide background values..." should be changed to neither explosives nor metals posed a threat to human health, because technically there are no site-wide background values for explosives or metals in this plan for the site.

2. **SECTION 2.4 (PAGE 2-11)**

   The plan states that equipment will be decontaminated by triple washing it. The plan should indicate what they will be triple washed with.

3. Ground water comments are forthcoming.

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
'0 E. Aurora Road
nsburg, Ohio 44087-1969
(330) 425-9171 FAX (330) 487-0769

George V. Voinovich
Governor

January 20, 1998

RE: RAVENNA ARSENAL
AMMUNITION PLANT
GROUND WATER MONITORING PLAN
OH5-210-020-730

John Cicero, Jr.
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Cicero:

On October 31, 1997 the Ohio EPA received your document dated October 1997, regarding the Open Demolition Area Ground Water Monitoring Plan, located within the Ravenna Arsenal Ammunition Plan (RVAAP) installation at 8451 State Route 5, Ravenna, Ohio.

RVAAP has submitted an amendment to its ground water monitoring plan for the former open detonation area at this site. This amendment to the ground water monitoring plan is submitted in response to a January 23, 1997, notice of deficiency letter from this office to RVAAP. This office also made comments to a draft version to this October 1997 ground water monitoring plan. Regarding the October 1997 ground water plan, I am providing you with the following comments:

1. Comment #1 to the draft version of the October 1997 ground water monitoring plan specified that all references to the open burning grounds be removed from the document. To completely satisfy this comment, the following additional changes must be made:

   a. The Title page should be modified to read, "Amendment to the Open Detonation Area Ground Water Monitoring Plan."

   b. Although Section E-4.7e has been revised to omit specific references to the open burning grounds, other non-specific references also should be modified. For example, the sentence, "The OD Area data will be analyzed separately," no longer is needed and should be removed. In addition, sentences that include phrases such as "both cases," "at each location," "at each of the sites," "upgradient wells," etc. should be modified such that they refer only to the open detonation area. Reference to the map of the open burning grounds (Figure E-4-9A) should also be removed from this section.

2. In the first sentence on page 1, the abbreviation designated for the open detonation area is ODA. Elsewhere in this document, the abbreviation OD is used. To maintain consistency within this document and between this document and the closure plans, the ODA in the first sentence should be changed to OD.

3. Comment #2 to the draft plan specified that the list of analytical parameters (Table E-4-1) for ground water should be the same as the analytical list of parameters for soils included in the closure plan (Table 1-2). To adequately address this comment, cobalt should be added to the list of ground water parameters (Table E-4-1). In addition, the third sentence on page 3 ("Metals no longer included...") no longer is applicable and should be removed from the document.

4. As per conversation with your facility representatives, it is the impression of this office that the analytical method for explosives is being changed from SW846 Method 8830 to *Modified* SW846 Method 8330. This should be documented on Table E-4-1.

The final modified ground water monitoring plan should be submitted to: Ohio Environmental Protection Agency, Division of Hazardous Waste Management, Attn: Tom Crepeau, Manager, Data Management Section, P.O. Box 1049, Columbus, Ohio 43216-1049. a copy, with an additional copy to facilitate ground water review, should be sent to : Gregory Orr, Ohio EPA, Northeast District Office, 2110 East Aurora Road, Twinsburg, Ohio 44087.

Sincerely,

Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddb

cc: Carolyn Princic, DHWM, NEDO
Bob Princic, DERR, NEDO
Diane Kurlich, DGW, NEDO
Eileen Mohr, DERR, NEDO
Mark Navarre, Legal, CO
Montee Suleiman, DHWM, CO
Katheryn Dominic, SAIC
Tim Leet, SAIC

Revised Closure Plan OD
10/17

Although the only RCRA wastes treated at this unit were characteristic for reactivity and the process of demolition removed that characteristic, it is possible that incomplete detonation occurred. Any waste that still exhibits the characterisitic of reactivity will be removed during the UXO removal effort to be conducted as part of THIS CLOSURE. ~~the Interim Measures Plan discussed in the preceeding paragraph.~~ However, other constituents have been found in ash left from the open burning of explosives, and these constituents are included in the constituent of concern list for the OD AREA. ~~Open Demolition Area #2.~~ Any contaminated media found through sampling to be conducted at the OD area may prove to be characteristic hazardous wastes for several of the constituents, to be determined by TCLP analyses. The other constituents listed, although not TCLP analytes, may be present above BACKGROUND AS A RESULT OF THE ACTIVITIES AT THE OD AREA ~~risk-based cleanup standards~~ and may therefore require removal. The constituents are listed in Table 1-2. THE CONSTITUENTS OF CONCERN FOR GROUNDWATER ARE PRESENTED IN SECTION 2.5.

Table 1-2. Constituents of Concern for the Open DETONATION ~~Demolition~~ Area #2

Medium	Potential Waste Code	Constituents
Waste Explosives	D003	Reactivity characteristic
SOIL	NONE	ALUMINUM
SOIL	NONE	ANTIMONY
Soil	D004	Arsenic
Soil	D005	Barium
SOIL	NONE	BERYLLIUM
Soil	D006	Cadmium
SOIL	NONE	CALCIUM
Soil	D007	Chromium
SOIL	NONE	COBALT
SOIL	NONE	COPPER
SOIL	NONE	IRON
Soil	D008	Lead

Medium	Potential Waste Code	Constituents
SOIL	NONE	MAGNESIUM
SOIL	NONE	MANGANESE
Soil	D009	Mercury
SOIL	NONE	NICKEL
SOIL	NONE	POTASSIUM
SOIL	NONE	SELENIUM
SOIL	NONE	SILVER
SOIL	NONE	SODIUM
SOIL	NONE	THALLIUM
SOIL	NONE	VANADIUM
SOIL	NONE	ZINC
Soil	D030	2,4-dinitrotoluene
SOIL	NONE	2,6-DINITROTOLUENE
Soil	None, ~~potential risk-based removal required~~	2,4,5-trinitrotoluene (TNT) 1,3,5-hexahydro-1,3,5-trinitrohydazine (RDX) 1,3,5,7-hexahydro-1,3,5,7-tetranitrohydrazine (HMX)
SOIL	NONE	1,3,5-TNB
SOIL	NONE	TETRYL
SOIL	NONE	1,3-DNB
SOIL	NONE	NITROBENZENE

1.5.2 Capacity

The maximum possible capacity for managing hazardous wastes at the OD area before detonation was limited to the daily treatment capacity of 1000 pounds. THEREFORE, THE MAXIMUM INVENTORY OF HAZARDOUS WASTE EVER ON-SITE DURING THE

SUBJECT: Army Radiation Permits

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[x]Longhorn/Louisiana AAP, ATTN: SMALL-CR, P.O. Box 658, Doyline, LA 71023-0658
[x]Mississippi AAP, ATTN: SMAMS-CR, Stennis Space Center, MS 39529-7000
[x]Ravenna AAP, ATTN: SMARV-CR, 8451 State Rte 5, Ravenna, OH 44266-9297
[x]Riverbank AAP, ATTN: SMARB-CR, Riverbank, CA 95367-0670
[x]Savanna ADA, ATTN: SMASV-CR, 3700 Army Depot Rd, Savanna, IL 61074-9636
[x]Scranton AAP, ATTN: SMASC-CR,156 Cedar Ave., Scranton, PA 18505-1138
[x]Seneca ADA, ATTN: SOSSE-CR, 5786 State Rte 96, Romulus, NY 14541-5001
[x]Sunflower AAP, ATTN: SMASF-CR, P.O. Box 640, DeSoto, KS 66018-0640
[x]Twin Cities AAP, ATTN: SMATC-CR,4700 Hwy 10, Suite A, Arden Hills, MN 55112-3928
[x]Volunteer AAP, ATTN: SMAVO-CR, P.O. Box 22607, Chattanooga, TN 37422-2607

FIELD SUPPORT COMMAND SITES:

[x]U.S Army Field Support Command, ATTN: SOSFS-CO, Rock Island, IL 61299-6500
[x]ARCENT-QA, ATTN 511, APO AE 09898
[x]Army Materiel Command Combat Equipment Group-Afloat, ATTN: SOSFS-A-CO, 103 Guidance Rd., Goose Creek, SC 29445-8620
[x]Army Materiel Command CONUS, ATTN: SOSFS-C-CO, 1777 Hardee Ave., SW, Ft. McPhearson, GA 30330-6000
[x]Army Materiel Command Combat Equipment Group-Europe, ATTN: SOSFS-G-CO, Unit 21615, APO AE 09703, Netherlands
[x]Army Materiel Command Forward Europe, ATTN: SOSFS-E-CO, Unit 29331, APO AE 09266, Germany
[x]Army Materiel Command Forward Far East, SOSFS-F-CO, Camp Market, APO AP 96283, Korea

AMSOS-SF (AMCSF-P/5 Feb 2001) (11-9f) 1st End
SUBJECT: Army Radiation Permits (ARPs)

07 MAR 2001

Commander, U.S. Army Operations Support Command, 1 Rock Island Arsenal, Rock Island, IL 61299-6000 2 March 2001

FOR SEE DISTRIBUTION

TO	3/12/01
CT-COP	
ENV	
IS	
CONTRACTOR	
RETURN FOR FILE	

1. Commanders and commander's representatives must ensure an ARP is issued for non-Army agencies using radiation sources on Army land.

2. Request you review the basic and ensure all non-Army agency request an ARP, when necessary. The ARP is a tool to protect the Army from the responsibility in cleaning up land and facilities contaminated with radiation by a non-Army agency.

3. Guidelines (encl 2) and a generic ARP (encl 3), for Thorium-fluoride coated optics, provides document to support your efforts to issue ARPs at your installation. You may use the enclosures as tools to assist you when an ARP is necessary. You may tailor the enclosed guidelines and generic ARP for your local situations.

4. The POC is Mr. Rich Spears, AMSOS-SF, DSN 793-2190, e-mail amsos-sf@osc.army.mil.

ROSALENE E. GRAHAM
Chief, Safety/Rad Waste Team

4 Encls
1-2. nc
Added 2 encls
3-4. as

CF (w/encls):
Commander, U.S. Army Munitions and Armaments Command, ATTN: SOSMA-CO, 1 Rock Island Arsenal, Rock Island, IL 61299-5500

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

7/14/98
S: 8/13/98
7/14/98

June 10, 1998

RE: RAVENNA ARMY AMMUNITION PLANT
OH5-210-020-736
GROUND WATER MONITORING RESULTS

CERTIFIED MAIL

Mr. John Cicero, Jr.
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Cicero:

Thank you for submitting the supplementary annual reports for ground water monitoring and also the quarterly reports of the ground water monitoring for the Open Detonation Area (OD) and the Open Burning Grounds (OB) at the Ravenna Army Ammunition Plant (RVAAP), located at 8451 State Route 5, Ravenna, Ohio. The submitted reports summarizes the results of ground water monitoring events that occurred in the OB and OD areas in December 1995, March 1996, June 1996, September 1996, December 1996, March 1997, June 1997, September 1997, December 1997, January 1998 and March 1998. The 1995, 1996, and 1997 Supplementary Annual Reports for Ground Water Monitoring Information was also submitted.

Please find attached as Attachment A, comments for the above mentioned reports. Please note that the comments are divided into a general comments section that covers comments pertinent to more than one of the reports and comments specific to a particular report.

All requested information must be sent to this office, to my attention, within thirty (30) days after 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:kss

cc: Carolyn Princic, DHWM, NEDO
Diane Kurlich, DDAGW, NEDO
Eileen Mohr, DERR, NEDO
Mark Patterson, RVAAP

Attachment CF: AMSIO-EQE (Wheelone)
AMSIO-IRI (INGOLD)
AMSIO-IRG (Vermeet)
USACE, Louisville (Jasper / Jent)

ATTACHMENT A

GENERAL COMMENTS

1. The indicator parameters, specific conductance (OBG-2, OBG-4, DET-2, DET-3, and DET-4) and TOC (OBG-4, DET-4), have consistently triggered at the Open Burning Grounds and the Open Detonation Area. RVAAP also analyzes ground water samples for site specific constituents including explosives, heavy metals, and volatile organic compounds. Detections of the site specific constituents in the ground water has been sporadic. However, the statistical analysis of upgradient versus downgradient concentrations of the site specifics would be more pertinent in determining whether RVAAP is affecting the quality of ground water at the site. Therefore, RVAAP shall begin to statistically analyze site specific constituents rather than indicator parameters with the next quarterly data submitted to the Ohio EPA for review.

2. The laboratory QA/QC information has not consistently been submitted with the data. Although it appears that the most recent data submittals do include this information, RVAAP is reminded that all future data submittals must include the laboratory QA/QC information.

3. The detection limits for some of the other site specific constituents periodically have been above applicable MCLs. For example, the detection limit for vinyl chloride in the two most recent sampling events (December 1997 and March 1998) has been 10 ug/L. The MCL for vinyl chloride is 2 ug/L. Other constituents that have had detection limits greater than their MCLs include beryllium, thallium, cadmium, antimony, and lead. The increased detection limits for some of these constituents (beryllium, antimony, and thallium) occurred during the most recent sampling event (March 1998). Therefore, this is not just a historical problem. RVAAP must work with the laboratory to ensure that the detection limits are less than or equal to the MCL for all constituents that have MCLs.

4. The following problems were observed on the chain-of-custody forms that accompanied the data reports:

   a. The date and/or time that custody was transferred is not documented. RVAAP shall ensure that each person that relinquishes and receives custody documents the date and time that the custody transfer occurred.

   b. There are large periods of time for which the custody is uncertain. For example, the chain-of-custody form for the June 1997 sampling event indicated that the initial custody was transferred on June 19, 1997. The person receiving the samples is not documented. The next transfer is documented as occurring on June 26, 1997. Thus, it is unclear who received the samples on June 19 and who had possession of the samples between June 19 and June 26. In addition, the sample description portion of the chain-of-custody form indicates that the samples weren't collected until June 26. Therefore, it is also unclear whether the date the samples were collected is in error or whether the first person to relinquish the samples made a mistake. RVAAP shall ensure that all dates, times, and persons involved in custody transfer are accurately and fully documented.

   c. In some instances the date of sample collection is not documented. Rarely is the sample collection time documented. In addition, instead of listing each sample individually, all samples for a site are lumped together. To properly complete a chain-of-custody form, RVAAP shall enter one sample per line on the form. The date and time the sample was collected should be documented, the analyses to be performed should be indicated, and the preservatives and containers used should

be documented for each sample. In the future, RVAAP shall ensure that all samples submitted for analyses are fully documented.

The chain-of-custody form is an integral part of the collection of ground water samples for analysis. For data to be considered to be valid, the chain-of-custody forms accompanying the samples must be filled out accurately and fully. In the future, RVAAP must ensure that the chain-of-custody forms are accurately completed, that all transfers of custody are accurately and completely recorded, and that the information for each sample, including date and time of collection; containers and preservatives used; and analyses requested are fully documented.

5. Several times, problems occurred either in the collection of samples (e.g., the wrong preservative was used) or in the analysis of samples by the laboratory (e.g., the laboratory accidentally omitted some of the analytes). In the future, problems such as these should be documented and explained in the cover letter accompanying the data reports.

SPECIFIC COMMENTS, JUNE 1997

6. A note on the chain-of-custody form states that the laboratory received all of the trip blanks in one cooler. In the future, RVAAP shall ensure that each cooler containing VOC samples also has a trip blank (i.e. all of the trip blanks should not be shipped in one cooler unless all of the VOC samples are being shipped in the same cooler).

7. As explained in General Comment 4 above, the chain-of-custody indicates that the samples were collected on June 26, 1997, and that the first custody transfer took place on June 19, 1997. RVAAP shall clarify and document what date the samples were collected, and explain how the first custody transfer occurred prior to the samples being collected. The person to whom the first custody transfer was made shall also be documented.

SPECIFIC COMMENTS, SEPTEMBER 1997

8. Oil and grease were not analyzed due to a laboratory error. It does not appear that additional samples were collected and analyzed. In the future, if analytes are omitted, RVAAP shall resample the affected well(s) for the omitted parameter(s).

9. Barium was detected in OBG-3 at a concentration of 9.40 mg/L. This exceeds the MCL of 2 mg/L and is not consistent with historical barium concentrations at the site. RVAAP shall check with the laboratory to determine if an explanation can be determined for this apparently anomalous value. In the future, apparently anomalous values such as this shall be confirmed by resampling the affected well(s) for the suspect parameter(s).

10. The chain-of-custody indicates that the samples were collected on September 18, 1997, and that the first custody transfer occurred on September 11, 1997. RVAAP shall clarify and document the date of sample collection, and explain how the first custody transfer occurred prior to sample collection. The person to whom the first custody transfer was made shall be documented.

SPECIFIC COMMENTS, DECEMBER 1997

11. Well DET-2 was resampled for pH, alkalinity, chloride, specific conductance, sulfate, total dissolved solids, and turbidity in January 1998 apparently because sulfuric acid was erroneously added to the sample that was to be non-preserved. This information was included in the laboratory data report. In the future, problems such as this should be documented and explained in the cover letter. In addition, RVAAP shall ensure that the correct preservatives are used in the future.

12. The laboratory also noted that the metals sample for OBG-2 was incorrectly preserved and that it was adjusted by the laboratory. RVAAP shall provide additional information concerning the error in preservation that was made so that the validity of the data obtained can be determined. In the future RVAAP shall ensure that correct procedures are followed in the collection and preservation of all samples.

13. The QA/QC report indicates that the matrix spike and matrix spike duplicates were not within control limits because of the matrix. The matrix spike and/or matrix spike duplicates spike recoveries were outside acceptable limits for nitrogen ammonia, nitrate/nitrite, total alkalinity, and total Kjeldahl nitrogen due to matrix interference. RVAAP shall consult with the laboratory to determine how these matrix problems might be corrected in the future.

SPECIFIC COMMENTS, MARCH 1998

14. The laboratory report indicates that there was headspace in one of the VOC vials for OBG-1, -3, -4, DET-4, and the duplicate sample. There was headspace in two of the VOC vials for DET-2 and -3. RVAAP shall ensure that in the future the VOC samples are correctly collected without headspace. In addition, it is unclear whether the laboratory had a correctly collected sample from each well to analyze. This shall be clarified and the information submitted to the Ohio EPA so that the validity of the data can be evaluated.

15. The laboratory report indicates that sulfuric acid had to be added to samples from OBG-1, -2, and -3 as well as DET-3. RVAAP shall determine what parameters may have been affected by this error. This information shall be submitted to the Ohio EPA. Because of the preservation error, the resulting data will be considered to be minimum values. In order for the resulting data to be considered to be valid, RVAAP must ensure that samples are properly preserved immediately upon collection.

16. Historically, RVAAP and the Ohio EPA has agreed to designate the wells at the open burning grounds as OBG-1 through -4 and the wells at the open detonation area as DET-1 through DET-4. This convention has not been adhered to in this report. In order to avoid the confusion experienced previously when the designations for the wells changed regularly, RVAAP shall ensure that the agreed upon designations for the wells are always used.

17. The chain-of-custody was dated September 19, 1998, by RVAAP personnel relinquishing custody of the samples to the laboratory. The sample collection date documented on the chain-of-custody is September 19, 1998. The sample bottles were dated March 19, 1998, and the samples were received by the laboratory on March 19, 1998. RVAAP shall send documentation of the correct sampling date to the Ohio EPA. As stated previously, RVAAP must accurately fill out the chain-of-custody forms for the data to be considered to be valid. Without accurate information concerning the date and time of sample collection, it cannot be determined if the samples were analyzed within the correct holding times. In the future, an error such as this may necessitate the resampling of all of the site wells for all of the sampling parameters.

18. The laboratory report indicates that the matrix spikes for RDX, 1,3,5-TNB, 1,3-dinitrobenzene, and 2-amino-4,6-DNT were outside the control limits. It does not indicate whether any corrective action was taken. RVAAP should determine if corrective action was taken and, if so, what this action was. If no corrective action was taken, RVAAP should determine why. This information shall be submitted to the Ohio EPA so that the validity of the data can be evaluated. RVAAP shall discuss with the laboratory, preventative measures that can be taken in the future to ensure that matrix spike recoveries are within acceptable limits.

19. Matrix spike and/or matrix spike duplicate recoveries were outside the acceptance limits for nitrogen ammonia, chemical oxygen demand, nitrate/nitrite, sulfate, total phosphorus, alkalinity, total Kjeldahl nitrogen, total organic carbon, and chloride. It is indicated that these problems were the result of matrix interferences. RVAAP shall work with the laboratory to eliminate these interference problems from future analyses.

END OF COMMENTS

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 FAX (330) 487-0769

George V. Voinovich
Governor

6/29/98
COR
ENV

June 25, 1998

RE: RAVENNA ARMY AMMUNITION PLANT
MONITORING WELL (DET-1)
DETONATION AREA
OH5-210-020-736

John Cicero, Jr.
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

CERTIFIED MAIL

Dear Mr. Cicero:

This is to advise you that during the week of June 1, 1998, using an emergency permit from the Ohio Environmental Protection Agency's (OEPA's) Division of Hazardous Waste Management (DHWM), the U.S. Army exploded unstable ordinances at the open detonation area at Ravenna Army Ammunition Plant (RVAAP). The explosions were conducted outside the limits of the RCRA unit as now defined. Ground water monitoring, in accordance with Ohio Administrative Code (OAC) rule 3745-54-90 through 3745-55-02, is currently being conducted by RVAAP as part of closure activities at this site. On Thursday, June 4, 1998 representatives of the OEPA were on-site to observe these explosions. On that date, it was observed that the pit being used for the detonations was located approximately 10 feet to 15 feet away from the upgradient monitoring well (DET-1) for the RCRA unit. It is estimated that the circular pit was approximately 12 feet in diameter. It was initially 4 feet deep, however, the depth increased with each round of detonations. It is estimated that materials were detonated in this pit approximately 7 to 10 times over the course of the week. It was also observed that the explosions caused noticeable vibrations in the observation bunker located approximately one-tenth of a mile away from the detonation site. The material being exploded contained, and possibly could leave, the same residues of explosives, propellants, and metals as the wastes associated with the RCRA unit.

Because of the location of the detonation pit in close proximity to the upgradient monitoring well DET-1, the OEPA is concerned about the physical integrity of this monitoring well. In addition, because this activity may have introduced the same explosive, propellant and metals contamination now monitored at the RCRA unit into the immediate vicinity of this sampling point, the integrity of the data obtained from this well has also been compromised. Therefore, monitoring well DET-1 shall be properly abandoned, as per the guidance in Chapter 9 of the Technical Guidance Manual for Hydrogeological Investigations and Ground Water Monitoring (Ohio EPA, February 1995). A new upgradient well shall be installed at the site and the collection of a new background data set shall begin as soon as possible after well installation is completed, so that statical analysis of the data can be performed.

RVAAP shall install the new monitoring well in accordance with the site-wide sampling and analysis plan (SAP). RVAAP shall submit all documentation, which shall include all abandonment and installation procedures, as well as a well log, to the OEPA's NEDO once complete.

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:kss

cc: Carolyn Princic, DHWM, NEDO
Bob Princic, DERR, NEDO
Eileen Mohr, DERR, NEDO
Dianne Kurlich, DDAGW, NEDO
Mark Patterson, RVAAP
Katheryn Dominic, SAIC
Timothy Leet, SAIC

CF:
AMSIO-IRG
AMSIO-EQE
COE (JASPER\JENT)

Rebecca L. Strait
Project Manager

Quanterra Incorporated
4101 Shuffel Drive, NW
North Canton, Ohio 44720

330 497-9396 Telephone
330 497-0772 Fax

July 28, 1998

Ms. Susan McCauslin
Mason & Hanger - Silas Mason Co., Inc.
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Dear Ms. McCauslin:

Quanterra Incorporated, North Canton Laboratory, offers the attached response to Ohio EPA's overview of the analytical data submitted to Mason & Hanger as a part of the RVAAP monitoring program.

Should you have any questions, or need additional clarification on any of these issues, please don't hesitate to call me at 330-966-9792.

Sincerely,

Rebecca Strait
Rebecca L. Strait
Project Manager

cc: J. Bernarding

FWGWMP

Quanterra Incorporated

Response to OEPA comments received on RVAAP OBG/DET ground water data
Submitted to: Mason & Hanger

GENERAL COMMENTS

- **Finding#3: Reporting limits above the applicable MCLs.**

  Response:

The original Request for Proposal did not specify that target detection limits for the project needed to be at or below any applicable MCLs. In light of this fact, the laboratory will re-review target analytes for the groundwater monitoring project and ensure that the base reporting limits for any analyses performed after August 1, 198 are at or below applicable MCL's, or that any anomalies have been clearly detailed to Mason & Hanger. The only exception will be in cases where dilutions are required on a sample specific basis due to high concentrations of target or non-target analytes. In such cases, it may be impossible to achieve the applicable MCLs for other analytes in the sample.

SPECIFIC COMMENTS, DECEMBER 1997

- **Finding#12: Incorrectly preserved samples adjusted by the laboratory.**

  Response:

In general, different situations can lead to receipt of an "incorrectly" preserved sample.

1. Quanterra provides one vial of acid preservative for each container of ground water sample requiring preservation. In general, this volume of acid will be sufficient to adjust the water pH per the applicable method. In certain complex matrices, additional acid will be required to adjust the pH sufficiently to ensure method compliance. In these cases, Quanterra's sample receiving group will further adjust the pH by adding additional preservative.

2. In some cases, the client may fail to add preservative to the sample. In these cases, the laboratory will generally add preservative upon receipt and notify the client of the anomaly to ensure that no other corrective action is required.

3. In some cases, the client may incorrectly preserve the sample, either by adding preservative prior to some other preparation step (ie, prior to filtering dissolved metals samples) or by adding the incorrect preservative to a sample container. In such cases, the client will be notified to determine whether corrective action is feasible, either by using an unpreserved sample aliquot from an unpreserved sample container, or by resampling.

In the case of this finding, it is not clear whether the preservative was not added, or whether the amount added was insufficient to lower the sample pH to < 2.

- **Finding#13: General Chemistry MS/MSDs outside control limits.**

Response:

Quanterra's Quality Management Plan and SOPs states that if the method blank and the laboratory control sample associated with a given batch are in control, the laboratory has proven that the laboratory's system is clean and working properly. When batch MS/MSD fails, if all other QC samples are in control and, in the analyst's judgment, sample matrix effects are indicated, no corrective action is required. The batch will be accepted and the QC anomaly narrated as possible matrix effect. (Please note that project specific QC samples have not been requested on the RVAAP Monitoring project.)

The December 1997 project had four MS/MSDs with recoveries outside laboratory acceptance limits. (Only two of these - Nitrogen, as Ammonia and TKN - were performed on a RVAAP sample.) In each case, the RPDs were in control, and the recoveries were consistent enough to support the analyst's conclusion that there was a matrix effect. There are no steps that can be taken to modify the sample matrix for a General Chemistry test by "cleaning" or removing any interfering constituents. In other words, matrix problems cannot be corrected.

There are two possibilities to consider if precision data is critical for this project:

1. If the agency requires project specific MS/MSD, the laboratory could, on a client requested basis, confirm matrix effects by reprepping and reanalyzing any MS/MSDs that failed control limits, along with the associated environmental sample, to confirm matrix interference. (Note that these MS/MSDs and the reanalyses would be billed at the unit cost of the particular analysis.)

2. Matrix effects may, in some cases, be specific to the measurement technique being used, so where an alternate method is available to measure the same parameter, changing the method may (or may not) yield better recoveries.

SPECIFIC COMMENTS, MARCH 1998

- **Finding #14: Headspace in VOC vials.**

Response:

Historically, narrations of VOC vial "headspace" on Quanterra's cooler receipt form have not been qualified (in writing) as to the size of the bubbles present in the sample. However, bubbles are rarely more than 6 mm in diameter (defined by EPA as "micro bubbles," and should not affect data quality. Chapter 4 of EPA's SW 846 guidance document states the following:

> "Due to differing solubility and diffusion properties of gases in LIQUID matrices at different temperatures, it is possible for the sample to generate some headspace during storage. This headspace will appear in the form of micro bubbles, and should not invalidate a sample for volatiles analysis."

Quanterra's North Canton facility is currently in the process of revising the laboratory's Cooler Receipt Form to specify whether or not a bubble present in a VOC vial qualifies as a micro bubble.

For those RVAAP samples which had VOC vials submitted with and without bubbles, the laboratory routinely selects a vial with bubbles for the screening process, and then uses an uncompromised vial without headspace for the sample analysis.

- **Finding #15: Insufficient sulfuric acid preservative in liter containers.**

Response:

Reference Finding #12 for general information in incorrect preservation of samples.

In the case of this finding, a 1 Liter glass container for OBG-1and DET-2, and two liter glass containers for OBG-2 were further preserved in the laboratory. These containers would have been used for either Phenols or Oil & Grease analyses.

A 1liter plastic container for OBG-3 was further preserved in the laboratory. This container would have been used for Ammonia-N, Nitrate/Nitrite-N, TKN, or COD.

- **Finding #18: Explosives MS/MSD outside control limits.**

Response:

Quanterra's Quality Management Plan and SOPs state that analyte recoveries and relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. When these values fail to meet acceptance criteria, the data is reviewed to determine the cause. If, in the analyst's judgment, sample matrix effects are indicated, no corrective action is performed. In this case, the analyst observed that even though some recoveries were outside laboratory control limits, all RPDs were in control limits, indicating that a matrix effect is likely.

[Please note that the MS/MSD associated with batch 8083132 was performed as a part of Quanterra's internal QC program and **was not** performed on a RVAAP sample.]

- **Finding #18: General Chemistry MS/MSDs outside control limits.**

Response:

Reference Finding Number 13.

Facsimile Transmittal

Quanterra Incorporated
4101 Shuffel Dr.
North Canton, Ohio 44720
(330) 497-9396 Switchboard
(330) 966-9792 Direct Inward Dial
(330) 497-0772 Fax

Quanterra®

Date:	**July 29, 1998**
Number of Pages:	5
Deliver to:	**Sue McCauslin**
Company:	Mason & Hanger
Fax Number:	**330 358 7414**
From:	Rebecca Strait, Project Manager (Direct Dial 330-966-9792)
Fax Number:	330-497-0772

Comments:

Sue -

I'm REALLY SORRY for taking so long on this one .... and even more importantly ....

I apologize for "whining" about it. We're trying to get some additional help in here, but are having trouble finding qualified candidates.

(If you know anyone who would make a great Lab PM ... let me know)

Regards.

Becki

TCR with Greg Orr
7/29/98 1550
Subject: Statistical Analysis of GWM data for site specific analytes

Greg consulted with Diane Kurlich while he was on the phone. Statistical analysis will have to be run on all specific analytes to determine if there is a significant difference. The type of statistical test is chosen by the facility based on guidance in the following documents:

> Statistical Analysis of Groundwater monitoring at RCRA facilities. 4/89 (US EPA Document).
>
> Statistical Analysis of Groundwater monitoring at RCRA facilities Addendum. 4/92 (US EPA Document).

Test(s) have to be run every time data is submitted.

Mark Patterson

Facsimile Transmittal

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Date:	**July 29, 1998**
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Comments:

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Regards.

Becki

Rebecca L. Strait
Project Manager

Quanterra Incorporated
4101 Shuffel Drive, NW
North Canton, Ohio 44720

330 497-9396 Telephone
330 497-0772 Fax

Quanterra

July 28, 1998

Ms. Susan McCauslin
Mason & Hanger - Silas Mason Co., Inc.
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

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Sincerely,

Rebecca Strait
Rebecca L. Strait
Project Manager

cc: J. Bernarding

Quanterra Incorporated

Response to OEPA comments received on RVAAP OBG/DET ground water data
Submitted to: Mason & Hanger

GENERAL COMMENTS

- **Finding#3: Reporting limits above the applicable MCLs.**

  Response:

The original Request for Proposal did not specify that target detection limits for the project needed to be at or below any applicable MCLs. In light of this fact, the laboratory will re-review target analytes for the groundwater monitoring project and ensure that the base reporting limits for any analyses performed after August 1, 198 are at or below applicable MCL's, or that any anomalies have been clearly detailed to Mason & Hanger. The only exception will be in cases where dilutions are required on a sample specific basis due to high concentrations of target or non-target analytes. In such cases, it may be impossible to achieve the applicable MCLs for other analytes in the sample.

SPECIFIC COMMENTS, DECEMBER 1997

- **Finding#12: Incorrectly preserved samples adjusted by the laboratory.**

  Response:

In general, different situations can lead to receipt of an "incorrectly" preserved sample.

1. Quanterra provides one vial of acid preservative for each container of ground water sample requiring preservation. In general, this volume of acid will be sufficient to adjust the water pH per the applicable method. In certain complex matrices, additional acid will be required to adjust the pH sufficiently to ensure method compliance. In these cases, Quanterra's sample receiving group will further adjust the pH by adding additional preservative.

2. In some cases, the client may fail to add preservative to the sample. In these cases, the laboratory will generally add preservative upon receipt and notify the client of the anomaly to ensure that no other corrective action is required.

3. In some cases, the client may incorrectly preserve the sample, either by adding preservative prior to some other preparation step (ie, prior to filtering dissolved metals samples) or by adding the incorrect preservative to a sample container. In such cases, the client will be notified to determine whether corrective action is feasible, either by using an unpreserved sample aliquot from an unpreserved sample container, or by resampling.

In the case of this finding, it is not clear whether the preservative was not added, or whether the amount added was insufficient to lower the sample pH to < 2.

- **Finding#13: General Chemistry MS/MSDs outside control limits.**

Response:

Quanterra's Quality Management Plan and SOPs states that if the method blank and the laboratory control sample associated with a given batch are in control, the laboratory has proven that the laboratory's system is clean and working properly. When batch MS/MSD fails, if all other QC samples are in control and, in the analyst's judgment, sample matrix effects are indicated, no corrective action is required. The batch will be accepted and the QC anomaly narrated as possible matrix effect. (Please note that project specific QC samples have not been requested on the RVAAP Monitoring project.)

The December 1997 project had four MS/MSDs with recoveries outside laboratory acceptance limits. (Only two of these - Nitrogen, as Ammonia and TKN - were performed on a RVAAP sample.) In each case, the RPDs were in control, and the recoveries were consistent enough to support the analyst's conclusion that there was a matrix effect. There are no steps that can be taken to modify the sample matrix for a General Chemistry test by "cleaning" or removing any interfering constituents. In other words, matrix problems cannot be corrected.

There are two possibilities to consider if precision data is critical for this project:

1. If the agency requires project specific MS/MSD, the laboratory could, on a client requested basis, confirm matrix effects by reprepping and reanalyzing any MS/MSDs that failed control limits, along with the associated environmental sample, to confirm matrix interference. (Note that these MS/MSDs and the reanalyses would be billed at the unit cost of the particular analysis.)

2. Matrix effects may, in some cases, be specific to the measurement technique being used, so where an alternate method is available to measure the same parameter, changing the method may (or may not) yield better recoveries.

SPECIFIC COMMENTS, MARCH 1998

- **Finding #14: Headspace in VOC vials.**

Response:

Historically, narrations of VOC vial "headspace" on Quanterra's cooler receipt form have not been qualified (in writing) as to the size of the bubbles present in the sample. However, bubbles are rarely more than 6 mm in diameter (defined by EPA as "micro bubbles," and should not affect data quality. Chapter 4 of EPA's SW 846 guidance document states the following:

> "Due to differing solubility and diffusion properties of gases in LIQUID matrices at different temperatures, it is possible for the sample to generate some headspace during storage. This headspace will appear in the form of micro bubbles, and should not invalidate a sample for volatiles analysis."

Quanterra's North Canton facility is currently in the process of revising the laboratory's Cooler Receipt Form to specify whether or not a bubble present in a VOC vial qualifies as a micro bubble.

For those RVAAP samples which had VOC vials submitted with and without bubbles, the laboratory routinely selects a vial with bubbles for the screening process, and then uses an uncompromised vial without headspace for the sample analysis.

- **Finding #15: Insufficient sulfuric acid preservative in liter containers.**

Response:

Reference Finding #12 for general information in incorrect preservation of samples.

In the case of this finding, a 1 Liter glass container for OBG-1and DET-2, and two liter glass containers for OBG-2 were further preserved in the laboratory. These containers would have been used for either Phenols or Oil & Grease analyses.

A 1liter plastic container for OBG-3 was further preserved in the laboratory. This container would have been used for Ammonia-N, Nitrate/Nitrite-N, TKN, or COD.

- **Finding #18: Explosives MS/MSD outside control limits.**

Response:

Quanterra's Quality Management Plan and SOPs state that analyte recoveries and relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. When these values fail to meet acceptance criteria, the data is reviewed to determine the cause. If, in the analyst's judgment, sample matrix effects are indicated, no corrective action is performed. In this case, the analyst observed that even though some recoveries were outside laboratory control limits, all RPDs were in control limits, indicating that a matrix effect is likely.

[Please note that the MS/MSD associated with batch 8083132 was performed as a part of Quanterra's internal QC program and **was not** performed on a RVAAP sample.]

- **Finding #18: General Chemistry MS/MSDs outside control limits.**

Response:

Reference Finding Number 13.

since 1827
MASON & HANGER CORPORATION
RAVENNA ARMY AMMUNITION PLANT

July 30, 1998

Contracting Officer's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, Ohio 44266-9297

Subject: Ohio EPA Review of Ground Water Monitoring Submittals for the RVAAP Open Burning Grounds and Open Detonation Area

Reference: Ohio EPA Letter Dated 6/10/98, Subject as Above

Dear Sir:

We have reviewed the referenced letter and comments regarding ground water monitoring at the RVAAP Open Burning Grounds and Open Detonation Area. A written response to the noted deficiencies that fall within the scope of our responsibilities under the Modified Caretaker Contract is attached.

Sincerely,
Mason & Hanger Corporation

James D. McGee

James D. McGee
Site Manager

JDM

cc: AMSIO-EQE (Bob Whelove)

8451 State Route 5 • Ravenna, Ohio 44266-9297 • 330-358-7400 • fax 330-358-7414

GENERAL COMMENTS

1. The indicator parameters, specific conductance (OBG-2, OBG-4, DET-2, DET-3, and DET-4) and TOC (OBG-4, DET-4), have consistently triggered at the open Burning Grounds and the Open Detonation Area. RVAAP also analyzes ground water samples for site specific constituents including explosives, heavy metals, and volatile organic compounds. Detections of the site specific constituents in the ground water has been sporadic. However, the statistical analysis of upgradient versus downgradient concentrations of the site specifics would be more pertinent in determining whether RVAAP is affecting the quality of ground water at the site. Therefore, RVAAP shall begin to statistically analyze site specific constituents rather than indicator parameters with the next quarterly data submitted to the Ohio EPA for review.

Mason & Hanger can provide statistical analyses for site-specific parameters should that be required. Depending upon the nature and extent of the statistical analyses required Mason & Hanger may request that the Government provide additional funding to cover the cost of performing those analyses.

2. The laboratory QA/QC information has not consistently been submitted with the data. Although it appears that the most recent data submittals do include this information, RVAAP is reminded that all future data submittals must include the laboratory QA/QC information.

Mason & Hanger Corporation has specified in its purchase contract for analytical services with Quanterra Incorporated which was entered into in September of 1997 that a laboratory QA/QC report shall be included with each analytical report provided. This information will be included in all future ground water data submittals to Ohio EPA.

3. The detection limits for some of the other site specific constituents periodically have been above applicable MCLs. For example, the detection limit for vinyl chloride in the two most recent sampling events (December 1997 and March 1998) has been 10 ug/l. The MCL for vinyl chloride is 2 ug/L. Other constituents that have had detection limits greater than their MCLs include beryllium, thallium, cadmium, antimony, and lead. The increased detection limits for some of the constituents (beryllium , antimony, and thallium) occurred during the most recent sampling event (March 1998). Therefore, this is not just a historical problem. RVAAP must work with the laboratory to ensure that the detection limits are less than or equal to the MCL for all constituents that have MCLs.

Quanterra Incorporated has indicated in a letter to Mason & Hanger that the laboratory will re-review target analytes for the ground water monitoring and will ensure that the base reporting limits for any analyses performed after August 1, 1998 are at or below applicable MCLs. In future reports, if MCLs cannot be achieved, Quanterra will provide a detailed discussion of any anomalies present to Mason & Hanger.

4. The following problems were observed on the chain-of-custody forms that accompanied the data reports.

a. The date and/or time that custody was transferred is not documented. RVAAP shall ensure that each person that relinquishes and receives custody documents the date and time that the custody transfer occurred.

b. There are large periods of time for which the custody is uncertain. For example, the chain-of-custody form for the June 1997 sampling event indicated that the initial custody was transferred on June 19, 1997. The person receiving the samples is not documented. The next transfer is documented as occurring on June 26, 1997. Thus, it is unclear who received the samples on June 19 and who had possession of the samples between June 19 and June 26. In addition, the sample description portion of the chain-of-custody form indicates that the samples weren't collected until June 26. Therefore, it is also unclear whether the date the samples were collected is in error or whether the first person to relinquish the samples made a mistake. RVAAP shall ensure that all dates, times, and persons involved in custody transfer are accurately and fully documented.

c. In some instances the date of sample collection is not documented. Rarely is the sample collection time documented. In addition, instead of listing each sample individually, all samples for a site are lumped together. To properly complete a chain-of-custody form, RVAAP shall enter one sample per line on the form. The date and time the sample was collected should be documented, the analyses to be performed should be indicated, and the preservatives and containers used should be documented for each sample. In the future, RVAAP shall ensure that all samples submitted for analyses are fully documented.

The chain-of-custody form is an integral part of the collection of ground water samples for analysis. For data to be considered to be valid, the chain-of-custody forms accompanying the samples must be filled out accurately and fully. In the future, RVAAP must ensure that the chain-of-custody forms are accurately completed, that all transfers of custody are accurately and completely recorded, and that the information for each sample, including data and time of collection; containers and preservatives used; and analyses requested are fully documented.

Starting with the next sampling event (September, 1998), chain of custody forms will be prepared with complete sampling information for each individual sample. Dates and times for each sample will be documented on the chain of custody. Mason & Hanger will ensure that all dates, times and persons involved in custody transfer are documented on the chain of custody. A copy of a sample chain of custody form is attached to this letter for your review. With regard to item b., the initial custody date of June 19 was entered by the laboratory personnel to indicate the transfer date of sample

bottles sent to RVAAP prior to the sampling event. Actual sampling took place on June 26.

5. Several times, problems occurred either in the collection of samples (e.g., the wrong preservative was used) or in the analysis of samples by the laboratory (e.g., the laboratory accidentally omitted some of the analytes). In the future, problems such as these should be documented and explained in the cover letter accompanying the data reports.

The cover letter for future submittals will describe in more detail any problems or unusual situations encountered in that particular sampling event.

SPECIFIC COMMENTS, JUNE 1997

6. A note on the chain-of-custody form states that the laboratory received all of the trip blanks in one cooler. In the future, RVAAP shall ensure that each cooler containing VOC samples also has a trip blank (i.e. all of the trip blanks should not be shipped in one cooler unless all of the VOC samples are being shipped in the same cooler).

Mason & Hanger has emphasized to the personnel responsible for sampling that a trip blank must accompany each set of VOC samples throughout the entire sampling process, including shipment to the laboratory.

7. As explained in General Comment 4 above, the chain-of-custody indicates that the samples were collected on June 26, 1997, and that the first custody transfer took place on June 19, 1997. RVAAP shall clarify and document what date the samples were collected, and explain how the first custody transfer occurred prior to the samples being collected. The person to whom the first custody transfer was made shall also be documented.

The June 19, 1997 date was entered on to the chain of custody by Lancaster Laboratory personnel when sample containers were transferred from the laboratory to RVAAP. The actual sampling date was correctly entered as June 26, 1997. Future chain of custody forms will reflect only the dates and times of actual sampling.

SPECIFIC COMMENTS, SEPTEMBER 1997

8. Oil and grease were not analyzed due to a laboratory error. It does not appear that additional samples were collected and analyzed. In the future, if analytes are omitted, RVAAP shall resample the affected well(s) for the omitted parameter(s).

Should future analytes be omitted by error, Mason & Hanger will ensure that the affected well(s) are resampled for the omitted parameter(s).

9. Barium was detected in OBG-3 at a concentration of 9.40 mg/L. This exceeds the MCL of 2 mg/L and is not consistent with historical barium concentrations at the site. RVAAP shall check with the laboratory to determine if an explanation can be determined for this apparently anomalous value. In the future, apparently anomalous values such as this shall be confirmed by resampling the affected well(s) for the suspect parameter(s).

Mason & Hanger contacted Lancaster Laboratories, Ms. Wendy K. Park, to determine if any information was available regarding this particular analysis. Ms. Park indicated that their laboratory will check their records to determine if there may be an explanation for the anomaly. As of the date of this letter, Lancaster has not completed their review and provided a response.

10. The chain-of-custody indicates that the samples were collected on September 18, 1997, and that the first custody transfer occurred on September 11, 1997. RVAAP shall clarify and document the date of sample collection, and explain how the first custody transfer occurred prior to sample collection. The person to whom the first custody transfer was made shall be documented.

The September 11, 1997 date was entered on to the chain of custody by Lancaster Laboratory personnel when sample containers were transferred from the laboratory to RVAAP. The actual sampling date was correctly entered as September 18, 1997. Future chain of custody forms will reflect only the dates and times of actual sampling.

SPECIFIC COMMENTS, DECEMBER 1997

11. Well DET-2 was resampled for pH, alkalinity, chloride, specific conductance, sulfate, total dissolved solids, and turbidity in January 1998 apparently because sulfuric acid was erroneously added to the sample that was to be non-preserved. This information was included in the laboratory data report. In the future, problems such as this should be documented and explained in the cover letter. In addition, RVAAP shall ensure that the correct preservatives are used in the future.

This was an unusual sampling error by Mason & Hanger personnel that was not identified until the samples were analyzed by the laboratory. As noted, the parameters in question were resampled. In the future, problems of this nature will be more completely described in the cover letter provided with the analytical reports.

12. The laboratory also noted that the metals sample for OBG-2 was incorrectly preserved and that it was adjusted by the laboratory. RVAAP shall provide additional information concerning the error in preservation that was made so that the validity of the data obtained can be determined. In the future RVAAP shall ensure that correct procedures are followed in the collection and preservation of all samples.

Quanterra Incorporated indicated to Mason & Hanger that the "incorrectly" preserved samples may have resulted from the following situations: 1) the vial of preservative provided may have been insufficient to adjust the pH due to a complex matrix; 2) the sampler failed to add the preservative; or 3) the sampler did not add the preservative correctly or added the wrong preservative. In this particular case, it was not clear whether the preservative was not added, or whether the amount added was insufficient. Mason & Hanger has emphasized to its sampling personnel the importance of following the correct procedures in the entire sampling process, and will include in the sampling process in the future a field check of pH in preserved samples.

13. The QA/QC report indicates that the matrix spike and matrix spike duplicates were not within control limits because of the matrix. The matrix spike and/or matrix spike duplicates spike recoveries were outside acceptable limits for nitrogen ammonia, nitrate/nitrite, total alkalinity, and total Kjeldahl nitrogen due to matrix interference. RVAAP shall consult with the laboratory to determine how these matrix problems might be corrected in the future.

Quanterra Incorporated provided the following response: Quanterra's Quality Management Plan and SOPs states that if the method blank and the laboratory control sample associated with a given batch are in control, the laboratory has proven that the laboratory's system is clean and working properly. When batch MS/MSD fails, if all other QC samples are in control and, in the analyst's judgment, sample matrix effects are indicated, no corrective action is required. The batch will be accepted and the QC anomaly narrated as possible matrix effect. Project specific QC samples are not provided for the RVAAP samples.

The December 1997 project had four MS/MSDs with recoveries outside laboratory acceptance limits. (Only two of these - Nitrogen, as Ammonia and TKN - were performed on a RVAAP sample.) In each case, the RPDs were in control, and the recoveries were consistent enough to support the analyst's conclusion that there was a matrix effect. There are no steps that can be taken to modify the sample matrix for a General Chemistry test by "cleaning" or removing any interfering constituents. In other words, matrix problems cannot be corrected.

If the agency requires project specific MS/MSD the laboratory could perform those analyses at additional cost. Matrix effects may in some cases be specific to the method being used, so where an alternate method is available to measure the same parameter, changing the method may yield better recoveries.

SPECIFIC COMMENTS, MARCH 1998

14. The laboratory report indicates that there was headspace in one of the VOC vials for OBG-1, -3, -4, DET-4, and the duplicate sample. There was headspace in two of

the VOC vials for DET-2 and-3. RVAAP shall ensure that in the future the VOC samples are correctly collected without headspace. In addition, it is unclear whether the laboratory had a correctly collected sample from each well to analyze. This shall be clarified and the information submitted to the Ohio EPA so that the validity of the data can be evaluated.

Quanterra Incorporated provided the following response: Historically, narrations of VOC vial "headspace" on Quanterra's cooler receipt form have not been qualified (in writing) as to the size of the bubbles present in the sample. However, bubbles are rarely more than 6 mm in diameter (defined by EPA as "micro bubbles") and should not affect data quality. Chapter 4 of EPA's SW 846 guidance document states the following: "Due to differing solubility and diffusion properties of gases in liquid matrices at different temperatures, it is possible for the sample to generate some headspace during storage. This headspace will appear in the form of micro bubbles, and should not invalidate a sample for volatiles analysis." Quanterra's North Canton facility is currently in the process of revising the laboratory's Cooler Receipt Form to specify whether or not a bubble present in a VOC vial qualifies as a micro bubble. For those RVAAP samples which had VOC vials submitted with and without bubbles, the laboratory routinely selects a vial with bubbles for the screening process, and then uses an uncompromised vial without headspace for the sample analysis.

Mason & Hanger sampling personnel check VOC vials during sampling to ensure that the sample is correctly collected and contains no headspace.

15. The laboratory report indicates that sulfuric acid had to be added to samples from OBG-1, -2, and -3 as well as DET-3. RVAAP shall determine what parameters may have been affected by this error. This information shall be submitted to the Ohio EPA. Because of the preservation error, the resulting data will be considered to be minimum values. In order for the resulting data to be considered to be valid, RVAAP must ensure that samples are properly preserved immediately upon collection.

Quanterra Incorporated indicated that in the case of this finding, a 1 liter glass container for OBG-1 and DET-2, and two 1 liter glass containers for OBG-2 were further preserved in the laboratory. These containers would have been used for either Phenols or Oil & Grease analyses. A 1 liter plastic container for OBG-3 was further preserved in the laboratory. This container would have been used for Ammonia-N, Nitrate/Nitrite-N, TKN, or COD.

Mason & Hanger has emphasized to its sampling personnel the importance of following the correct procedures in the entire sampling process, and will include in the sampling process in the future a field check of pH in preserved samples.

16. Historically, RVAAP and the Ohio EPA has agreed to designate the wells at the open burning grounds as OBG-1 through-4 and the wells at the open detonation area as DET-1 through DET-4. This convention has not been adhered to in this report. In

order to avoid the confusion experienced previously when the designations for the wells changed regularly, RVAAP shall ensure that the agreed upon designations for the wells are always used.

Future submittals will refer to the wells at the open burning grounds as OBG-1 through -4 and the wells at the open detonation area as DET-1 through -4.

17. The chain-of-custody was dated September 19, 1998, by RVAAP personnel relinquishing custody of the samples to the laboratory. The sample collection date documented on the chain-of-custody is September 19, 1998. The sample bottles were dated March 19, 1998, and the samples were received by the laboratory on March 19, 1998. RVAAP shall send documentation of the correct sampling date to the Ohio EPA. As stated previously, RVAAP must accurately fill out the chain-of-custody forms for the data to be considered to be valid. Without accurate information concerning the date and time of sample collection, it cannot be determined if the samples were analyzed within the correct holding times. In the future, an error such as this may necessitate the resampling of all of the site wells for all of the sampling parameters.

The correct sampling date for that event was March 19, 1998. The Mason & Hanger employee that performed the sampling and filled out the chain of custody forms entered the wrong month by mistake. Mason & Hanger has emphasized to sampling personnel the importance of completely and correctly entering sampling information on the chain of custody forms.

18. The laboratory report indicates that the matrix spikes for RDX, 1,3,5-TNB, 1,3-dinitrobenzene, and 2-amino-4,6-DNT were outside the control limits. It does not indicate whether any corrective action was taken. RVAAP should determine if corrective action was taken and, if so, what this action was. If no corrective action was taken, RVAAP should determine why. This information shall be submitted to the Ohio EPA so that the validity of the data can be evaluated. RVAAP shall discuss with the laboratory, preventative measures that can be taken in the future to ensure that matrix spike recoveries are within acceptable limits.

Quanterra Incorporated provided the following response: Quanterra's Quality Management Plan and SOPs state that analyte recoveries and relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. When these values fail to meet acceptance criteria, the data is reviewed to determine the cause. If, in the analyst's judgment, sample matrix effects are indicated, no corrective action is performed. In this case, the analyst observed that even though some recoveries were outside laboratory control limits, all RPDs were in control limits, indicating that a matrix effect is likely. There are no steps that can be taken to modify the sample matrix for a General Chemistry test by "cleaning" or removing any interfering constituents. In other words, matrix problems cannot be corrected.

If the agency requires project specific MS/MSD the laboratory could perform those analyses at additional cost. Matrix effects may in some cases be specific to the method being used, so where an alternate method is available to measure the same parameter, changing the method may yield better recoveries.

19. Matrix spike and/or matrix spike duplicate recoveries were outside the acceptance limits for nitrogen ammonia, chemical oxygen demand, nitrate/nitrite, sulfate, total phosphorus, alkalinity, total Kjeldahl nitrogen, total organic carbon, and chloride. It is indicated that these problems were the result of matrix interferences. RVAAP shall work with the laboratory to eliminate these interference problems from future analyses.

Quanterra Incorporated provided the following response: Quanterra's Quality Management Plan and SOPs states that if the method blank and the laboratory control sample associated with a given batch are in control, the laboratory has proven that the laboratory's system is clean and working properly. When batch MS/MSD fails, if all other QC samples are in control and, in the analyst's judgment, sample matrix effects are indicated, no corrective action is required. The batch will be accepted and the QC anomaly narrated as possible matrix effect. Project specific QC samples are not provided for the RVAAP samples. There are no steps that can be taken to modify the sample matrix for a General Chemistry test by "cleaning" or removing any interfering constituents. In other words, matrix problems cannot be corrected.

Chain of Custody Record

Quanterra

OUA 4124

Client: Ravenna Army Ammunition Plant	Project Manager	Date	Chain Of Custody Number: 09410
Address: 8451 State Route 5	Telephone Number (Area Code)/Fax Number: (330) 358-7400	Lab Number	Page 1 of 4
City: Ravenna / State: OH / Zip Code: 44266	Site Contact: James D. McGee, Site Manager		
Project Name: Open Detonation Area - Ground Water	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: VOC's	TOC	Phenols	T-Alk,TDS,SO4,Cl pH,Cond,Turb	Cyanide	Oil & Grease	TOX	NH3-N,NO2-NO3,COD	Phosphorus	TKN	Total Metals	Explosives, NG, Picric Acid
Well DET-1			Grab	40 ml	Glass	3	HCL		X											
			Grab	40 ml	Glass	2	H_2SO_4			X										
			Grab	1 liter	Glass	1	H_2SO_4				X									
			Grab	1 liter	Plastic	1	None					X								
			Grab	250 ml	Plastic	1	NaOH						X							
			Grab	1 liter	Glass	1	H_2SO_4							X						
			Grab	250 ml	Glass	1	H_2SO_4								X					
			Grab	1 liter	Plastic	1	H_2SO_4									X				
			Grab	250 ml	Plastic	1	H_2SO_4										X			
			Grab	1 liter	Plastic	1	H_2SO_4											X		
			Grab	1 liter	Plastic	1	HNO_3												X	
			Grab	1 liter	Glass	2	None													X
Well DET-2			Grab	40 ml	Glass	3	HCL		X											
			Grab	40 ml	Glass	2	H_2SO_4			X										
			Grab	1 liter	Glass	1	H_2SO_4				X									

Special Instructions

Possible Hazard Identification
[X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Turn Around Time Required
[X] Normal [ ] Rush

QC Level [ ] I. [ ] II. [ ] III.

Sample Disposal
[ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Project Specific (Specify)

	Date	Time
1. Relinquished By		
2. Relinquished By		
3. Relinquished By		

	Date	Time
1. Received By		
2. Received By		
3. Received By		

Comments

DISTRIBUTION: WHITE - Stays with Sample; CANARY - Returned to Client with Report; PINK - Field Copy

DEPARTMENT OF THE ARMY
RAVENNA ARMY AMMUNITION PLANT
8451 STATE ROUTE 5
RAVENNA, OHIO 44266-9297

REPLY TO
ATTENTION OF

Ms. Rebecca Carter
RAB Secretary
3132 Laubert Road
P.O. Box 427
Randolph, OH 44265

4 August 1998

Dear Ms. Carter:

The Ravenna Army Ammunition Plant conducted demolition of unserviceable munitions at Demolition Area #2 during the week of June 1, 1998. This activity was permitted by the Ohio Environmental Protection Agency and was performed by qualified, professionals from the U.S. Army Explosive Ordnance Disposal Team based at the Wright Patterson Airforce Base in Dayton, Ohio.

The munitions were destroyed on-post because they were determined by the EOD team members to be too unstable to transport on public roads to an alternate site due to their age and condition. All the munitions contained only conventional explosives. The recent demolition work was similar to operations routinely conducted at RVAAP up until the early 1990s.

The RVAAP staff and I are aware of the RAB member's concern about not being notified about the demolition activity. Although on-post, munitions demolition is not expected to become routine, we will make every effort to notify the RAB members and the local communities using the available media should similar activities be necessary in the future. Please circulate this letter during your next RAB meeting scheduled for August 19, 1998.

Sincerely,

John A. Cicero, Jr.
Commander's Representative

DEPARTMENT OF THE ARMY
RAVENNA ARMY AMMUNITION PLANT
8451 STATE ROUTE 5
RAVENNA, OHIO 44266-9297

REPLY TO
ATTENTION OF

8/6/98
CR-COR
ENV 8/10

August 5, 1998

Mr. Greg Orr
Environmental Specialist
Division of Hazardous Waste Management
Ohio EPA, Northeast District Office
2110 E. Aurora Road
Twinsburg, OH 44087-1969

Dear Mr. Orr:

This is in response to your letter dated June 10, 1998 I received from your office concerning the supplementary annual reports for ground water monitoring and the quarterly reports of the ground water monitoring for the Open Detonation Area (OD) and the Open Burning Grounds (OB) at the Ravenna Army Ammunition Plant (RVAAP).

Please find attached a copy of your original comments and the corresponding responses as prepared by the RVAAP operating contracting, Mason & Hanger Corporation, which is responsible for sampling, testing, and reporting results to me. Regarding General Comment #1, RVAAP will perform the statistical analysis of upgradient versus downgradient site specific constituents beginning with the next quarterly data submission. The particular statistical test to be used for analysis will be chosen based upon a review of the guidance provided in the U.S. EPA documents titled *Guidance Document on the Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities (EPA/530-SW-89-026)* and *Guidance Document on the Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities Addendum.*

If you have any other concerns or questions regarding this matter, please phone Mr. Mark Patterson, RVAAP Environmental Coordinator, at (330) 358-7311.

Sincerely,

John A. Cicero, Jr.
Commander's Representative

cc: Mason & Hanger Corporation
Cdr, IOC, ATTN: AMSIO-EQE, AMSIO-IRG, AMSIO-IRI, Rock Island, IL 61299-6000
USACE, ATTN: CELRL-DL-B, CELRL-ED-K, Louisville, KY 40201-0059
Ohio EPA, DERR, NEDO, ATTN: Ms. Mohr, 2110 E. Aurora Road, Twinsburg, OH 44087-0769

mailed 8/6/98

DEPARTMENT OF THE ARMY
RAVENNA ARMY AMMUNITION PLANT
8451 STATE ROUTE 5
RAVENNA, OHIO 44266-9297

REPLY TO
ATTENTION OF

October 8, 1998

SIORV-CR

Subject: Emergency Hazardous Waste Permit
Ravenna Army Ammunition Plant
Ohio ID No.: 02-67-711E

Thomas E. Crepeau, Manager
Ohio EPA
Division of Hazardous Waste Management
Attn: Data Management Section
1800 Watermark Drive
Columbus, Ohio 43215-1099

Dear Mr. Crepeau,

In accordance with Special Condition G, Required Notices, of Ravenna Army Ammunition Plant (RVAAP) Emergency Hazardous Waste Permit (Ohio ID No.: 02-67-711E), this letter serves as official notification that all demolition work under the subject permit was successfully completed from June 2-5, 1998.

The Explosive Ordnance Disposal (EOD) Team from Wright Patterson Airforce Base detonated the ordnance at the RVAAP Open Demolition Area #2. A copy of their Explosive Ordnance Incidence Report is attached.

If you have any further questions concerning this matter, you may call Mr. Mark Patterson, RVAAP Environmental Coordinator, at 330-358-7311. Thank you for all your assistance in completing this project.

Sincerely,

John A. Cicero, Jr.
Commander's Representative

Copies Furnished:

Mr. Greg Orr, Ohio EPA, Division of Hazardous Waste Management
Ms. Eileen Mohr, Ohio EPA, Division of Emergency and Remedial Response
Mr. Mark Patterson, RVAAP Environmental Coordinator
Mr. John Jent, U.S. Army Corps of Engineers, Louisville

EXPLOSIVE ORDNANCE INCIDENT REPORT

For use of this form, see FM 9-15; the proponent agency is US Army Training and Doctrine Command.

Incident Number:	Control Number:	
731-46-98	063-302-98	Unusual - ☒ Routine ☐

Reported:	20-May-98 09:00
Departed Unit:	20-May-98 12:00
Arrived Site:	20-May-98 17:30
Depart Site:	21-May-98 12:00
Arrived Unit:	21-May-98 16:00
Travel Hours:	9.50
Air Hours:	0.00
Miles:	450
Man Hours:	224.00
Adjust Hours:	0

Incident Location:
RAVENNA ARMY AMMUNITION PLANT
8451 STATE ROUTE 5
RAVENNA, OH (US)

Grid: MR 92006051 (17T)
Latitude:
Longitude:

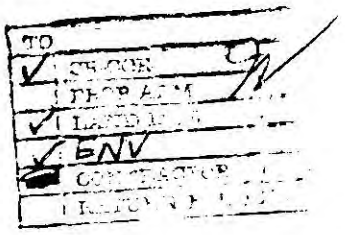
Supported:
ARMY CORP OF ENGINEERS
MR PATTERSON
8451 STATE ROUTE 5

RAVENNA, OH

Phone: (330) 358-7311
Other Contact:

Item(s) Reported:

Ordnance Item(s) Reported see list attached to hard copy report, item(s) are to numerous to list.



Personnel Dispatched

1LT Appleby, Charles R. Iii
SSG Elmore, Kelly J.
SPC Fernandez, Gilbert Jr
SFC Brady, Brian W.
SGT Middleton, Robert A.
SPC Hart, Otis E.
SSG Hope, Daniel B.
SGT Rominger, Scott A.

EXPLOSIVE ORDNANCE INCIDENT REPORT

Narrative (Include all significant events and details)

Incident Number: 731-46-98

Explosives used? _X_Yes ___No
All explosives listed were destroyed.

TEAM LEADER [signature]

TEAM MEMBER Daniel B. Hoyt, SSG

63rd Ord Bn POC/Time: Departure: 201200May98 SFC McPherson

Return: 211630May98 SFC McPherson

News Media: No, Local/National Station(s): N/A

WPAFB Command Post Notification Times: Departure: 201200May98 Ssgt Coffelt
Return:

WPAFB Environmental Managment Office: Departure: (Not Required)
Return:

200900May1998 Contacted by Kevin Jasper (ACOE) (502)625-7015, Louisville Office). Informed 63rd Ord Bn (SFC Doyle) who contacted 52d Ord Grp. Directed by group to respond to Ravenna Army Ammunition Plant in Ravenna, Ohio. Team diverted to Ravenna from incident 731-45-98 out of West Virginia. Arrived 201730May98, RON in Ravenna. Went to AAP 210700May98 to do survey of ordnance items. Survey complete large scale clean up/demo operation to begin 1-5 Jun 98. 63rd Bn and 52d Group were briefed prior to operation.

Disposal ops at Revenna AAP were completed 31May - 5 Jun 1998, See attached list for Items disposed of.

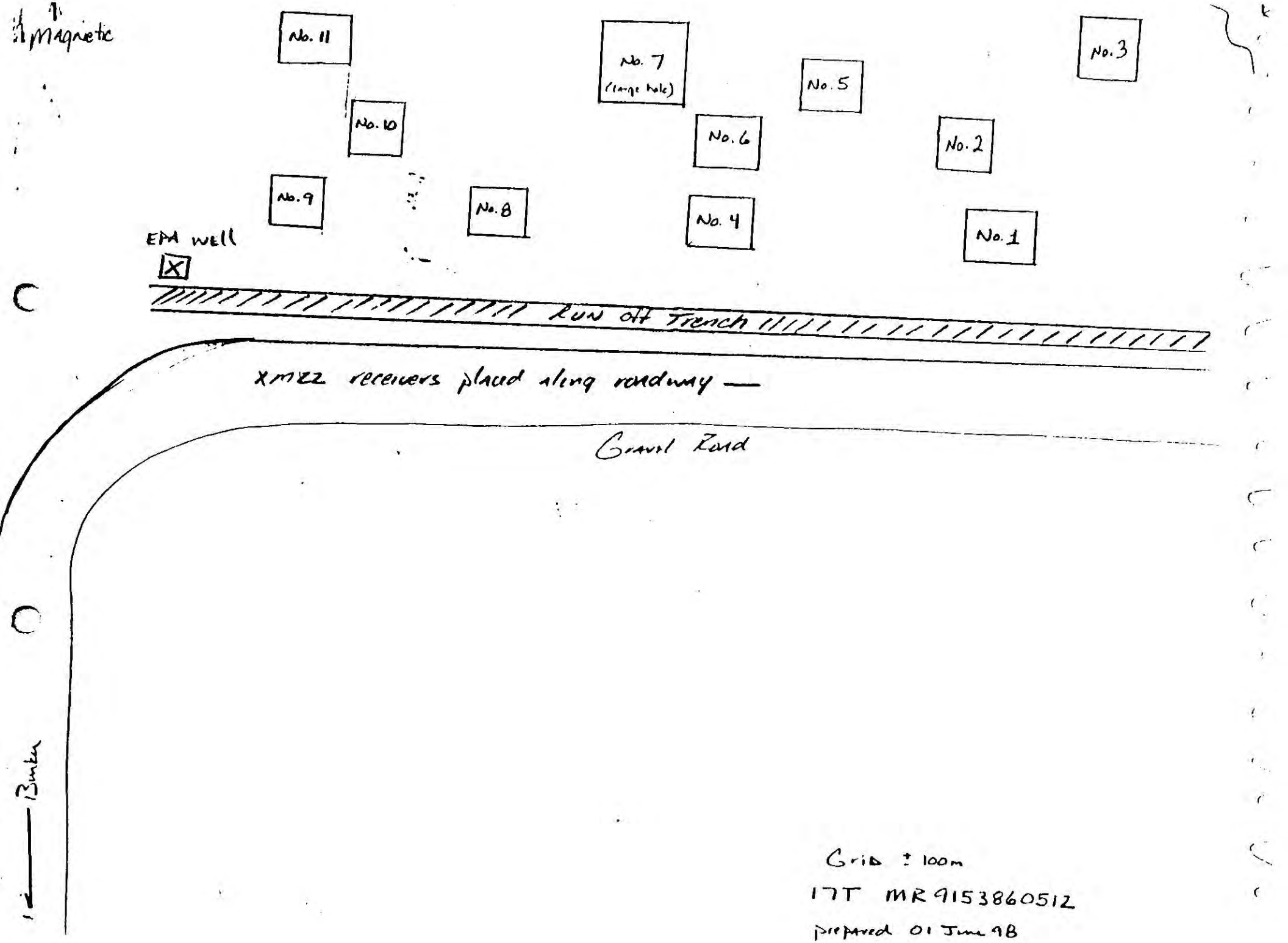
Perdiem(est): $4319.45
POL costs: $283.20

Adjusted Man Hours: 1392MH

Munitions to be Detonated at RVAAP Detonation Area #2 under OEPA Emergency Permit

Building	Quantity	Description	Date Detonated	Shot Hole Used(see map)
F-15	1 each	80 MM mortar	2-Jun-98	4
F-15	1 each	81MM Mortar with Fuze	2-Jun-98	4
F-15	100 each	Various Primers	2-Jun-98	4
F-15	311 each	40 MM Cartridge	2-Jun-98	4
F-15	1 each	Can TNT Stuff	2-Jun-98	4
1-C-13	200 each	45 Caliber Ball Rounds	3-Jun-98	4
1-C-13	2 lbs. 6 oz.	M-1 Propellant	2-Jun-98	11
1-C-13	80 lbs.	WC 846 Propellant	2-Jun-98	11
6-C-4	69 lbs.	Scrap Comp B	2/4 JUN 98	4, 5
6-C-4	7, 300 Ft.	Det Cord	2,3,4,5 JUN 98	ALL HOLES
6-C-5	550 each	Electric Squibes	2-Jun-98	11
6-C-5	678 each	M-6 Electric Blasting Caps	2,3,4,5 JUN 98	ALL HOLES
2-D-7	11351 each	3"/50 ADF MK54 & MK17	2,3,4 JUN 98	2,3,4,5,6,7,8,9,10,11

Magnetic



Grid : 100m

17T MR 9153860512

prepared 01 June 98

STAFF JOURNAL OR DUTY OFFICER'S LOG

For use of this form, see AR 220-15; the proponent agency is Office of The Chief of Staff for Operations & Plans

PAGE NO. 2 | NO. OF PAGES 4

ORGANIZATION OR INSTALLATION	LOCATION	PERIOD COVERED FROM HOUR	FROM DATE	TO HOUR	TO DATE
731st Ord Co (EOD), WPAFB, OH	17T MR 9153860512 Demolition Range Ravenna Army Ammo Plant	0730	2 June 1998	1300	3 June 98

ITEM NO.	TIME IN	TIME OUT	INCIDENTS, MESSAGES, ORDERS, ETC.	ACTION TAKEN	INL
11	0730		Arrived Ravenna AAP, Coordinated with Mr. Patterson picked up radio proceeded to Demo Range.	Logged	
12	0800		Opened Range, picked up material to be disposed of (see list attached by date) and donor material , commenced demo operations .	Logged	
13	0845		Requested and received respirators due to inhalation hazard with donor charges.	Logged	
14	1130		All shot holes loaded and primed. (see attached destruct list).	Logged	
15	1200		Shots fired, range cleared began prepping for second round of demolition.	Logged	
16	1430		Shot holes loaded and primed (see attached destruct list).	Logged	
17	1500		Shots fired, range cleared.	Logged	
18	1530		Bad weather in bound.	Logged	
19	1600	1645	Secured all explosives and equipment, returned to hotel.	Logged	
20	0730		Arrived Ravenna AAP, Coordinated with Mr. Patterson picked up radio proceeded to Demo Range.	Logged	
21	0800		Opened Range, picked up material to be disposed of (see list attached by date) and donor material , commenced demo operations .	Logged	
22	1130		All shot holes loaded and primed. (see attached destruct list).	Logged	
23	1200		Shots fired, range cleared began prepping for second round of demolition.	Logged	
24	1300		Conducted test shots with Comp A-5 on 3"/50 ADF's (MK 54		

TYPED NAME AND GRADE OF OFFICER OR OFFICIAL ON DUTY: BRIAN W. BRADY, SFC, Range NCOIC

SIGNATURE

DA FORM 1594, NOV 62 — PREVIOUS EDITION OF THIS FORM IS OBSOLETE. — USAPPC V3.00

For use of this form, see AR 220-15; the proponent agency is Office of The Deputy Chief of Staff for Operations & Plans

PAGE NO.	NO. OF PAGES
4	4

ORGANIZATION OR INSTALLATION	LOCATION	PERIOD COVERED FROM HOUR	FROM DATE	TO HOUR	TO DATE
731st Ord Co (EOD), WPAFB, OH	17T MR 9153860512 Demolition Range Ravenna Army Ammo Plant	1530	05 June 98	1200	06 June 98

ITEM NO.	TIME IN	TIME OUT	INCIDENTS, MESSAGES, ORDERS, ETC.	ACTION TAKEN	INL
40	1530		Provided GPS grid to Mr. Patterson, Informed him we would furnish a copy of the final report. Cleared the Ammo Plant.	Logged	
41		1630	Returned to the Hotel. Mission Complete.	Logged	
42		0800	Departed hotel enroute to WPAFB.	Logged	
43	1200		Arrived at WPAFB, OH, Accounted for all equipment secured gear and vehicles.	Logged	
			NOTHING FOLLOWS	Logged	

TYPED NAME AND GRADE OF OFFICER OR OFFICIAL ON DUTY

BRIAN W. BRADY, SFC, Range NCOIC

SIGNATURE

DA FORM 1594, NOV 62

PREVIOUS EDITION OF THIS FORM IS OBSOLETE.

USAPPC V3.00

RVAAP
8451 State Route 5
Ravenna, OH 44266-9297
(330) 358-7311
mpatters@ria-emh2.army.mil

facsimile transmittal

To:	Alan Harness, OEPA	Fax:	614-728-1245
	Eileen Mohr, OEPA		330-487-0769
	Rob Applebe, EOD		937-257-1479
	Kevin Jasper, CORPS		502-625-7314
	Bob Whelove, IOC		309-782-1379
	Rosemary Vermost		309-782-0295
From:	Mark Patterson	Date:	05/28/98
Re:	Munitions Demo	Pages:	4(incl. Cover)
CC:			

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Pleas Recycl

All,

Final List of munitions to be detonated at RVAAP Demo Area #2 on 6/1-5/98 by EOD follows. A list of donor material is also included. Donor material will be used to as needed to assist with detonation of munitions. If you have any questions, please call.

MARK PATTERSON

Munitions to be Detonated at RVAAP Detonation Area #2 under OEPA Emergency Permit

Building	Quantity	Description	Date Detonated	EOD Supervisor Signature
3-D-12	26 each	Fuzes		
3-D-12	25 lbs.	Black Powder		
3-D-12	34 each	152 MM Projectile		
3-D-12	8 each	Electric Squibes		
3-D-12	21 each	Copper Head Flight Fin Sections		
3-D-12	500 each	Electric Squibes		
3-D-12	11 each	Reload Kits for 1001 MI Fire Extinguisher		
3-D-12	80 lbs.	50 Caliber Ball Propellant		
3-D-12	25 lbs.	Black Powder		
3-D-12	1 each	105 ApDS-T Projectile		
3-D-12	44 each	M-571 Fuzes		
3-D-12	9 each	Detonating Assembly for M-571 Fuzes		
3-D-12	2 each	90 MM TP-T Cartridge		
3-D-12	39 each	105G Apers-T M494 CRTG		
3-D-12	28 each	105G Apers-T M494 CRTG with Mechanical Fuze		
3-D-12	27 each	MK 22 Fuzes		
3-D-12	554 each	Type A Electrical Squibs		
3-D-12	100 each	Type B Electrical Squibs		
3-D-12	39 each	105G Apers-T M494 CRT		
F-15	1 each	Submunition M - Cheesewedge		
F-15	1 each	90 MM Fuze		
F-15	1 each	Unknown Booster		
F-15	1 each	M205 C&G Case		
F-15	6 each	Small Bags of Powder		
F-15	1 each	Stick TNT		
F-15	4 each	Concrete TPT M764 with Live Tracers		

Munitions to be Detonated at RVAAP Detonation Area #2 under OEPA Emergency Permit

Buildin	Quantity	Description	Date Detonated	EOD Supervisor Signature
F-15	1 each	80 MM mortar		
F-15	1 each	81MM Mortar with Fuze		
F-15	100 each	Various Primers		
F-15	311 each	40 MM Cartridge		
F-15	1 each	Can TNT Stuff		
I-C-13	200 each	45 Caliber Ball Rounds		
I-C-13	8805 each	5.56 Ball Rounds		
I-C-13	2 lbs. 6 oz.	M-1 Propellant		
I-C-13	2 lbs. 6 oz.	WC 846 Propellant		
6-C-4	69 lbs.	Scrap Comp B		
6-C-4	7, 300 Ft.	Det Cord		
6-C-5	550 each	Electric Squibes		
6-C-5	678 each	M-6 Electric Blasting Caps		
2-D-7	11351 eac	3"/50 ADF		

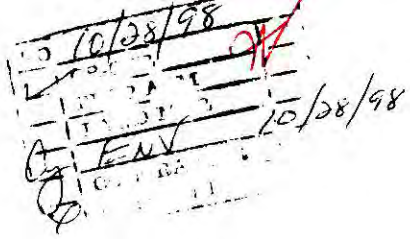
Donor Material to be Used as Needed to Detonate Munitions*

Building	Quantity	Description	Amount Used	Date Used	EOD Supervisor Signature
6-D-2	50 lbs.	Tetryl			
6-D-2	120 lbs.	Cyclotol			
6-D-2	60 lbs.	Comp A5			
6-D-2	60 lbs.	Comp A5			
6-D-2	120 lbs.	Comp A5			
6-D-2	240 lbs.	Comp A5			
6-D-2	414 lbs.	Nitro			
6-D-2	1000 lbs.	Comp A5			

*** All Donor Material is currently classified as unserviceable and will be used in the order listed. Only the amount of Donor Material needed to detonate the munitions will be used.**

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171
FAX (330) 487-0769

George V. Voinovich
Governor



October 26, 1998

RE: RAVENNA ARSENAL AMMUNITION PLANT
GROUND WATER SAMPLING EVENT
OH5-210-020-730

John Cicero, Jr.
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9279

Dear Mr. Cicero:

On September 17 and 23, 1998, Eric Adams and myself, representing the Ohio Environmental Protection Agency's (OEPA), Division of Drinking and Ground Waters (DDAGW), and the Division of Hazardous Waste Management (DHWM) respectively, witnessed ground water sampling events which occurred at the Open Detonation area (OD) at the Ravenna Army Ammunition Plant (RVAAP). As a result of our site visit, several irregularities in the ground water sampling protocol were documented. Comments follow concerning the irregularities.

COMMENTS:

1. On September 17, 1998, it was noted that ground water samples were collected in a two liter container prior to placing them into sampling jars. It was also noted that volatile organic compound (VOC) samples were collected after metal samples. Sampling personnel from Mason & Hanger, Corporation, indicated that Diane Kurlich, of the Division of Drinking and Ground Waters (DDAGW), had approved both the sample transfer procedure and the order of sample collection. Neither of these items were conducted as per the facility's approved ground water sampling and analysis plan (SAP), nor were they in accordance with generally accepted ground water sampling practices. Approval for these deviations from the SAP were neither requested or granted. It is recommended that in the future, RVAAP provide a written request to the Ohio EPA for any deviations from the approved SAP. The Ohio EPA will then provide the facility with a written approval or denial of the request. This should alleviate similar confusion in the future.

2. During the sampling event conducted on September 23, it was noted that the persons responsible for sampling the ground water monitoring wells did not have a copy of the facility's SAP. Please be advised that the most current version of the ground water SAP must always be available on-site for review. It is important that the sampling contractors are provided with a copy of the SAP and the Army must ensure that the contractors follow the procedures documented in the plan.

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

Sincerely,

Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddb

cc: Sherry Slone, DHWM, NEDO
Diane Kurlich, DDAGW, NEDO
Eric Adams, DDAGW, NEDO
Eileen Mohr, DERR, NEDO
Mark Patterson, RVAAP

From: Greg Orr
To: Eileen Mohr
Date: Fri, Dec 4, 1998 9:30 AM
Subject: Re: RVAAP - Ore Piles and Open Detonation Area

Eileen,

What's happening. Well, you do have some big issues!

Regarding #1, if the area is pre-RCRA I would suggest that it stays with CERCLA, but if it, or part of it would be considered a RCRA unit, than I would be glad to take it over.

Regarding #'s 2 & 3, the Army would have to request a withdraw for their closure plan (for the OD area), and explain why they don't want to close. The National Guard would then have to apply for a **Part B Permit** for the unit (because I can almost guarentee that no more "emergency permits" will be issued to them. If for some reason that the National Guard later on didn't want to apply for the Part B, or didn't see a need to use the area, then there would have to be some language in a letter that states the Army agrees to clean up the area, (unless the Nat. Guard agrees to do it).

I know that this is drawn out, so lets talk so that I can explain it better.

Have a great weekend!
Peace,
G.O.

>>> Eileen Mohr 12/03 6:06 PM >>>
Greg -

Here are three issues that I hope you can give me some assistance with:

1. At meetings at RVAAP this week, we talked with a couple of representatives from the Defense Logistics Agency (DLA) regarding the removal of ore piles at the RVAAP (SE end). Most of the remaining piles on unimproved surfaces are ferrochrome. Does RCRA want to have any input on sampling criteria, closure criteria etc.?? I don't know for sure when the piles were stored here... my guess is pre-RCRA. Let me know if you want to have input. I can get you the info from DLA on the stockpiles still left at the installation if you need it.

2. Also, as a heads-up... the USACE will be contacting you about setting up a meeting to discuss the open detonation area. As part of recently fomulated Ohio National Guard plans... they want to have an OD area (maybe in Winklepeck)... but the USACE and RVAAP folks were encouraging them to think about keeping the current OD area open. So anyhow, the meeting is tentatively scheduled for Jan 19th.... bur I told USACE/RVAAP to contact you ASAP to let you know what they were thinking.

3. Related to # 2 above - what would be required of the Army to keep the current OD area open?

Thanks Greg!!

Eileen

* * * TRANSMISSION RESULT REPORT (DEC. 4.1998 11:20AM) * * *

TTI OHIO EPA NEDO

DATE	TIME	ADDRESS	MODE	TIME	PAGE	RESULT	PERS. NAME	FILE
DEC. 4.	11:20AM	330 358 7314	TES	0'53"	P. 2	OK		130

# : BATCH	C : CONFIDENTIAL	$: TRANSFER	P : POLLING
M : MEMORY	L : SEND LATER	@ : FORWARDING	E : ECM
S : STANDARD	D : DETAIL	F : FINE	> : REDUCTION

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

June 17, 1998

RE: Ravenna Army Ammunition Plant
Portage/Trumbull Counties
On-Site Decommissioning Activities

Mr. Mark Patterson
Environmental Coordinator
Ravenna Army Ammunition Plant
Bldg. 1037
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Patterson:

This correspondence is written in response to your e-mail dated June 10, 1998 entitled "LL1 Funds Request/Scrap Metal From Test Chambers."

With respect to the scrapping of metal from the test chambers located at Load Line (LL) 6 at the Ravenna Army Ammunition Plant (RVAAP), the Ohio Environmental Protection Agency (OEPA) Division of Emergency and Remedial Response (DERR) recommends the following:

> The analytical test results from the radiation surveys conducted at Load Line 6 should be received and reviewed prior to making any final decisions regarding the scrapping of the metal from the test chambers. Subsequent to reviewing the results, the metal should be appropriately decontaminated and sent to Rock Island for smelting and disposal. Adherence to all applicable State and Federal rules, laws, and regulations is required.

Although the OEPA is pleased to learn that funding has been received for investigative activities at the Load Line 1 facility, recent events have raised the question regarding the wisdom of conducting Comprehensive Environmental Response and Liability Act (CERCLA) investigative activities concurrent with, or subsequent to, decommissioning activities. The following examples of difficulties that have been encountered are noted:

1. The scrapping of metal from the Test Chambers prior to receiving analytical testing results will undoubtedly raise the cost for disposal of the scrap metals (i.e. having to dispose of the materials instead of recycling the metal).

2. In the vicinity of the former Monazite Storage Tank Area, the nearby railroad tracks and ties were removed and transported to a staging area. This action led to the potential contamination being spread over a larger area, which resulted in having to increase the study area size. Depending upon the results of the investigation, it may also result in a larger area to be remediated, thus increasing cleanup costs.

3. Several flooded cellars have recently been pumped out, with permission of OEPA, contingent upon certain conditions (for example, not discharging the water into a surface water drainage area, not discharging onto areas that are visually contaminated, etc.).

However, the Agency requested that any sediments present in the cellars needed to be containerized and characterized prior to proper disposal. Although this did occur, it was only done subsequent to lengthy discussions with the Rock Island representative in which it was repeatedly emphasized that the sediments could not be assumed to be solely asbestos-containing material (ACM). As the generator of the wastes, the Army is responsible for ensuring that all applicable State and Federal rules, laws, and regulations are followed.

4. The torching/scrapping of metals from the melt/pour area of Load Line 2 recently resulted in a small grass/soil fire in the vicinity of the building. Although the fire was contained to a small area and burned out quickly by itself, the question is raised as to whether or not this type of activity should be occurring in an area where there is known explosives contamination, and prior to investigative activities being completed.

5. In previous conversations, I was informed that structural steel may have been removed from the Load Line 1 facility. If this is the case, potential health and safety hazards/issues exist that need to be addressed, and corrected, prior to sending contractors out to the Load Line to conduct CERCLA investigative activities.

I would recommend that all involved parties - i.e., the appropriate representatives from sections of the Industrial Operations Command (IOC), the OEPA, the USEPA, the U.S. Army Corps of Engineers (USACE), the RVAAP, and contractors meet in order to discuss this issue of concurrently conducting CERCLA investigations and decommissioning activities. Gaining resolution of this issue will not only result in cost savings, but will also result in increased health and safety for all those involved with the project.

Please feel free to route this correspondence to all appropriate parties, and if you have an questions, please do no hesitate to contact me at 330-963-1221.

Sincerely,

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

ETM:cl

cc: Bob Princic, NEDO DERR
Diane Kurlich, NEDO DDAGW
Greg Orr, NEDO DHWM
Jarnal Singh, NEDO DSIWM
Bonnie Buthker, OFFO SWDO
Catherine Stroup, CO Legal
Bob Whelove, IOC
John Cicero, RVAAP
LTC Tom Tadsen, RVAAP
Kevin Jasper, USACE Louisville
John Jent, USACE Louisville
Steve Selecman, SAIC
David Seely, USEPA Region V

From: <MPATTERS@ria-emh2.army.mil>
To: Central-Office.NEDO(Emohr)
Date: Wed, Jun 10, 1998 1:58 PM
Subject: LL 1 Funds Request/Scrap Metal from Test Chambers

We got the 1.3 million for LL 1 work!!! Moneys have been obligated. We would like to shoot for Sept./Oct. to do field work. What do you think?

Also, concerning previous message about scrapping of test chambers. I would like to consider asking arrangements to decon the steel from all three test chambers and have it sent to Rock Island for smelting when we do the burn trays and associated scrap metal in Winklepeck? They are not RCRA sites so we would not have to prepare lengthy closure plans. What do you think? I am going to talk to Whelove since it would take additional funds.

Mark

CC: Central-Office.INTERNET("Robert_Whelove@ria.army.m...

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

July 9, 1998

RE: Ravenna Army Ammunition Plant
Portage/Trumbull Counties
Load Line 1 Buildings

Mr. Mark Patterson
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Patterson:

During a July 8, 1998 meeting at the Ravenna Army Ammunition Plant (RVAAP), a site inspection of the Load Line 1 buildings was conducted. Existing signage on many of the structures indicated that the buildings were certified as "triple-x" (xxx) clean subsequent to closure. The Ohio Environmental Protection Agency (OEPA) has serious reservations regarding whether or not this is accurate, based upon visual observations.

Specifically, the following were noted:

1. In areas where the transite siding meets the concrete floors, there are "plugs" of what appears to be explosive materials. This material was evidently trapped in these areas, as the walls and floors were periodically hosed down and steam cleaned.

2. There are several pieces of equipment in the buildings which appear to be contaminated with explosives, i.e. mixing kettles in the melt/pour buildings, shaker equipment, duct work, etc.

3. In several areas, on the floor, the dust is reddish-brown in color and potentially contains explosive materials.

As the demolition/salvage of the buildings has an impact on the current and projected environmental investigations being conducted at the installation, the Agency requests further discussion on this issue.

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:cl

cc: Bob Princic, NEDO DERR
Rod Beals, NEDO, DERR
Bonnie Buthker, OFFO SWDO
Catherine Stroup, CO, Legal
John Jent, USACE Louisville
John Cicero, RVAAP
LTC Tom Tadsen, RVAAP
Bob Whelove, IOC
Kevin Jasper, USACE Louisville
Steve Selecman, SAIC

Ravenna Army Ammunition Plant
13497 Elton Road
Ravenna, OH 44266-9297
(330) 358-7311
mpatters@ria-emh2.army.mil

facsimile transmittal

To: Eileen Mohr Fax: 216-447-0629

From: Mark Patterson Date: 4/30

Re: Pages:

CC:

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Cost estimates for RVAAP photo copier follows. Please refer to cc:mail regarding same

FYI - Bids for sediment from flooded [illegible]

Thanks

Mark

CONFIDENTIAL

Quanterra
Environmental Services

Quanterra Incorporated
4101 Shuffel Drive, NW
North Canton, Ohio 44720

330 497-9396 Telephone
330 497-0772 Fax

ANALYTICAL REPORT

RAVENNA ARMY AMMUNITION PLANT

Lot #: A8D070133

Mark Patterson

QUANTERRA INCORPORATED

Rebecca L. Strait
Project Manager

April 23, 1998

CASE NARRATIVE

The following report contains the analytical results for two solid samples submitted to Quanterra-North Canton by Ravenna Army Ammunition Plant. The samples were received April 7, 1998. according to documented sample acceptance procedures.

Quanterra utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the Methods Summary page in accordance with the methods indicated. Analyses for explosives by method SW846 8330 were performed at the Quanterra-Knoxville, TN facility.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The samples were received at the laboratory at a temperatures of 9.4° C.

HPLC - EXPLOSIVES

Reported results between the MDL and the RL are flagged with "J". There is the possibility of false positive or misidentification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation will be performed only down to the standard reporting limit (SRL). The acceptance criteria for quality control criteria may not be met at these quantitation levels.

EXECUTIVE SUMMARY - Detection Highlights

A8D070133

PARAMETER	USEPA Comparison Values (Soil) PPM	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
LOAD LINE 2 DB-10 NO. 1 04/06/98 15:20 001					
HMX	3200	0.18 J	0.50	mg/kg	SW846 8330
RDX	400	0.19 J	0.50	mg/kg	SW846 8330
1,3,5-Trinitrobenzene		0.13 J	0.25	mg/kg	SW846 8330
2,4,6-Trinitrotoluene		0.25	0.25	mg/kg	SW846 8330
2-Nitrotoluene		0.17 J	0.25	mg/kg	SW846 8330
3-Nitrotoluene		0.15 J	0.25	mg/kg	SW846 8330
LOAD LINE 2 DB-10 NO. 2 04/06/98 15:25 002					
Barium	5400	26.2	20.0	mg/kg	SW846 6010A
Cadmium	38	6.0	0.50	mg/kg	SW846 6010A
Chromium	3000	10.0	1.0	mg/kg	SW846 6010A
Lead	400	168	0.30	mg/kg	SW846 6010A
Percent Solids		24.2	0.10	%	MCAWW 160.3 MOD

ANALYTICAL METHODS SUMMARY

A8D070133

PARAMETER	ANALYTICAL METHOD
Inductively Coupled Plasma (ICP) Metals	SW846 6010A
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A
Nitroaromatics and Nitramines by HPLC	SW846 8330
Total Residue as Percent Solids	MCAWW 160.3 MOD
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A8D070133

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CGACK	001	LOAD LINE 2 DB-10 NO. 1	04/06/98	15:20
CGACL	002	LOAD LINE 2 DB-10 NO. 2	04/06/98	15:25

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Client Sample ID: LOAD LINE 2 DB-10 NO. 1

HPLC

Lot-Sample #...: A8D070133-001 **Work Order #...:** CGACK102 **Matrix.....:** SOLID
Date Sampled...: 04/06/98 15:20 **Date Received..:** 04/07/98
Prep Date.....: 04/10/98 **Analysis Date..:** 04/15/98
Prep Batch #...: 8099134
Dilution Factor: 1
% Moisture.....:

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
HMX	**0.18 J**	**0.50**	**mg/kg**	**SW846 8330**
RDX	**0.19 J**	**0.50**	**mg/kg**	**SW846 8330**
1,3,5-Trinitrobenzene	**0.13 J**	**0.25**	**mg/kg**	**SW846 8330**
1,3-Dinitrobenzene	ND	0.25	mg/kg	SW846 8330
Tetryl	ND	0.65	mg/kg	SW846 8330
Nitrobenzene	ND	0.25	mg/kg	SW846 8330
2,4,6-Trinitrotoluene	**0.25**	**0.25**	**mg/kg**	**SW846 8330**
2-Nitrotoluene	**0.17 J**	**0.25**	**mg/kg**	**SW846 8330**
2,4-Dinitrotoluene	ND	0.25	mg/kg	SW846 8330
3-Nitrotoluene	**0.15 J**	**0.25**	**mg/kg**	**SW846 8330**
4-Nitrotoluene	ND	0.25	mg/kg	SW846 8330
2,6-Dinitrotoluene	ND	0.25	mg/kg	SW846 8330
Nitroglycerin	ND	2.5	mg/kg	SW846 8330

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1-Chloro-3-nitrobenzene	120	(72 - 129)

NOTE(S):

J Estimated result. Result is less than RL.

Client Sample ID: LOAD LINE 2 DB-10 NO. 2

TOTAL Metals

Lot-Sample #...: A8D070133-002 **Matrix.....:** SOLID
Date Sampled...: 04/06/98 15:25 **Date Received..:** 04/07/98
% Moisture.....: 76

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 8098111						
Arsenic	ND	1.0 Dilution Factor: 1	mg/kg	SW846 6010A	04/08-04/09/98	CGACL106
Barium	**26.2**	**20.0** Dilution Factor: 1	**mg/kg**	**SW846 6010A**	**04/08-04/09/98**	**CGACL102**
Cadmium	**6.0**	**0.50** Dilution Factor: 1	**mg/kg**	**SW846 6010A**	**04/08-04/09/98**	**CGACL103**
Lead	**168**	**0.30** Dilution Factor: 1	**mg/kg**	**SW846 6010A**	**04/08-04/09/98**	**CGACL107**
Chromium	**10.0**	**1.0** Dilution Factor: 1	**mg/kg**	**SW846 6010A**	**04/08-04/09/98**	**CGACL104**
Mercury	ND	0.10 Dilution Factor: 1	mg/kg	SW846 7471A	04/08-04/09/98	CGACL109
Selenium	ND	0.50 Dilution Factor: 1	mg/kg	SW846 6010A	04/08-04/09/98	CGACL108
Silver	ND	1.0 Dilution Factor: 1	mg/kg	SW846 6010A	04/08-04/09/98	CGACL105

MEMO TO FILE

FROM: **Eileen T. Mohr**

DATE: **February 9, 1998**

RE: **Telephone Conversation with Mark Patterson Regarding the Attached Email Message**

I spoke with Mark Patterson (RVAAP) on 02/09/98 regarding the attached email message.

I confirmed the following with him:

1. that neither OEPA NEDO DSW (the primary Division) nor the Akron Air Agency have any issues with the proposed plan to discharge the water from the flooded basements through a 5 u filter (to remove asbestos);

2. that all the buildings listed in the first group were solely used as changing facilities;

3. that all sediments will be disposed of in accordance with all applicable State and Federal regulations. I told Mark that he needed to contact the disposal facility that they are thinking of utilizing in order to ensure that the analytical testing that they are proposing is adequate (only explosives - modified 8330 - in the Load Line 2 buildings may not be adequate);

4. water will be discharged into areas that are not visibly contaminated, in order to avoid potential contaminant migration;

5. water will not be discharged to creeks, drainage systems, etc.;

6. re-affirmed that all of these areas will have Phase 1 Remedial Investigations (RI) conducted in the future.

From: <MPATTERS@ria-emh2.army.mil>
To: Central-Office.NEDO(Emohr)
Date: Thu, Feb 5, 1998 1:33 PM
Subject: Pumping of flooded rooms at RVAAP

Eileen

Following are the building numbers where a room has become flooded and needs pumped to do asbestos abatement work. The water would be pumped out using sump pump with 5-micron filter to remove any asbestos fibers that it may contain. It would be pumped onto a well-vegetated area outside the building at about 50 gal. /min. Have already spoke with Mark Davis, Greg Orr, and Dennis Lee of OEPA.. They do not require permit or any other form of authorization under their respective programs to do the work as prescribed. Rooms to be pumped are about 10' x 12' and have a water depth of anywhere between 1' to 7'. These rooms are below ground level. Some sediment is in the bottom of each room. None of the rooms were used for storing explosives or other hazardous waste.

Thanks
Mark

* One room in each of the following buildings was used as a clothing change room.

PLANT AREA	BLDG #			
Admin Area	1036	1046	1048	1048A
Load Line 5	IF-13	IF-14		
Load Line 6	2F-14	2F-36		
Load Line 8	2B-9	2B-10		
Load Line 9	DT-28	DT-29		
Load Line 10	PE-3			
Load Line 11	AP-13			

* One room in each of the following buildings was used for purpose noted

PLANT AREA	BLDG #	PURPOSE
Load Line 2	DB-3	Inert shell preparation
Load Line 2	DA-6A	Delivery point for explosives to Load Line
Load Line 2	DB-10	Shell Finishing
Load Line 2	DB-26	x-ray
Load Line 2	F-1	Fire Station
Load Line 2	47-41	Office Transportation Building
Load Line 2	ww-3	Water Works

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

August 25, 1998

RE: Ravenna Army Ammunition Plant
Portage/Trumbull Counties
Scrap Metal/Deactivation Furnace

Mr. Mark Patterson
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Patterson:

This correspondence is written as a follow-up to a site visit conducted on 08/04/98 and subsequent discussions/e-mails regarding the removal of scrap metal on the west side of the Deactivation Furnace (DFA) located in the Winklepeck Burning Grounds (WBG) Area of Concern (AOC).

The document entitled "Closure Activities Workplan, Deactivation Furnace Area, Ravenna Army Ammunition Plant, Ravenna, Ohio", that was written to be accordance with the closure plan approved by the Director of the Ohio EPA, indicates that one of the closure activities to be undertaken at the DFA entails the "decontamination, transportation, and disposal of previously dismantled equipment (furnace drum, miscellaneous debris, etc.). The "disappearance" of these materials renders the above-referenced activity impossible. As such, I have referred this incident to the appropriate division (Division of Hazardous Waste Management) for review and possible action.

I appreciate the actions which you personally have undertaken in order to try and investigate/resolve this situation, including contacting Mason and Hangar security personnel, as well as notifying Industrial Operations Command (IOC) security. In addition, during a 08/18/98 site visit, it was observed that attempts have been made to physically limit access to the WBG. However, it is apparent that the potential for other incidents, such as the one described above, to occur still exists.

I would appreciate it if you would convey this correspondence to the appropriate personnel at the installation and in IOC. This letter, coupled with previous Ohio EPA correspondence dated 06/17/98, underscores the necessity for conducting strategic planning at the Arsenal. Specifically, all involved parties need to come to an understanding as to how the scrapping operations are going to interface with the on-going investigation and remediation program. A number of difficulties have been encountered in this regard, and it is to everyone's benefit to resolve this issue as soon as possible.

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:cl

cc: Bob Princic, NEDO-DERR
Greg Orr, NEDO-DHWM
Bonnie Buthker, OFFO-SWDO
Catherine Stroup, CO-Legal

State of Ohio Environmental Protection Agency

STREET ADDRESS:
1800 WaterMark Drive
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

5: 4/15/98
permit fee

February 20, 1998

Re: Ohio EPA Permit No. 3IO000000*GD
Facility Name: U. S. Department of the Army

U. S. Department of the Army
Ravenna Army Ammunition Plant (RVAAP)
8451 State Route 5
Ravenna, OH 44266

Ladies and Gentlemen:

Transmitted herewith is one copy of the final National Pollutant Discharge Elimination System permit referenced above.

You are hereby notified that this action of the director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and shall set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the Environmental Review Appeals Commission within thirty (30) days after notice of the director's action. A copy of the appeal must be served on the director of the Ohio Environmental Protection Agency and the Environmental Law Division of the Office of the Attorney General within three days of filing with the Board. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
236 East Town Street, Room 300
Columbus, Ohio 43215

Sincerely,

Martha D. Spurbeck

Martha D. Spurbeck, Supervisor
Permit Processing Unit
Division of Surface Water

MDS/kep

Enclosure

CERTIFIED MAIL

STATEMENT OF NPDES PERMIT FEE DUE

PLEASE RETURN THIS COPY WITH YOUR REMITTANCE

Entity Name:	Permit No.: 3IO00000*GD
U. S. Department of the Army Ravenna Army Ammunition Plant (RVAAP)	Effective Date: April 1, 1998

Mailing Address:

8451 State Route 5
Ravenna, OH 44266

Facility Location:

U. S. Department of the Army
Ravenna Army Ammunition Plant (RVAAP)
8451 State Route 5
Ravenna, OH 44266

Permit fees for the above facility were computed in accordance with the following information and at rates established in Section 3745.11 of the Ohio Revised Code.

Outfall Number	Design Flow (GPD)	Rate	Charges
006	5,000	$ 100.00	$ 100.00
FEE PAYMENT DUE: $ 100.00			

Please remit not later than 15 days after the cited effective date of this permit. Make check payable to "**Treasurer, State of Ohio**" and mail it to:

Ohio Environmental Protection Agency
Office of Fiscal Administration
P. O. Box 1049
Columbus, OH 43216-1049

Please enclose this copy with your payment.

67/NE

Application No. OH0010936

Issue Date: February 20, 1998

Effective Date: April 1, 1998

Expiration Date: March 28, 2003

Ohio Environmental Protection Agency
Authorization to Discharge 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. 1251 et. seq., hereinafter referred to as the "Act"), and the Ohio Water Pollution Control Act (Ohio Revised Code Section 6111),

U. S. Department of the Army
Ravenna Army Ammunition Plant (RVAAP)

is authorized by the Ohio Environmental Protection Agency, hereinafter referred to as "Ohio EPA," to discharge from the wastewater treatment works located at 8451 State Route 5, Ravenna, Ohio, Portage County

and discharging to an unnamed tributary entering Sand Creek at River Mile 2.22

in accordance with the conditions specified in Parts I, II, and III of this permit.

This permit is conditioned upon payment of applicable fees as required by Section 3745.11 of the Ohio Revised Code.

This permit and the authorization to discharge shall expire at midnight on the expiration date shown above. In order to receive authorization to discharge beyond the above date of expiration, the permittee shall submit such information and forms as are required by the Ohio EPA no later than 180 days prior to the above date of expiration.

Donald R. Schregardus

Donald R. Schregardus
Director

Part I, A. - **FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

1. During the period beginning on the effective date of this permit and lasting until the expiration date, the permittee is authorized to discharge in accordance with the following limitations and monitoring requirements from outfall 3IO00000006. See Part II, **OTHER REQUIREMENTS**, for locations of effluent sampling.

EFFLUENT CHARACTERISTIC			DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
			Concentration Specified Units		Loading*** kg/day			
Reporting Code	Units	Parameter	30 day	Daily	30 day	Daily	Meas. Freq.*	Sample Type
00056	GPD	Flow Rate	-	-	-	-	Daily	24-Hr. Total**
00083	UNITS	Color, Severity (1)	-	-	-	-	Daily	Observation
01330	UNITS	Odor, Severity (1)	-	-	-	-	Daily	Observation
01350	UNITS	Turbidity, Severity (1)	-	-	-	-	Daily	Observation
00335	mg/l	COD	20	30	0.45	0.68	1/Week	Composite
00530	mg/l	Total Suspended Solids	30	45	0.68	1.02	1/Week	Composite
00610	mg/l	Nitrogen, Ammonia (NH_3)	-	-	-	-	1/Week	Grab
00620	mg/l	Nitrogen, Nitrate (NO_3)	-	-	-	-	1/Week	Grab
75120	mg/l	Toluene	-	-	-	-	Semi-Annually	Composite
81360	µg/l	Trinitrotoluene, Total	-	140	-	0.0032	1/Week	Composite
81533	µg/l	Dinitrotoluene, Total	-	-	-	-	Semi-Annually	Composite

* Except those days when the facility is not normally staffed. Report "AN" on the monthly operating reports for those days.

** Estimated flow is acceptable if there is no flowmeter.

*** Effluent loading limitations are based on a flow of 5,000 GPD.

(1) See Part II, Item B.

2. The pH (Reporting Code 00400) shall not be less than 6.5 S.U. nor greater than 9.0 S.U. and shall be monitored 1/week by grab sample.

3. The method used to monitor TNT (Trinitrotoluene) and DNT (Dinitrotoluene) should have a detection limit no greater than 10 ug/l.

4. Samples taken in compliance with monitoring requirements specified above shall be taken at sampling stations described in Part II, Other Requirements.

Part II, **OTHER REQUIREMENTS**

A. Description of the location of the required sampling stations are as follows:

Sampling Station	Description of Location
3IO00000006	At a point representative of discharge from projectile melt-out treatment system prior to entry to unnamed tributary to Sand Creek. (Lat: 41° 11' 30"; Long: 81° 02' 55")

B. If severity units are required for turbidity, odor, or color, use the following table to determine the value between 0 and 4 that is reported.

Reported Value*	Severity Description	Turbidity	Odor	Color
0	None	Clear	None	Colorless
1	Mild			
2	Moderate	Light Solids	Musty	Grey
3	Serious			
4	Extreme	Heavy Solids	Septic	Black

* Interpolate between the descriptive phrases.

C. This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved.

1. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
2. Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

D. In the event that the permittee's operation requires the use of cooling or boiler water treatment additives that are discharged to surface waters of the state, written permission must be obtained from the director of the Ohio EPA prior to use. Reporting and testing requirements to apply for permission to use additives can be obtained from the Ohio EPA Central Office, Division of Surface Water, Water Resource Management Section. Reported information will be used to evaluate whether the use of the additive(s) at concentrations expected in the final discharge will be harmful or inimical to aquatic life.

E. Permit limitations may be revised in order to meet water quality standards after a stream use determination and waste load allocation are completed and approved. This permit may be modified, or alternatively, revoked and reissued, to comply with any applicable water quality effluent limitations.

F. There shall be no detectable amount of any priority pollutant attributable to cooling tower maintenance chemicals in the cooling tower blowdown wastewater.

PART III - GENERAL CONDITIONS

1. DEFINITIONS

"daily load limitations" is the total discharge by weight during any calendar day. If only one sample is taken during a day, the weight of pollutant discharge calculated from it is the daily load.

"daily concentration limitation" means the arithmetic average (weighted by flow) of all the determinations of concentration made during the day. If only one sample is taken during the day, its concentration is the daily concentration. Coliform bacteria limitations compliance shall be determined using the geometric mean.

"7-day load limitation" is the total discharge by weight during any 7-day period divided by the number of days in that 7-day period that the facility was in operation. If only one sample is taken in a 7-day period, the weight of pollutant discharge calculated from it is the 7-day load. If more than one sample is taken during the 7-day period, the 7-day load is calculated by determining the daily load for each day sampled, totaling the daily loads for the 7-day period, and dividing by the number of days sampled.

"7-day concentration limitation" means the arithmetic average (weighted by flow) of all the determinations of daily concentration limitation made during the 7-day period. If only one sample is taken during the 7-day period, its concentration is the 7-day concentration limitation for that 7-day period. Coliform bacteria limitations compliance shall be determined using the geometric mean.

"30-day load limitation" is the total discharge by weight during any 30-day period divided by the number of days in the 30-day period that the facility was in operation. If only one sample is taken in a 30-day period, the weight of pollutant discharge calculated from it is the 30-day load. If more than one sample is taken during one 30-day period, the 30-day load is calculated by determining the daily load for each day sampled, totaling the daily loads for the 30-day period and dividing by the number of days sampled.

"30-day concentration limitation" means the arithmetic average (weighted by flow) of all the determinations of daily concentration made during the 30-day period. If only one sample is taken during the 30-day period, its concentration is the 30-day concentration for that 30-day period. Coliform bacteria limitations compliance shall be determined using the geometric mean.

"85 percent removal limitations" means the arithmetic mean of the values for effluent samples collected in a period of 30 consecutive days shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

"Absolute Limitations" Compliance with limitations having descriptions of "shall not be less than," "nor greater than," "shall not exceed," "minimum," or "maximum" shall be determined from any single value for effluent samples and/or measurements collected.

"Net concentration" shall mean the difference between the concentration of a given substance in a sample taken of the discharge and the concentration of the same substances in a sample taken at the intake which supplies water to the given process. For the purpose of this definition, samples that are taken to determine the net concentration shall always be 24-hour composite samples made up of at least six increments taken at regular intervals throughout the plant day.

"Net load" shall mean the difference between the load of a given substance as calculated from a sample taken of the discharge and the load of the same substance in a sample taken at the intake which supplies water to given process. For purposes of this definition, samples that are taken to determine the net loading shall always be 24-hour composite samples made up of at least six increments taken at regular intervals throughout the plant day.

"MGD" means million gallons per day.

"mg/l" means milligrams per liter.

"µg/l" means micrograms per liter.

"Reporting Code" is a five digit number used by the Ohio EPA in processing reported data. The reporting code does not imply the type of analysis used nor the sampling techniques employed.

"Quarterly sampling frequency" means the sampling shall be done in the months of March, June, August, and December.

"Yearly sampling frequency" means the sampling shall be done in the month of September.

"Semi-annual sampling frequency" means the sampling shall be done during the months of June and December.

"Winter" shall be considered to be the period from November 1 through April 30.

"Bypass" means the intentional diversion of waste streams from any portion of the treatment facility.

"Summer" shall be considered to be the period from May 1 through October 31.

"Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

PART III - GENERAL CONDITIONS (continued)

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

2. GENERAL EFFLUENT LIMITATIONS

The effluent shall, at all times, be free of substances:

A. In amounts that will settle to form putrescent, or otherwise objectionable, sludge deposits; or that will adversely affect aquatic life or water fowl;

B. Of an oily, greasy, or surface-active nature, and of other floating debris, in amounts that will form noticeable accumulations of scum, foam or sheen;

C. In amounts that will alter the natural color or odor of the receiving water to such degree as to create a nuisance;

D. In amounts that either singly or in combination with other substances are toxic to human, animal, or aquatic life;

E. In amounts that are conducive to the growth of aquatic weeds or algae to the extent that such growths become inimical to more desirable forms of aquatic life, or create conditions that are unsightly, or constitute a nuisance in any other fashion;

F. In amounts that will impair designated instream or downstream water uses.

3. FACILITY OPERATION AND QUALITY CONTROL

All wastewater treatment works shall be operated in a manner consistent with the following:

A. At all times, the permittee shall maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee necessary to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with conditions of the permit.

B. The permittee shall effectively monitor the operation and efficiency of treatment and control facilities and the quantity and quality of the treated discharge.

C. Maintenance of wastewater treatment works that results in degradation of effluent quality shall be scheduled during non-critical water quality periods and shall be carried out in a manner approved by the Ohio EPA as specified in the Paragraph in this PART III entitled, "UNAUTHORIZED DISCHARGES".

4. REPORTING

A. Monitoring data required by this permit shall be reported on the Ohio EPA report form (4500) on a monthly basis. Individual reports for each sampling station for each month are to be received no later than the 15th day of the next month. The original of the report form must be signed and mailed to:

Ohio Environmental Protection Agency
Division of Surface Water
Enforcement Section, ES/MOR
P.O. Box 1049
Columbus, Ohio 43266-0149

B. If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified below, the results of such monitoring shall be included in the calculation and reporting of the values required in the reports specified above.

C. Analyses of pollutants not required by this permit, except as noted in the preceding paragraph, shall not be reported on Ohio EPA report form (4500) but records shall be retained as specified in the paragraph entitled "RECORDS RETENTION".

5. SAMPLING AND ANALYTICAL METHODS

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored flow. Test procedures for the analysis of pollutants shall conform to regulation 40 CFR 136, "Test Procedures For The Analysis of Pollutants" unless other test procedures have been specified in this permit. The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to insure accuracy of measurements.

PART III - GENERAL CONDITIONS (continued)

6. RECORDING OF RESULTS

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

A. The exact place and date of sampling; (time of sampling not required on EPA 4500)

B. The person(s) who performed the sampling or measurements;

C. The date the analyses were performed on those samples;

D. The person(s) who performed the analyses;

E. The analytical techniques or methods used; and

F. The results of all analyses and measurements.

7. RECORDS RETENTION

The permittee shall retain all of the following records for the wastewater treatment works for a minimum of three years, including:

A. All sampling and analytical records (including internal sampling data not reported);

B. All original recordings for any continuous monitoring instrumentation;

C. All instrumentation, calibration and maintenance records;

D. All plant operation and maintenance records;

E. All reports required by this permit; and

F. Records of all data used to complete the application for this permit for a period of at least three years from the date of the sample, measurement, report, or application.

These periods will be extended during the course of any unresolved litigation, or when requested by the Regional Administrator or the Ohio EPA. The three year period for retention of records shall start from the date of sample, measurement, report, or application.

8. AVAILABILITY OF REPORTS

Except for data determined by the Ohio EPA to be entitled to confidential status, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the appropriate district offices of the Ohio EPA. Both the Clean Water Act and Section 6111.05 Ohio Revised Code state that effluent data and receiving water quality data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Ohio Revised Code Section 6111.99.

9. DUTY TO PROVIDE INFORMATION

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking, and reissuing, or terminating the permit, or 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.

10. RIGHT OF ENTRY

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

A. 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.

B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit.

C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.

D. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

11. UNAUTHORIZED DISCHARGES

A. Bypassing or diverting of wastewater from the treatment works is prohibited unless:

1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

PART III - GENERAL CONDITIONS (continued)

2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of downtime. This condition is not satisfied if adequate back up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

3. The permittee submitted notices as required under paragraph D. of this section.

B. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

C. The Director may approve an unanticipated bypass, after considering its adverse effects, if the Director determines that it has met the three conditions listed in paragraph 11.A. of this section.

D. The permittee shall submit notice of an unanticipated bypass as required in section 12.

E. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded if that bypass is for essential maintenance to assure efficient operation.

12. NONCOMPLIANCE NOTIFICATION

A. The permittee shall by telephone report any of the following within twenty-four (24) hours of discovery at (toll free) 1-800-282-9378:

1. Any noncompliance which may endanger health or the environment;

2. Any unanticipated bypass which exceeds any effluent limitation in the permit; or

3. Any upset which exceeds any effluent limitation in the permit.

4. Any violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit.

B. For the telephone reports required by Part 12.A., the following information must be included:

1. The times at which the discharge occurred, and was discovered;

2. The approximate amount and the characteristics of the discharge;

3. The stream(s) affected by the discharge;

4. The circumstances which created the discharge;

5. The names and telephone numbers of the persons who have knowledge of these circumstances;

6. What remedial steps are being taken; and

7. The names and telephone numbers of the persons responsible for such remedial steps.

C. These telephone reports shall be confirmed in writing within five days of the discharge and submitted to the appropriate Ohio EPA district office. The report shall include the following:

1. The limitation(s) which has been exceeded;

2. The extent of the exceedance(s);

3. The cause of the exceedance(s);

4. The period of the exceedance(s) including exact dates and times;

5. If uncorrected, the anticipated time the exceedance(s) is expected to continue, and

6. Steps being taken to reduce, eliminate, and/or prevent recurrence of the exceedance(s).

D. Compliance Schedule Events:

If the permittee is unable to meet any date for achieving an event, as specified in the schedule of compliance, the permittee shall submit a written report to the appropriate district office of the Ohio EPA within 14 days of becoming aware of such situation. The report shall include the following:

1. The compliance event which has been or will be violated;

2. The cause of the violation;

3. The remedial action being taken;,

4. The probable date by which compliance will occur; and

From: <MPATTERS@ria-emh2.army.mil>
To: Central-Office.INTERNET("CKING1@RIA-EMH2.ARMY.MIL"...
Date: Fri, Jun 5, 1998 2:20 PM
Subject: Scrapping of Load Line 6 Test Chambers (firestone)

Yesterday we found scrap contractors cutting steel (torching) metal structures in all three test chambers at LL6. For the most part, all the steel in the structures has been cut with many pieces precariously leaning or hanging from the concrete walls creating unsafe conditions.

These structures were just tested by Tulsa Corps for radiation on the week of 5/18 as part of the RVAAP restoration program. I spoke with David Hays, project director for Tulsa. He said none of the structures had any radiation readings on their field meters significantly above background with one exception. Some of the steel floor plates in the TOW missile chamber have alpha counts up to 12 times background. He does not feel this will be a problem and thinks it originated off-site when the steel was smelted. Although field readings showed no other RAD contamination, he will not know for sure until he gets back the lab results.

The scrap work done to date will not interfere with the RAD study, but it will make it more difficult if there is any remediation of radiation or other types of contamination (metals, explosives) that needs to be done. We know at least there are small pieces of foreign metal imbedded in the plates as a result of the test explosions.

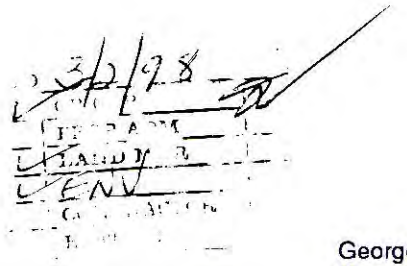
Eileen Mohr, OEPA CERCLA, is aware of the situation and would like to coordinate all future scrapping activities with her office that may impact Cleanup . I also notified Ray Pegher of PDG who has stopped work at the chambers until further notice.

Ray Pegher gave me a general description of the procedure they are using to decide what can be scrapped. Does RVAAP have a list of what structures are permitted to be scrapped or general guidelines?

Mark

CC: Central-Office.NEDO(Emohr)

OhioEPA
State of Ohio Environmental Protection Agency
Southwest District Office
401 East Fifth Street
Dayton, Ohio 45402-2911
(513) 285-6357
FAX (513) 285-6249



George V. Voinovich
Governor

February 27, 1998

John Cicero
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Cicero:

Please find enclosed the Ohio EPA's Quarterly Report for the period October 1, 1997 through December 31, 1997 detailing activities related to the DSMOA. Since your installation is covered under the DSMOA, we are providing you a copy of our report for your information.

If you have any questions or comments concerning this report, please contact me at (937) 285-6018 or Bonnie Buthker at (937) 285-6469.

Sincerely,

Graham Mitchell, Chief
Office of Federal Facilities Oversight

OHIO DSMOA

Quarterly Report

October 1, 1997 to December 31, 1997

During the past three months, the Ohio Environmental Protection Agency, Office of Federal Facilities Oversight (OFFO) and Division of Emergency and Remedial Response (DERR), performed or participated in the following services under the DSMOA:

ADMINISTRATION:

Personnel Services:

Two new site coordinators have been named for DSMOA sites. Ms. Cherrie Martin (OFFO/Southwest District Office) has replaced Tim Hull as the site coordinator for the Defense Electronics Supply Center. Gasson Tfla has replaced Ralph Baker as the site coordinator for the Mansfield Lahnam Air National Guard.

Training:

The DoD Environmental Supervisor completed her annual medical monitoring examination on November 10.

Meetings:

There were no meetings concerning programmatic administration during this reporting period.

Programmatic Accomplishments:

On December 19, Ohio EPA received a provisional approval letter for our CA extension from HQUSACE. We continue to develop our workload and cost estimates for the DSMOA sites, but have been unable to complete this work for all sites. We have not yet received all 2 year work plans and narratives for the Formerly Used Defense sites, but hope to have this information in January. In January, Ohio EPA will also begin meeting with the Services to discuss our proposed budget and workloads with them.

Current Programmatic Issues:

Ohio EPA has also received data from a property owner adjacent to the former NIKE missile site on Osborne Road in Wilmington, Ohio. One water sample collected from the

former silos contained lead at 982 parts per billion. Ohio EPA has forwarded the data to Kevin Jasper, ACOE's Program Manager for Formerly Used Defense sites in Ohio. Once ACOE reviews the information, Ohio EPA will meet with ACOE to discuss a strategy for this site.

On November 18, 1997, Ohio EPA received 2 year work plans and 6 year narratives for all Air National Guard facilities under Ohio's DSMOA. This was information we needed to prepare our CA application for July 1998 through June 2000. At several of the facilities, though the investigative work has been funded to completion, remedial design or action (if necessary) will not be funded until 2002-2005. Due to this funding delay, additional investigation will probably be necessary before the remedial design/remedial action can be completed. Ohio EPA will request a meeting with ANG officials to discuss a prioritization scheme for the Ohio sites.

RAVENNA ARMY AMMUNITION PLANT:

Document Review:

The following documents were reviewed during this reporting period:

Two draft Statements of Work (SOWs) for additional investigations in the RCRA Areas of Concern (AOCs). Reviewed SOWs and provided comments on October 19, 1997.

U.S.EPA's RCRA Inspection Report for the Ravenna Army Ammunition Plant. Completed review on October 20, 1997. No comments were generated, report was reviewed for information only.

Review of CRREL data from in-situ explosives testing. Review was completed on October 29, 1997. No comments were generated. Data were reviewed for information only.

Site Visits:

October 22:	Ohio EPA, USACE, and ONG personnel conducted a site visit of Areas of Concern #3, 28, and 38.
November 3:	Ohio EPA Project Manager assisted NEDO Emergency Response personnel and the installation regarding an oil spill in the fuse and booster load line areas
November 18:	Ohio EPA personnel sampled 25 residential well samples in the vicinity of RVAAP (funding provided outside of DSMOA)

November 18:	Ohio EPA provided oversight of sampling activities at the OB/OD area and the suspected mustard agent area
November 19:	Ohio EPA provided oversight of sampling activities at the OB/OD area and the suspected mustard agent area
November 20:	Ohio EPA provided oversight of sampling activities at the OB/OD area and the suspected mustard agent area
November 24:	Ohio EPA provided oversight of sampling activities at the OB/OD area and the suspected mustard agent area

Meetings and Conference Calls:

Participated in the following meetings related to current and future clean-up activities:

November 12:	Restoration Advisory Board (RAB) meeting at Paris Township Hall
November 12:	Ohio EPA, RVAAP, and ACOE representatives participated in scoping meetings regarding Winklepeck Burning Grounds, Load Line # 1, and background determination at RVAAP
November 13:	Ohio EPA, RVAAP, and ACOE representatives participated in scoping meetings regarding Winklepeck Burning Grounds, Load Line # 1, and background determination at RVAAP
November 14:	Ohio EPA, RVAAP, and ACOE representatives participated in scoping meetings regarding Winklepeck Burning Grounds, Load Line # 1, and background determination at RVAAP
December 9:	Ohio EPA personnel (DERR/NEDO and DSIWM/NEDO) met to discuss the Ramsdell Quarry Landfill
December 11:	Ohio EPA, USACE, IOC, SAIC, and RVAAP personnel met concerning the Ramsdell Quarry Landfill

Miscellaneous:

Ohio EPA personnel participated in numerous phone calls with the Industrial Operations Command (IOC), the Ohio National Guard (ONG), SAIC, the US Army

Corps of Engineers (USACE), RVAAP personnel, the general public, and the media, regarding a variety of issues at the installation.

Ohio EPA, IOC, and USACE meet to develop the 2-year work plan and 3-6 year narrative for the RVAAP. This information will be used by Ohio EPA to prepare work load estimates for the DSMOA/CA.

On October 3, 1997, Ohio EPA sent a letter to RVAAP regarding the potential usage of AOC # 38 by the ONG.

On October 6, 1997, Ohio EPA sent a letter to the editor of the Warren-Tribune Chronicle clarifying numerous inaccuracies in recent articles about the installation.

On October 15, 1997, Ohio EPA sent a memo to our Legal staff with a recommendation regarding the disposition of investigation-derived wastes (IDW) at the installation.

On October 23, 1997, Ohio EPA sent a memo to NEDO DSW regarding the ONG's proposed installation of a greywater tank at AOC # 38.

On October 28, 1997, Ohio EPA sent a letter to a citizen regarding several issues at the installation.

On November 24, 1997, Ohio EPA sent comments to RVAAP regarding ecological risk and human health risk assessment requirements that were discussed during the scoping meetings referenced above in the meeting section.

Accomplishments:

On November 3, 1997, Ohio EPA sent a letter to IOC which outlined our final position on the disposition of IDW at the installation. Due to this letter, IDW management issues associated with the investigation at RVAAP have finally been resolved.

On December 2, 1997, the General Accounting Office survey for RVAAP was completed.

Current Issues:

On October 17, Ohio EPA sent a letter to the Ravenna Army Ammunition Plant concerning access issues at eleven different areas of concern. This letter was a follow-up to a September 29, 1997 meeting held between Ohio EPA and RVAAP, where these sites were proposed to be transferred to the Ohio National Guard, as part of their long-term lease of the facility. Ohio EPA's letter suggested various access restrictions for these

AOCs, under the assumption that the facility will be used as a training site for the Ohio National Guard.

WRIGHT-PATTERSON AIR FORCE BASE:

Document Review:

The following documents were reviewed during this period:

Wright-Patterson Air Force Base, Operable Unit 2 Final Record of Decision. Received on September 11, 1997. Ohio EPA signed the ROD on October 22, 1997.

Draft Removal Action Work Plan for WPAFB Landfill 12. Received on September 11, 1997. Approval letter sent on October 1, 1997.

Draft Site Investigation Report for Wright-Patterson Air Force Base, Burial Sites 5 & 6. Received on October 3. Comment letter submitted on November 17, 1997.

Remedial Investigation Addendum, Risk Assessment Assumptions Document for Wright-Patterson Air Force Base, Operable Unit 4. Received on October 6, 1997. Comment letter submitted on November 12, 1997.

Final Treatability Study Report for the Downgradient Area of Petroleum Contamination at Wright-Patterson Air Force Base, Operable Unit 8. Received on October 22, 1997. Review was completed on November 21, 1997. No comments were necessary.

Technical Change No. 2 documents for Wright-Patterson Air Force Base, Operable Unit 8, Spill Site 11. Received on November 6, 1997. Approval letter sent on November 12, 1997.

Wright-Patterson Air Force Base, Operable Unit 8, Spill Site 11 Draft Work Plan for the installation of a French Drain. Received on November 6, 1997. Approval letter sent on December 1, 1997.

Removal Action System Performance Report for Operable Unit 1 at Wright-Patterson Air Force Base. Received on October 31, 1997.

Site Visits:

October 6: Ohio EPA personnel provided oversight on Landfills 1, 2, 6, 7 and Spill Sites 5 & 6.

October 10:	Ohio EPA personnel provided oversight on Landfills 1, 2, 6, 7, 12 and Spill Sites 5 & 6.
October 15:	Ohio EPA personnel provided oversight at the excavation at Landfill 12.
October 16:	Ohio EPA personnel provided oversight at the excavation at Landfill 12.
October 20:	Ohio EPA personnel provided oversight at the excavation at Landfill 12.
October 27:	Ohio EPA personnel provided oversight on Landfills 1, 2, 6, 7 and Spill Sites 5 & 6.
October 30:	Ohio EPA personnel provided oversight at the excavation at Landfill 12.
October 31:	Ohio EPA personnel split groundwater samples with representatives of WPAFB at Landfills 8 &10.
November 21:	Ohio EPA personnel provided oversight on Landfills 1, 2, 6, 7 and 9.
November 24:	Ohio EPA personnel provided oversight during the pre-final inspection at Landfill 12.
December 11:	Ohio EPA and WPAFB personnel conducted the final inspection of the former Landfill 12 area
December 17:	Ohio EPA observed french drain installation at Spill Site 11.
December 23:	Ohio EPA observed french drain installation at Spill Site 11.
December 24:	Ohio EPA observed french drain installation at Spill Site 11.
December 30:	Ohio EPA observed french drain installation at Spill Site 11.

Meetings and Conference Calls:

Participated in the following meetings related to current and future clean-up activities:

November 13:	Ohio EPA personnel attended the weekly progress meeting for the excavation at Landfill 12

November 13: Ohio EPA personnel attended the luncheon meeting between Tad McCall and the Environmental Advisory Board at Wright-Patterson Air Force Base.

December 2: Ohio EPA, OFFO and Ohio EPA, DSW met with WPAFB to discuss the NPDES permit for the Bioslurper system.

Miscellaneous:

Ohio EPA and WPAFB developed the 2-year work plan and 3-6 year narrative for the WPAFB. Final sign-off of these plans was completed on September 19, 1997. This information will be used by Ohio EPA to prepare work load estimates for the DSMOA/CA.

Accomplishments:

On December 11, 1997, the final inspection and closeout meeting was held for the excavation of the contents of WPAFB's Landfill 12. Approximately 2,000 bottles, jars, and containers of laboratory chemicals were excavated. The majority of them still contain liquids and solids in concentrated forms. The materials found include: concentrated acids, bases, liquid and solid cyanide compounds, metallic potassium, flammable liquids, oxidizers, arsenic, elemental mercury, and organic solvents. Also, 32 gas cylinders with unknown contents have also been found. Characterization of the materials in the jars was completed on November 21. Sampling of the gases in the cylinders began on November 21, and was completed. Only 4 gas cylinders contained material which required off-site disposal, with the most dangerous compound detected being phosgene. So that this material could be transported for disposal, the gas was safely transferred to a new cylinder for disposal.

On November 13, the WPAFB Environmental Advisory Board met with Mr. Tad McCall, Undersecreatary for the Air Force for Environmental Security. During this meeting, Mr. McCall presented the Air Force's Award for Environmental Excellence to the EAB Co-Chair, Ms. Denise Brooks.

On October 22, Ohio EPA signed the Record of Decision for Operable Unit 2 at WPAFB.

AIR FORCE PLANT #85:

Document Review:

The following documents were reviewed during this period:

Draft Work Plan for Soil Remediation at Air Force Plant 85, Columbus, Ohio, Task 96-5012. Received on October 10, 1997. Comment letter was sent on October 22, 1997.

Kelchner Environmental, Inc. Final Draft Work Plan for Soil Remediation. Received on November 13, 1997. An approval letter was sent on November 17, 1997.

Response letter to Ohio EPA comments on the Draft Addendum to the Environmental Baseline Survey. Received on October 30, 1997. The Air Force requested a meeting (held November 13, 1997) to discuss comments.

On 11/21/97, a letter was received from the owner's attorney regarding clarification of future property uses and the deed restriction. A response letter was sent on 12/9/97.

Final Addendum to the Environmental Baseline Survey for Air Force Plant 85, Columbus, OH. Received on December 17, 1997. Review is ongoing.

Statement of Work for Air Force Plant 85, Columbus, OH (describes Phase II investigation activities that will be conducted for VAP eligible sites). Received on December 17, 1997. Review is ongoing.

Accomplishments:

Plenum, Sewers, and UST project: The plenum project is complete. Geoprobe borings were completed on 10/24/97 along the sanitary sewer lines at locations of potential leaks. Sanitary sewer lines to the Waste Water Treatment Plant were capped.

During the week of October 20, 1997, OHM closed two vaulted tanks, #545 (waste oil) and #546 (TCA product). Final closure reports are still pending.

A 6 year plan for future site activities was completed on October 27, 1997 to provide information for the DSMOA Cooperative Agreement. Final sign-offs of the plan by Ohio EPA and the Air Force were completed on November 13, 1997.

Kelchner Environmental began field activities on December 8, 1997 to remove additional PCB contaminated soil from IRP Site 3. All contamination was removed. The final report is pending.

Meetings:

October 23:	Ohio EPA personnel met with the Air Force to discuss and plan future activities to provide projections for the DSMOA Cooperative Agreement.
November 13:	Ohio EPA personnel met the Air Force and Earth Tech to discuss Addendum to Environmental Baseline Survey, UST regulatory authorities, the Ohio EPA Voluntary Action Program, and site strategies.

Site Visits:

October 22:	Ohio EPA personnel conducted oversight of underground storage tank removals
October 23:	Ohio EPA personnel conducted oversight of underground storage tank removals
December 10:	Ohio EPA personnel conducted oversight of the Site 3 PCB removal.
December 11:	Ohio EPA personnel conducted oversight of the Site 3 PCB removal.
December 12:	Ohio EPA personnel conducted oversight of the Site 3 PCB removal.
December 15:	Ohio EPA personnel conducted oversight of the Site 3 PCB removal.
December 16:	Ohio EPA personnel conducted oversight of the Site 3 PCB removal.
December 24:	Ohio EPA personnel conducted oversight of the Site 3 PCB removal.

Miscellaneous:

The official sale of the site was completed and the title transferred during the week of October 13, 1997. On November 21, 1997, a letter was received from the owner's attorney regarding clarification of future property uses and the deed restriction. A response letter was sent on December 9, 1997.

The Air Force has allowed the new owner to complete additional soil sampling in areas where they plan to do construction activities. Permission was granted for requests regarding the following areas: alley between Bldg. 6 & 7; Mason's Run weir and oil water separator; west wall of Bldg. 3; utility trench between Bldg. 3 & 7, east side of Bldg. 125. The new owner will provide documentation of sample locations and results. Approval letters from the Air Force to the owner were received on November 20, 1997.

SPRINGFIELD MPT (BECKLEY):

Document Review:

The following documents were reviewed during this reporting period:

Draft Remedial Investigation Work Plan for the Springfield Air National Guard Base. Received on October 10, 1997. Comment letter submitted on November 5, 1997.

Final Remedial Investigation Work Plan for the Springfield Air National Guard Base. Received on November 13, 1997. Approval letter submitted on November 13, 1997.

Site Visits:

November 17:	Ohio EPA personnel provided oversight during the Remedial Investigation field work
November 18:	Ohio EPA personnel provided oversight during the Remedial Investigation field work
November 19:	Ohio EPA personnel provided oversight during the Remedial Investigation field work
November 21:	Ohio EPA personnel provided oversight during the Remedial Investigation field work

Meetings:

There were no meetings held concerning the current or future clean-up during this reporting period.

Miscellaneous:

On November 17, Ohio EPA received the 2 year work plans and 6 year narratives for the Springfield ANG site. We are currently in the process of preparing our work load estimates based on these plans.

BLUE ASH NGS:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings held concerning the current or future clean-up during this reporting period.

Accomplishments:

On December 15, 1997, Ohio EPA signed the NFRAP decision document for this facility. In early January, we will send a letter HQUSACE to request that this site be deleted from Attachment A to the DSMOA.

RICKENBACKER AGB:

Document Review:

The following documents were reviewed during this reporting period:

Redlined Final Feasibility Study Field Data Acquisition Plan to fill data gaps for Sites 2, 21, 41, 42 and 43. Received on September 23, 1997. A comment letter was sent to the base on October 3, 1997.

Final Finding of Suitability to Lease (FOSL) for Parcels D1 and D2. Received on July 31, 1997. This was reviewed on December 30, 1997 and no comments were generated.

Final Appendix A to the Final Supplemental Environmental Baseline Survey. Received on August 14, 1997. This was reviewed on December 30, 1997 and no comments were generated.

Revised Sections 6, 7 and 8, the Executive Summary and Appendices A and C for the Phase II Remedial Investigation. Received on October 2, 1997. A comment letter was sent to the base on November 5, 1997. Responses to these comments were received on December 2, 1997. No additional comments were generated.

Sampling results from the FS field effort were received via e-mail a few days prior to the conference call scheduled for November 5, 1997. A review was conducted and comments were generated for discussion.

A package of information containing screening technologies for remediation of ground water at Sites 2, 21, 41, 42 and 43. was received from IT Corp on November 12, 1997.

This information was reviewed in preparation for a meeting that was held on November 19, 1997.

Site Visits:

October 7:	Ohio EPA personnel performed oversight of the FS field effort.
October 8:	Ohio EPA personnel performed oversight of the FS field effort.
October 23:	Ohio EPA personnel performed oversight of the FS field effort.
November 3:	Ohio EPA personnel performed oversight of the FS field effort.

Meetings and Conference Calls:

October 28:	A meeting was held between the Rickenbacker Port Authority (RPA), Ohio EPA and the AFBCA at the RPA to discuss RPA concerns. Galileo Quality Institute facilitated the meeting. The meeting was successful in settling issues that the RPA had.
October 29:	A partnering session for Tier I/Tier II was held at Polen Farm, Kettering. This session included personnel from Rickenbacker ANGB and Gentile AFB.
November 4:	Ohio EPA personnel attended the Phase II Technical Assistance Visit (TAV) meeting
November 7:	Ohio EPA personnel attended the Phase II Technical Assistance Visit (TAV) meeting
November 5:	A conference call was held to discuss data gaps remaining from the FS data acquisition field effort. Two additional data gaps were noted and samples were collected from these areas.
November 7:	A Consensus Group meeting was to discuss a number of issues.
November 18:	Restoration Advisory Board meeting was held at the Hamilton Township Community Center. The main presentation was given by the Rickenbacker Port Authority - reuse over the next five years.
November 19:	Base Closure Project Team meeting was held on November 19, 1997 at the base. After the Project Team meeting, the FS Scoping meeting was held. IT Corp. presented the preliminary alternatives that they are considering for Sites 2, 21, 41, 42 and 43. Written response was requested from the agencies by November 26, 1997.

December 5: A conference call was held on December 5, 1997 to discuss the Ecological Risk Assessment for the Ditch System. The decision was made to discuss the site with the TAV peer review team the following week.

December 9: The Phase III TAV was conducted. The focus of the meeting was to conduct peer views of remaining projects.

December 10: The Phase III TAV was conducted. The focus of the meeting was to conduct peer views of remaining projects.

Accomplishments:

The data gaps from the remedial investigation were addressed and sampling was completed.

The Final Remedial Investigation Report is expected shortly.

A 6 year plan for future site activities was completed to provide information for the DSMOA Cooperative Agreement. Final sign-offs of the plan by Ohio EPA and the Air Force were completed on October 31, 1997.

Current Issues:

On October 6, Ohio EPA sent a response to the Rickenbacker Port Authority's letter requesting that the agencies state, in writing , that if the Air Force performs all investigations and remediations consistent with approved plans, that the RPA will not be required to do any further investigation, testing, remediation, or special handling of soils if they develop the property. In our letter, Ohio EPA stated under which conditions we would agree with the Air Force's finding that the property could be transferred. However, since the Port Authority requested a meeting to resolve this issue, on October 28, Ohio EPA and AFBCA meet with them. The resolution of this meeting is that Ohio EPA will send a letter to the Port Authority which further clarifies our position that, if we agree with the Air Force's Finding of Suitability to Transfer that no further investigation or remediation is necessary unless additional contamination is found. (This is conditional upon the understanding by Ohio EPA that the Air Force will not request a transfer of property at Rickenbacker ANGB on which the remediation is not in place at the time of transfer.)

On November 17, Ohio EPA sent a clarification to the Rickenbacker Port Authority concerning a previous October 6, 1997 letter in which Ohio EPA stated under which conditions we would agree with the Air Force's finding that the property could be transferred. In the November 17 letter, Ohio EPA clarified that, if we agree with the Air Force's Finding of Suitability to Transfer that no further investigation or remediation is

necessary unless additional contamination is found. (This is conditional upon the understanding by Ohio EPA that the Air Force will not request a transfer of property at Rickenbacker ANGB on which the remediation is not in place at the time of transfer.)

NEWARK AFB:

Document Review:

There were no documents were reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings held concerning the current or future clean-up during this reporting period.

Accomplishments:

A 2 year plan for future site activities was completed to provide information for the DSMOA Cooperative Agreement. Final sign-offs of the plan by Ohio EPA and the Air Force were completed on November 5, 1997.

Ohio EPA personnel provided technical assistance for proposed water line through AC-13. Drums were uncovered during the installation of this water line.

Ohio EPA personnel also state files (archived draft documents and indexed files).

TOLEDO AIR NATIONAL GUARD BASE:

Document Review:

The following documents were reviewed during this reporting period:

Final Engineering Evaluation/Cost Analysis Memorandum. Received last quarter. Currently under review.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Miscellaneous:

On November 17, Ohio EPA received the 2 year work plans and 6 year narratives for the Toledo ANG site. We are currently in the process of preparing our work load estimates based on these plans.

MANSFIELD LANHAM:

Document Review:

There following documents were reviewed during this reporting period:

Response to Comments on the Mansfield ANG Draft Site Investigation Report. Received on December 9, 1997. Verbal comments provided during conference call on December 23, 1997.

Site Visits:

There were no site visits during this reporting period.

Meetings:

December 23: Meeting between Ohio EPA and Air National Guard to discuss additional investigative work

Current Issues:

On December 23, a meeting was held between Ohio EPA and Air National Guard to discuss what additional investigative work the agency needed to make decisions on remediation of the Mansfield Lanham site. It appears that concerns about potential reuse of sites by the Mansfield airport may allow additional work to be funded at this facility. At this site, investigative work was scheduled to be funded until 2002-2005. During this call, the Ohio EPA also requested meeting with ANG officials to discuss a prioritization scheme for other Ohio sites to make best use of the available funding.

Miscellaneous:

Gasson Tfla has replaced Ralph Baker as the site coordinator for the Mansfield Lahnam Air National Guard.

On November 17, Ohio EPA received the 2 year work plans and 6 year narratives for the Mansfield Lahnam site. We are currently in the process of preparing our work load estimates, based on these plans and resolutions from the conference call on December 23.

DEFENSE ELECTRONICS SUPPLY CENTER (DESC) (GENTILE AFS):

Document Review:

The following documents were reviewed during this reporting period:

Defense Electronics Supply Center, Summary Report Inspection and Clearance Samples - - Water Tower Demolition. Received on October 22, completed November 20 (no comment letter submitted).

Proposed Protocol for Addressing Field Variations. Received on November 20, 1997. Comments submitted on December 8, 1997.

Implementation of the Remedy for the R2 Work Plan. Received on September 29, 1997. Comments submitted on December 8, 1997.

Evaluation of Background Ground Water proposal. Received on November 20, 1997. Comments submitted on December 8, 1997.

Draft Monitoring Well Height Adjustment and Repairs Report. Received on November 20, 1997. Comments submitted on December 15, 1997.

Quality Assurance Project Plan for the Phase II Remedial Investigation (to be revised for additional investigations). Received on November 20, 1997. Comments submitted on December 8, 1997.

Field Laboratory Standard Operating Procedure for the R2 Investigation. Received on November 20, 1997. Comments submitted on December 8, 1997.

Site Visits:

December 4:	Ohio EPA personnel conducted a well survey at the Defense Electronics Supply Center.
December 9:	Ohio EPA personnnel conducted a well survey at the Defense Electronics Supply Center.

Meetings:

October 20:	The former project manager, Tim Hull, and the new project manager, Cherrie Martin met with Gentile Air Force Base personal for a base tour
October 22:	Ohio EPA personnel participated in the Gentile Air Force Base Phase 2 RI comments resolution meeting in Chicago, Illinois
October 23:	Ohio EPA personnel participated in the Gentile Air Force Base BCT meeting in Chicago, Illinois
October 29:	Ohio EPA personnel participated in the Ohio Tier 1/Tier 2 Team Building Session at Polen Farm in Kettering, Ohio
November 20:	Ohio EPA personnel participated in the Gentilie Air Force Base BCT meeting
December 5:	Ohio EPA met with the City of Kettering to discuss possible remediation alternatives for the landfill and redevelopment issues concerning this area.
December 18:	Ohio EPA, U.S.EPA, and AFBCA participated on a conference call to resolve issues with the R2 Work Plan and issues concerning the validation of data from the Phase 2 RI.

Current Issues:

U.S.EPA's contractors continued their validation of data at the former Defense Electronics Supply Center in Kettering. This process should be completed by the end of December, and the BCT will met to resolve the issue of additional validation and data quality at their meetings in January. While the data is being validated, the BCT has agreed that other projects (such as the installation of additional monitoring wells at the R2 site and additional investigation of Parcel B) can move forward. Since the regulatory agencies have not yet received work plans for Parcel B, and the R2 site work plan has not yet been finalized, field work for these projects should begin in February.

In order to meet reuse needs for the City of Kettering, the BCT evaluated whether Parcel B can be transferred before the final remediation is in place. Since this would require that the governor approve the transfer, during this quarter, we began internal agency discussions as to whether approval of this type of transfer would occur faster than traditional approaches. After these discussions and discussions with the City of Kettering, the BCT has decided not to proceed with property transfer before the final remediation is in place.

Also, to try to streamline the schedule to make up for delays due to the data validation issue, there will be a joint Tier1/2 Meeting held on January 11 to discuss options.

Accomplishments:

On November 12, Ohio EPA personnel attended the City of Kettering's opening ceremony for the Kettering Business Park.

The Finding of Suitability to Transfer for Parcel D was also approved on October 2, 1997, and the property was transferred to the City of Kettering on October 14, 1997.

A 2 year work plan and 3-6 year narrative for future site activities was completed to provide information for the DSMOA Cooperative Agreement. Final sign-offs of the plan by Ohio EPA and the Air Force were completed in October 1997.

DEFENSE CONSTRUCTION SUPPLY CENTER (DCSC):

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Current Issues:

Though Ohio EPA has not approved a NFRAP for this facility, there is no environmental activities occurring or planned at this facility in the near future.

YOUNGSTOWN AIR RESERVE STATION:

Document Review:

There were no documents reviewed during this reporting period:

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings during this reporting period.

Current Issues:

Though we have requested the 2 year workplan and 3-6 year narrative for this facility, we have not yet received them from the Air Reserve. We need this information to develop work load estimates for this site.

PLUM BROOK ORDNANCE WORKS:

Document Review:

The following documents reviewed during this reporting period:

Site Investigations of the Reservoir Number 2 Burning Ground, Wastewater Disposal Plant Number 2 and Powerhouse Number 2 Ash Pit. Received April 28, 1997. Comments provided on November 7, 1997.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Current Issues:

Though we have requested the 2 year work plan and 3-6 year narrative for this facility, we have not yet received them from the ACOE. We need this information to develop work load estimates for this site.

SHARONVILLE ENGINEERING DEPOT:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Accomplishments:

Ohio EPA has issued a NFRAP letter for this facility, and has asked HQUSACE to delete this site from Attachment A to the DSMOA.

FORMER LOCKBOURNE AIR FORCE BASE:

Document Review:

The following documents were received during this reporting period:

Responses to Comments on the Addendums to the Expanded Phase II Remedial Investigation. Received on October 20, 1997. Replies to the responses were sent on November 19, 1997.

Draft Work Plan for the 1942 Fuel Line Closure. Received on October 8, 1997. comments were sent on November 5, 1997 to the Army Corps of Engineers (ACE). Responses to comments were received on November 21, 1997 and were acceptable. An approval letter was sent on December 2, 1997.

Site Visits:

There were no site visits during this reporting period.

Meetings:

November 24: A kick-off meeting was held at RANGB with ACE to discuss the work to begin on December 4, 1997 for the 1942 Fuel Line Closure on Rickenbacker Port Authority (RPA) property.

Accomplishments:

Field work has been completed in the investigation of the former Lockbourne AFB Landfill.

Work is also being scheduled for the former hospital. This will include the removal of PCB-contaminated soil and a small UST.

A 2 year work plan and 3-6 year narrative for future site activities was completed to provide information for the DSMOA Cooperative Agreement. Final sign-offs of the plan by Ohio EPA and the Army Corps of Engineers were completed on November 6, 1997.

Field work has been completed in the investigation of the former Lockbourne AFB Landfill.

Miscellaneous:

The first year of the contract to remove free product ended in September 1997 and was sent out for bid for a second year. A contractor is now in place as of December 1997 to resume free product removal.

NIKE CD-78:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Current Issues:

Recent sampling at the site indicates that contaminated ground water may be leaving the facility. ACOE will be forwarding plans to investigate this issue to Ohio EPA.

Though we have requested the 2 year work plan and 3-6 year narrative for this facility, we have not yet received them from the ACOE. We need this information to develop work load estimates for this site.

AIR FORCE PLANT 36:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

FORMER ERIE ARMY DEPOT:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Current Issues:

Due to the uncertainty about additional work for at this facility, ACOE has proposed that they revise the INPR for this site, and evaluate what additional work needs to be conducted at this facility. We will note this in the 2 year work plan and 3-6 year narrative for this facility, and use this information to develop work load estimates for this site.

FORMER SCIOTO ORDNANCE PLANT:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Current Issues:

Due to parents' concerns about the increased cancer rates among graduates of River Valley Schools, Ohio EPA has conducted sampling and hired a contractor to conduct geophysical surveys of the school grounds. The state of Ohio is funding this effort, and this work is not being funding under the DSMOA. However, Ohio EPA has been coordinating these efforts with ACOE. Once the investigations are completed, Ohio EPA will provide the information to ACOE for use in scoping their investigations of this facility and the former Marion Engineering Facility.

Due to the uncertainty about additional work for at this facility, we have not yet received a 2 year work plan and 3-6 year narrative for future site activities. We need this information to develop work load estimates for this site. Based on citizen concerns about this facility, Ohio EPA anticipates that our work load may significantly increase at this site.

LORDSTOWN ORDNANCE PLANT:

Document Review:

The following documents were reviewed during this reporting period:

Draft Work plan, Remedial Investigation, Former Lordstown Ordnance Depot, OH. Received on October 16, 1997. Comments were provided October 21,1997 (verbally) and via correspondence on October 23, 1997.

Remedial Investigation, Former Lordstown Ordnance Dept, Lordstown, OH, Risk Assessment Assumptions Document, Part 1 - Human Health Risk Assessment, Part 2 - Ecological Risk Assessment. Received on November 5, 1997. Comments were provided on December 5, 1997.

Site Visits:

October 21:	Ohio EPA personnel provided oversight of remedial investigation (RI) field activities
October 22:	Ohio EPA personnel provided oversight of remedial investigation (RI) field activities

October 23: Ohio EPA personnel provided oversight of remedial investigation (RI) field activities

October 24: Ohio EPA personnel provided oversight of remedial investigation (RI) field activities

October 28: Ohio EPA provided oversight of remedial investigation (RI) field activities

October 29: Ohio EPA provided oversight of remedial investigation (RI) field activities

Meetings and Conference Calls:

There were no meetings concerning the current or future clean-up during this reporting period.

Miscellaneous:

Numerous phone calls with the US Army Corps of Engineers (USACE), IT Corporation, and the general public, regarding a variety of issues at the site.

Accomplishments:

A 2 year work plan and 3-6 year narrative for future site activities was completed to provide information for the DSMOA Cooperative Agreement. Final sign-offs of the plan by Ohio EPA and the Army Corps of Engineers were completed on September 19, 1997.

COLUMBUS NAVAL AIR STATION:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

RIDGEWOOD WEAPONS PLANT:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Accomplishments:

A 2 year work plan and 3-6 year narrative for future site activities was completed to provide information for the DSMOA Cooperative Agreement. This information is being used by Ohio EPA to develop work load estimates for this site.

OhioEPA
State of Ohio Environmental Protection Agency
Southwest District Office
401 East Fifth Street
Dayton, Ohio 45402-2911
(513) 285-6357
FAX (513) 285-6249

6/8/98

George V. Voinovich
Governor

June 4, 1998

John Cicero
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Cicero:

Please find enclosed the Ohio EPA's Quarterly Report for the period January 1, 1998 through March 31, 1998 detailing activities related to the DSMOA. Since your installation is covered under the DSMOA, we are providing you a copy of our report for your information.

If you have any questions or comments concerning this report, please contact me at (937) 285-6018 or Bonnie Buthker at (937) 285-6469.

Sincerely,

Graham Mitchell, Chief
Office of Federal Facilities Oversight

OHIO DSMOA

Quarterly Report

January 1, 1998 through March 31, 1998

During the past three months, the Ohio Environmental Protection Agency, Office of Federal Facilities Oversight (OFFO) and Division of Emergency and Remedial Response (DERR), performed or participated in the following services under the DSMOA:

ADMINISTRATION:

Personnel Services:

There have been no personnel changes since last quarter.

Training:

One DoD Site coordinator attended training on injection well regulations held in Dayton, Ohio on March 18, 1998.

Meetings:

During this quarter, Ohio EPA has been meeting with installation points of contact to complete Step 4 of the CA process. We hope to have all issues concerning our projected work loads resolved by April 3, and hope to submit our application to HQUSACE by April 30.

Programmatic Accomplishments:

On January 16, a conference call was held between Ohio EPA, AFBCA, and HQUSACE concerning our CA extension. AFBCA had requested a conference call to discuss our budget estimates for the Rickenbacker ANG and Gentile AFS sites. All issues were resolved during this call. Unless there are additional comments on our CA extension, HQUSACE will approve it very soon.

The Draft Environmental Site Closeout Guidance was received on February 4, 1998. Ohio EPA reviewed the guidance, and emailed comments to AFBCA HQ on February 8, 1998.

Current Programmatic Issues:

During January, at the request of HQUSACE, Ohio acted as the lead for the Region 5

states in gathering issues on the CA process and determining a representative for the Tiger Team for the CA guide. After several conference calls and emails this week, the Region 5 states decided that they would request that HQUSACE delay the formation and meeting of the Tiger Team until after completion of the 6 step process. Originally, HQUSACE wanted the tiger team to meet in February.

During February, Ohio EPA participated in a conference call with the state of Washington, Idaho, and Headquarters, ACOE concerning the Tiger Team for the CA process. The state of Washington had raised concerns regarding the purpose, intent, and composition of the team. Ohio supported Washington's comments, and Headquarters, ACOE has decided to evaluate their original plan of action for the Tiger Team.

In March, Ohio EPA participated in a conference call with the state of Washington, and Louisiana concerning the proposed DSMOA Program Review. Though we are supportive of an evaluation of this program, we have concerns that the Program Review may be too broad, and unable to achieve its goals. After this call, Ohio and Washington developed comments on the review, and forwarded these comments to other states and the ASTSWMO DoD Current Issues Task force for their consideration.

RAVENNA ARMY AMMUNITION PLANT:

Document Review:

The following documents were reviewed during this reporting period:

Reviewed the following documents during the quarter that did not require generating formal comments: UXO documents; the "dirty transfer" amendment; OEW handouts, historical waste handling practices documents, and various Physics International Letters.

Draft Statement of Work (SOW) for the Radiological Field Screening (dated January 23, 1998). Comments submitted to USACE on January 26, 1998.

Draft SOWs for the Ramsdell Quarry Groundwater Investigation (dated January 30, 1998). Comments submitted to NEDO DSIWM on February 5, 1998.

Reviewed fish tissue data from Cobbs Pond (received on February 10, 1998) and distributed to other OEPA divisions. No comments were warranted or generated.

Draft SOW for RCRA Areas of Concern (AOCs) at the RVAAP (received February 9, 1998). Comments were submitted to OEPA DHWM on February 11, 1998.

Final replacement pages for the Phase 1 Remedial Investigation Report (received on

February 23, 1998). No comments were generated. The report is considered final.

Draft RCRA Closure, Field Investigation Report for the Deactivation Furnace Area, Open Detonation Area, Building 1601, and the Pesticides Building, Ravenna Army Ammunition Plant. Received at NEDO on March 6, 1998. Comments were generated and submitted to DHWM on March 10, 1998.

Draft Sampling and Analysis Plan Addendum for the Phase II Remedial Investigation for Winklepeck Burning Grounds at the Ravenna Army Ammunition Plant, Ravenna, Ohio. Received at NEDO on January 23, 1998. Comments were submitted to USACE on March 10, 1998.

Draft SOW for the Phase II Remedial Investigation at Load Line 1 (received February 25, 1998). Comments were submitted to USACE on March 12, 1998.

USACHPPM Responses To Comments (RTC) on the RRSE report for the unranked AOCs at the RVAAP. The RTC were received on March 16, 1998. Reviewed by OEPA on March 24, 1998.

Site Visits:

February 10: OEPA Personnel viewed buildings containing asbestos to evaluate proposal to pump water from basements.

Meetings and Conference Calls:

Participated in the following meetings related to current and future clean-up activities:

February 10: Meeting between OEPA and RVAAP to view the buildings and to discuss the proposal to pump water out of potentially-asbestos containing basements.

February 18: Meeting between OEPA, RVAAP, and ACOE personnel to discuss the following issues: RCRA closures, Ramsdell Quarry Landfill, the Pesticide Building, PCB issues, and the Installation Action Plan.

February 19: Meeting between OEPA, RVAAP, and ACOE personnel to discuss the following issues: RCRA closures, Ramsdell Quarry Landfill, the Pesticide Building, PCB issues, and the Installation Action Plan.

February 20: Meeting between OEPA, RVAAP, and ACOE personnel to

discuss the following issues: RCRA closures, Ramsdell Quarry Landfill, the Pesticide Building, PCB issues, and the Installation Action Plan.

March 5: OEPA meeting with a local geology professor and graduate student regarding potential thesis topics at the RVAAP.

March 16: Conference call with CO DERR EAU to discuss ecological risk and human health risk assessments.

March 17: Meetings at the RVAAP on March 17-19, 1998 with all stakeholders to discuss risk/ecological assessment issues; the Winklepeck Burning Grounds; and Load Line 1.

March 18: Meetings at the RVAAP on March 17-19, 1998 with all stakeholders to discuss risk/ecological assessment issues; the Winklepeck Burning Grounds; and Load Line 1.

March 24: Additional OEPA meeting with a local geology professor and graduate student regarding potential thesis topics at the RVAAP.

March 18: Restoration Advisory board Meeting at Windham Town Hall

March 19: Ohio EPA personnel participated in two conference calls with Army Corps of Engineers and Army IOC to discuss the proposed work loads for Ravenna Army Ammunition Plant for the Cooperative Agreement .

Miscellaneous:

Numerous phone calls with IOC, USACHPPM, USACE, RVAAP, SAIC, OFFO SWDO, NGB, ONG, consultants, reporters, and the general public regarding site-related issues.

Numerous in-house discussions regarding site-related issues.

Accomplishments:

Finalized OEPA budget projections for the RVAAP in February 1998 and revised them in March 1998.

Current Issues:

Drafted a memo dated February 9, 1998 that detailed OEPA's position regarding the discharge of water from flooded basements which potentially contained asbestos. Informed RVAAP personnel that the sediments (in the basements) must be characterized prior to being sent off-site for disposal.

WRIGHT-PATTERSON AIR FORCE BASE:

Document Review:

The following documents were reviewed during this period:

Response to Agency Comments for the Draft Site Investigation Report for Burial Site 5 & 6. Received on January 12, 1998. Comments submitted on January 23, 1998.

Response to Comments on the OU4 RI Addedum, Risk Assessment Assumptions Document/Semi-Quantitative Risk Assessment. Received on January 14, 1998. Comments submitted on January 28, 1998.

Removal Action System Performance Report for Operable Unit 1 at WPAFB. Received on October 31, 1997. Review completed, and no comments were provided.

Quarterly Progress Report for Operable Unit 8 Downgradient Area of Petroleum Contamination, Bio-slurper Treatment System. Received on December 26, 1997. Comment letter submitted February 13, 1998.

Engineering Evaluation/Cost Analysis for the Basewide Monitoring Program. Received on January 2, 1998. Comment letter submitted on February 25, 1998.

Ecological Risk Assessment for the Basewide Monitoring Program. Received on January 2, 1998. Comment letter submitted on February 6, 1998.

Task Order, Final Report for Landfills 6 and 7, Operable Unit 4. Received on January 15, 1998. Comment letter submitted on February 26, 1998.

Monitoring Well 16 Data for Bio-Slurper Operations. Received on January 16, 1998. Completed review (no comments provided) on February 13, 1998.

Burial Sites 5 and 6, Supplemental Herbicide Sampling. Received on January 16, 1998. Completed review (no comments provided) on January 23, 1998.

DRMO Scrap Pile Investigation Soil Sampling Results. Received on January 21, 1998.

Comment letter submitted on February 26, 1998.

Landfill Gas Monitoring Technical Memorandum for Operable Unit 4. Received on January 23, 1998. Comment letter submitted on February 26, 1998.

Operable Unit 4 Remedial Investigation Addendum, Final Semi-Quantitative Risk Assessment. Received on February 24, 1998. Comment letter submitted on March 17, 1998.

Draft Addendum to the Remedial Investigation for Operable Unit 4. Received on March 17. Currently under review.

Landfill 9 Capping Presumptive Removal Action Memorandum. Received on February 25, 1998. Currently under review.

Draft Final Task Order Report and Operation and Maintenance Plan for Operable Unit 4, Landfills 6 & 7. Received on March 17, 1998. Currently under review.

Independent Engineer's Certification Report for Operable Unit 1, Landfills 8 and 10. Received March 17, 1998. Currently under review.

Site Visits:

January 22:	Ohio EPA provided field oversight at WPAFB Spill Site 11
February 11:	Ohio EPA provided oversight at WPAFB Spill Site 11.
February 19:	Ohio EPA provided oversight at WPAFB Spill Site 11.
February 23:	Ohio EPA provided oversight at WPAFB Spill Site 11.
March 6:	Ohio EPA provided oversight at WPAFB Spill Site 11.
March 9:	Ohio EPA provided oversight at WPAFB Spill Site 11.
March 30:	Ohio EPA provided oversight at WPAFB Spill Site 11.

Meetings and Conference Calls:

Participated in the following meetings related to current and future clean-up activities:

January 15:	Ohio EPA met with WPAFB to discuss our workload projections for the DSMOA Cooperative Agreement for July 1, 1998 through June 30, 1998.

AIR FORCE PLANT #85:

Document Review:

The following documents were reviewed during this period:

Addendum to the Environmental Baseline Survey for Air Force Plant 85, Columbus, OH. Received on December 17, 1997. Comments submitted to the Air Force on January 23, 1998.

Air Force Response to OEPA Comments and Replacement Pages for the Draft Final Addendum to the Environmental Baseline Survey. Received on February 25. 1998. Approval letter sent on March 4, 1998.

Statement of Work for Phase II investigation activities that will be conducted for VAP eligible site at Air Force Plant 85, Columbus, OH. Received on December 17, 1997. Comments were submitted to the Air Force on January 23, 1998.

Revised Statement of Work for Phase II investigation activities that will be conducted for VAP eligible site at Air Force Plant 85, Columbus, OH. Received on February 19, 1998. Approval letter was sent on March 16, 1998.

PCB Evaluation and Decontamination Project US Air Force Plant 85, Columbus, Ohio (October, 1997). Received on January 9, 1998. Comments were submitted to the Air Force on January 23, 1998.

Response to Ohio EPA comments on the PCB Decontamination Project. Received on February 12, 1998. Approval letter sent on February 23, 1998.

PCB Evaluation and Decontamination Project, United States Air Force Plant 85 Columbus, Ohio. Received on February 26, 1998. Approval letter sent on March 9, 1998.

Task Order Final Report--Draft Final, Soil Remediation at Air Force Plant 85, Columbus, Ohio. Received on February 25, 1998. Comment letter submitted to the Air Force on March 13, 1998.

*Draft Final Report, Plenum Remediation; Industrial and Sanitary Sewer Assessment; and Underground Storage Tank Remediation/Closure (*OHM Remediation Services, January 1998). Received on February 3, 1998. Approval letter sent on February 18, 1998. Results will be evaluated by Earth Tech to complete closure of these sites.

Results of Soil, Ground-Water, Surface-Water, and Streambed-Sediment Sampling at Air Force Plant 85, Columbus, Ohio, 1996. USGS, Open-File Report 97-641. Received on March 3, 1998. Currently under review.

On 1/12/98, Ohio EPA received copies of four investigation reports from the 4300 East Fifth Ave. LLC (current owners). Reports provide sample results for pre-construction investigations for the following areas: Alley between Bldg. 6 and 7, gas line between Bldg. 4 and 6, Stelzer Road entrance road, and Bldg. 125.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings held concerning the current or future clean-up during this reporting period.

Accomplishments:

The removal of 98.46 tons of PCB contaminated soil and concrete and 25,310 gallons of water was completed at Site 3.

The USGS hydro geologic investigation report was finalized and published.

Concurrence granted for the Phase II, VAP Eligible Sites Work Plan and the EBS Addendum.

The plenum, sewer, and UST activities were completed and report approved.

PCB Decontamination Project was approved, additional work planned for remaining areas.

Miscellaneous:

At the request of the Columbus International Air Center owners, Ohio EPA determined that the property qualifies as a "qualified contaminated site" under the US Taxpayer Relief Act (HR2014/PL 105-34), Brownsfield Tax Incentive. This qualification was determined in a 2/23/98 letter to the owners.

On March 27, 1998, Ohio EPA received comments on the work load estimates prepared for Air Force Plant 85. After a conference call on March 31, all issues were resolved and revised estimates were faxed to Karl Kunas, Air Force on April 1, 1998.

SPRINGFIELD MPT (BECKLEY):

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

March 16: Ohio EPA split ground water samples at Springfield ANG.

Meetings:

February 11: Ohio EPA attended the Public Meeting interview for the Springfield National Guard site.

Miscellaneous:

Ohio EPA has prepared our work load estimates based on the 2 year work plans and 6 year narratives for the Springfield ANG site. We have forwarded these estimates to the Air National Guard for their review.

BLUE ASH NGS:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings held concerning the current or future clean-up during this reporting period.

Accomplishments:

On December 15, 1997, Ohio EPA signed the NFRAP decision document for this facility. On January 8, 1998, we sent a letter HQUSACE to request that this site be deleted from Attachment A to the DSMOA.

RICKENBACKER AGB:

Document Review:

The following documents were reviewed during this reporting period:

Final Phase II Remedial Investigation Report for Rickenbacker ANG, OH. Received on January 29, 1998. A letter was sent to the base on February 24, 1998 indicating that Ohio

EPA's comments and concerns had been addressed. However, there were some omissions that were noted.

Draft Feasibility Study Report for Rickenbacker ANG, OH. Received on February 2, 1998. Comments were sent to the base on March 6, 1998.

Feasibility Study Data Validation Report for Rickenbacker ANG, OH. Received on March 4, 1998. Comments were sent to the base on March 25, 1998 asking for additional information.

Eleven No Further Remedial Action Planned Decision Documents for Rickenbacker ANG, OH. Received on February 10, 1998. Comments were sent to the base on March 19, 1998.

The Scientific/Management Decision Point, IRP Site 25. Received on March 6, 1998 for a review and discussion that was conducted on March 18, 1998. Ohio EPA had no comments beyond the comments submitted by U.S. EPA.

Site Visits:

There were no site visits during this reporting period.

Meetings and Conference Calls:

January 6:	BCT Project Team meeting was held. The opening exercise was a group effort to set up a chart for handling conflict. Galileo will finalize it after the team reviews the draft copy. The remainder of the meeting was spent updating members on current projects, including the publication of the Final RI Report and the Draft FS Report, an update on Sites 6 and 45 and a letter report on Buildings 550 and 553.
January 14:	A conference call was held between AFBCA, U.S.EPA, and Ohio EPA to discuss the data validation of sampling results obtained under the FS Data Acquisition Plan. The issue was settled.
January 12:	Conference call held between AFBCA, U.S.EPA, and Ohio EPA to discuss outstanding issues.
January 26:	Conference call held between AFBCA, U.S.EPA, and Ohio EPA to discuss outstanding issues.
February 17:	A Restoration Advisory Board Meeting was held at the Hamilton Township Community Center at 7 p.m. A short discussion was given on the sites from the Phase II RI that will receive NFRAP

DDs. The five FS sites were also discussed and updates were given on the Army Corps of Engineers projects.

February 18: A BCT Project Team meeting was held. The facilitator had a few things to cover before beginning remediation related discussions.

March 18: A meeting was held between U.S.EPA, OEPA, and AFBCA to discuss the Scientific/Management Decision Point, IRP Site 25. Brenda Jones, U.S. EPA was connected by telephone. There are some issues to iron out.

March 18: Ohio EPA participated in a conference call with AFBCA to discuss the proposed work loads for Rickenbacker ANG for the Cooperative Agreement .

March 23: BCT Project Team meeting was held. The meeting was very short because the facilitator was not present to finish three items. Updates were minimal.

March 23: A meeting was held between Ohio EPA, U.S.EPA, and AFBCA to discuss the FS Report responses to comments. A number of concerns are outstanding and are being worked through.

Accomplishments:

The RI Report has been finalized.

Current Issues:

There are issues between U.S.EPA, Ohio EPA, and AFBCA with the Feasibility Study report which are being worked through.

NEWARK AFB:

Document Review:

There were no documents were reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

March 19: Ohio EPA met with AFBCA to discuss the proposed work loads for the former Newark AFB for the Cooperative Agreement.

TOLEDO AIR NATIONAL GUARD BASE:

Document Review:

The following documents were reviewed during this reporting period:

Final Engineering Evaluation/Cost Analysis Memorandum. Received last quarter. Currently under review.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Miscellaneous:

On November 17, Ohio EPA received the 2 year work plans and 6 year narratives for the Toledo ANG site. We have prepared our work load estimates based on these plans. We have forwarded these estimates to the Air National Guard for their review.

MANSFIELD LANHAM:

Document Review:

There were no documents were reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Miscellaneous:

On November 17, Ohio EPA received the 2 year work plans and 6 year narratives for the Mansfield Lahnam site. We have prepared our work load estimates, based on these plans and resolutions from the conference call on December 23. We have forwarded these estimates to the Air National Guard for their review.

ZANESVILLE AIR NATIONAL GUARD:

Document Review:

Review is ongoing of the preliminary assessment/NFA for this facility.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Miscellaneous:

A meeting/site visit with ANG has been scheduled for next quarter to address remaining Ohio EPA concerns about this facility.

DEFENSE ELECTRONICS SUPPLY CENTER (DESC) (GENTILE AFS):

Document Review:

The following documents were reviewed during this reporting period:

Phase 2 Quality Assurance Project Plan for Gentile AFS. Reviewed for revision and update to perform the R2 and Parcel B investigations. Comments submitted on January 16, 1998.

City of Kettering's Draft Defense Electronic Supply Center, Landfill Report. Received on January 8, 1998. Approval letter sent on February 13, 1998.

R2 Work Plan for Gentile Air Force Station. Received on February 4, 1998. Approval letter sent on February 17, 1998.

Parcel B Work Plan for Gentile Air Force Station. Received on February 12, 1998. Approval letter sent on February 17, 1998.

Finding of Suitability to Transfer for Parcel F. Received on February 3, 1998. Approval letter sent on February 6, 1998.

Finding of Suitability to Transfer for Parcel C. Received on February 25, 1998. Currently under review.

Review of the Phase I/Phase II RI and Proposal for re-sampling points for Supplemental Remedial Investigation. Proposal completed on March 19, 1998.

Scope of Work for Surface Geophysics at Parcel E Landfill site (D1). Received on March 11, 1998. Approval letter sent on March 25, 1998.

Draft Quality Assurance Project Plan for the Supplemental Remedial Investigation at Gentile Air Force Station. Received on March 30, 1998. Currently under review.

Draft No Further Remedial Action Planned for the Sites in Parcel B. Received on February 25, 1998. Currently under review.

Draft Supplemental RI Work Plan for Parcel E at Gentile Air Force Station. Received on March 31. Currently under review.

Site Visits:

February 16:	Ohio EPA provided oversight at Site R2 and Parcel B at Gentile AFS.
February 17:	Ohio EPA provided oversight at Site R2 and Parcel B at Gentile AFS.
February 20:	Ohio EPA provided oversight at Site R2 and Parcel B at Gentile AFS.
February 23:	Ohio EPA provided oversight at Site R2 and Parcel B at Gentile AFS.
February 25:	Ohio EPA provided oversight at Site R2 and Parcel B at Gentile AFS.
February 26:	Ohio EPA provided oversight at Site R2 and Parcel B at Gentile AFS.
February 27:	Ohio EPA provided oversight at Site R2 and Parcel B at Gentile

AFS.

March 5: Ohio EPA provided oversight at Site R2, Parcel B, and D1 at Gentile AFS.

March 6: Ohio EPA provided oversight at Site R2, Parcel B, and D1 at Gentile AFS.

March 9: Ohio EPA provided oversight at Site R2, Parcel B, and D1 at Gentile AFS.

March 10: Ohio EPA provided oversight at Site R2, Parcel B, and D1 at Gentile AFS.

March 12: Ohio EPA provided oversight at Site R2, Parcel B, and D1 at Gentile AFS.

March 31: Ohio EPA provided oversight at Site R2, Parcel B, and D1 at Gentile AFS.

Meetings:

January 7: Ohio EPA attended the Tier 1/2 meeting for the former Gentile Air Force Station (also know as the Defense Electronics Supply Center) site.

January 8: The Gentile Base Closure Team meeting was held.

January 20: Ohio EPA, U.S.EPA, and AFBCA participated on a conference calls to resolve issues with the R2 Work Plan and field laboratory.

January 27: Ohio EPA, U.S.EPA, and AFBCA participated on a conference calls to resolve issues with the R2 Work Plan and field laboratory.

January 29: Ohio EPA, U.S.EPA, and AFBCA participated on a conference calls to resolve issues with the R2 Work Plan and field laboratory.

February 4: Ohio EPA, AFBCA, U.S.EPA, and AFCEE participated in a conference call to discuss the QAPP for the R2, Parcel B, and Supplemental RI.

February 6: Ohio EPA, AFBCA, U.S.EPA, and AFCEE ground water technical support participated in a conference call to discuss the Parcel B work plan.

February 10:	Ohio EPA, AFBCA, U.S.EPA, and AFCEE participated in a conference call to select a laboratory and discuss the R2 Work Plan.
February 12:	Ohio EPA, AFBCA, U.S.EPA, and AFCEE participated in a conference call to discuss the Parcel B Work Plan.
February 23:	The Gentile Restoration Advisory Board Meeting was held.
February 24:	The Gentile Base Closure Team meeting was held..
February 26:	Ohio EPA and U.S.EPA participated in a conference call as preparation for the QAPP meeting on March 3 and 4.
March 2:	Ohio EPA, AFBCA, U.S.EPA, and AFCEE participated in a conference call to discuss the scope of work for the Geophysical Survey for D1, and Parcel B Field variances.
March 3:	Ohio EPA, AFBCA, U.S.EPA, and AFCEE met to develop the QAPP for the Supplemental Remedial Investigation at Gentile AFS.
March 4:	Ohio EPA, AFBCA, U.S.EPA, and AFCEE met to develop the QAPP for the Supplemental Remedial Investigation at Gentile AFS.
March 10:	Ohio EPA, AFBCA, U.S.EPA, and AFCEE participated in a conference call to discuss the R2 Field Work.
March 17:	Ohio EPA, AFBCA, U.S.EPA, and AFCEE participated in a conference call to discuss the revised scope of work for the Geophysical Survey for D1.
March 19:	The Gentile Restoration Advisory Board Meeting was held.
March 23:	Ohio EPA, AFBCA, U.S.EPA, and AFCEE participated in a conference call to discuss remaining outstanding issues from the development of the QAPP for the Supplemental Remedial Investigation at Gentile AFS.
March 27:	Ohio EPA met with AFBCA to discuss the proposed work loads for Gentile AFS for the Cooperative Agreement .
March 27:	Ohio EPA, AFBCA, and the City of Kettering met with the City of Oakwood to discuss ground water contamination at Gentile AFS.

March 31: Ohio EPA, AFBCA, U.S.EPA, and AFCEE participated in a conference call to discuss Section 6.3 of the Parcel B work plan.

Current Issues:

On January 7, a joint Tier 1/Tier 2 meeting was held for the former Defense Electronics Supply Center in Kettering. Two major issues were discussed: resolution of the data validation issue from the Phase 2 RI, and the project schedule for this site. In regards to the data validation issue, the BCT agreed that the Phase 2 data would be used for screening purposes only. Instead of continuing with the validation of existing data, resampling of the ground water will be conducted. These new data will be used to make remedial decisions (and property transfers) concerning the parcels. The Teams also discussed options for streamlining the existing schedule.

On January 14, John Carr, AFBCA Regional Manager, met with U.S.EPA, OEPA, AFBCA, and City of Kettering representatives to discuss the City's concerns about lack of progress for this site. Ron Lester, WPAFB EM Deputy Director, also attended the meeting to discuss options for streamlining the existing schedule. Major resolutions from this meeting was a commitment by all parties to resolve issues so that the geoprobe field work may begin on February 16. Also, the Air Force committed to conduct a non-intrusive investigation of the Landfill area (Parcel B) to determine if sources may be present in the Landfill. The Air Force will then use this information to determine future actions at this site.

Accomplishments:

On February 16, the geoprobe ground water investigation for the R2 and Parcel B sites began at the former Gentile Air Force Base in Kettering. So that this investigation would not be delayed, Ohio EPA, U.S.EPA, and the Air Force used expedited document reviews to speed up the approval process. In addition, as concerns about the proposed investigation arose, all parties participated in conference calls to resolve issues. It was a challenge for the team to meet this deadline, and they did an excellent job accomplishing their goal.

A 2 year work plan and 3-6 year narrative for future site activities was completed to provide information for the DSMOA Cooperative Agreement. Final sign-offs of the plan by Ohio EPA and the Air Force were completed in October 1997. These work plans were used to develop the work load estimates for Ohio EPA. Outstanding issues concerning these estimates were resolved with AFBCA on March 27.

DEFENSE CONSTRUCTION SUPPLY CENTER (DCSC):

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Current Issues:

Though Ohio EPA has not approved a NFRAP for this facility, there is no environmental activities occurring or planned at this facility in the near future.

YOUNGSTOWN AIR RESERVE STATION:

Document Review:

The following documents were reviewed during this reporting period:

Remedial Action Investigation Report for Youngstown Air Force. Received on February 12, 1998. Comments were submitted on March 19, 1998.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings during this reporting period.

Accomplishments:

In March, Youngstown Air Force Reserve has been working with Ohio EPA on finalizing the two year work plans and work load estimates for the Cooperative Agreement. Agreement was reached and the work plans were signed on April 10, 1998.

PLUM BROOK ORDNANCE WORKS:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Current Issues:

Ohio EPA received the 2 year work plan and 3-6 year narrative for this facility from ACOE on April 2, 1998. We are currently using this information to prepare work load estimates, which will be forwarded to the ACOE for their review.

SHARONVILLE ENGINEERING DEPOT:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Accomplishments:

Ohio EPA has issued a NFRAP letter for this facility. On January 8, 1998, we sent a letter HQUSACE to request that this site be deleted from Attachment A to the DSMOA.

FORMER LOCKBOURNE AIR FORCE BASE:

Document Review:

The following documents were received during this reporting period:

Revised Addendum to the Quality Assurance Project Plan and the Addendum to the Field Sampling Plan for the Expanded Phase II RI. Received on December 22 and 23, 1997 respectively. Comments were submitted on January 28, 1998.

Responses to Comments on the January 28, 1998 OEPA Comment Letter on the Revised Addedum to the Quality Assurance Project Plan and Field Sampling Plan. Received on February 18, 1998. A conference call was held on March 6, 1998 with the Army Corps of Engineers and Maxim Technologies to discuss remaining concerns. These were resolved.

Draft Work Plan Addenda for the Former Hospital Project. Received on February 10, 1998. Comments were submitted to the corps on February 18, 1998. The final document was received on February 20, 1998 and was approved on February 24, 1998.

Site Visits:

February 25:	Ohio EPA personnel conducted a site visit at the Former Hospital. The UST had been removed and soil stockpiled pending sample analysis. The PCB removal was slated to begin but was held up to get additional equipment.
March 26:	Ohio EPA personnel conducted a site visit to observe AOC#3 of the UST Soil Contamination soil boring installation.

Meetings:

March 19:	A conference call was held between IT Corp., the corps and Ohio EPA to give the corps guidance in continuing excavation of the PCB soil contamination at the former hospital. The DERR/PCB Unit was involved in the call.

Accomplishments:

Excavations were completed at the Former Hospital to address a UST removal and PCB contaminated soil at a transformer pad.

Miscellaneous:

Dioxin has been found in soil, sediment, surface water and ground water at the landfill.

The Army Corps of Engineers is putting together a scope of work to collect additional samples to confirm results and look for possible sources.

NIKE CD-78:

Document Review:

There following documents were reviewed during this reporting period:

Recommendations Memorandum from the Focused Feasibility Study for the NIKE CD-78 site. The results have confirmed the off-site migration of VOC contamination. ACOE now plans to conduct a supplemental RI to determine the nature and extent of this contamination.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Current Issues:

Recent sampling at the site indicates that contaminated ground water may be leaving the facility. ACOE will be forwarding plans to investigate this issue to Ohio EPA.

We have recently received the 2 year work plan and 3-6 year narrative for this facility from the ACOE. Ohio EPA has used this information to develop work load estimates for this site, which were forwarded to ACOE for comment.

FORMER ERIE ARMY DEPOT:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Current Issues:

Due to the uncertainty about additional work for at this facility, ACOE has proposed that they revise the INPR for this site, and evaluate what additional work needs to be conducted at this facility. We will note this in the 2 year work plan and 3-6 year narrative for this facility, and use this information to develop work load estimates for this site.

FORMER SCIOTO ORDNANCE PLANT:

Document Review:

The following documents were reviewed during this reporting period:

Work Breakdown Structure for Marion Engineering and Scioto Ordnance Plant Investigations. Received on March 6, 1998. Comments provided on March 10, 1998.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Current Issues:

Due to parents' concerns about the increased cancer rates among graduates of River Valley Schools, Ohio EPA has conducted sampling and hired a contractor to conduct geophysical surveys of the school grounds. The state of Ohio is funding this effort, and this work is not being funding under the DSMOA. However, Ohio EPA has been coordinating these efforts with ACOE. Once the investigations are completed, Ohio EPA will provide the information to ACOE for use in scoping their investigations of this facility and the former Marion Engineering Facility.

Ohio EPA has recently received the 2 year work plan and 3-6 year narrative for future site activities. We will use this information to develop work load estimates for this site.

FORMER MARION ENGINEERING DEPOT:

Document Review:

The following documents were reviewed during this reporting period:

Work Breakdown Structure for Marion Engineering and Scioto Ordnance Plant Investigations. Received on March 6, 1998. Comments provided on March 10, 1998.

Work Plan and Health and Safety Plan for Trenching at the Marion Engineering Depot. Plan reviewed and approved prior to field work on March 28, 1998.

Site Visits:

March 28:	Ohio EPA personnel observed the trenching activities on the grounds of the River Valley Schools
March 29:	Ohio EPA personnel observed the trenching activities on the grounds of the River Valley Schools

Meetings:

February 12:	Ohio EPA, Marion County and City Health Departments, Ohio Department of Health, and ACOE met to discuss the investigative strategy for River Valley Schools (i.e. Marion Engineering Depot) site

Miscellaneous:

Numerous phone calls with the US Army Corps of Engineers (USACE), the media, and the general public, regarding a variety of issues at the site. Due to public concerns about this facility, numerous public meetings have been held and press releases have been issued for this site. All public meetings and press releases have been coordinated with ACOE.

Current Issues:

Due to parents' concerns about the increased cancer rates among graduates of River Valley Schools, Ohio EPA conducted sampling and geophysical surveys of the school grounds. The state of Ohio funded this effort, and this work was not funded under the DSMOA. However, Ohio EPA coordinated these efforts with ACOE. Ohio EPA has

forwarded the results of these studies to ACOE for use in scoping their investigations of this facility and the former Scioto Ordnance Plant.

On March 29 and 30, contractors working for ACOE conducted trenching activities on the grounds of the River Valley School. During this investigation, two small trenches were uncovered that appear to contain significant amounts of free product in the saturated ground water zone. Due to concerns over the potential for contaminants to be released into the air and surface soils, Ohio EPA advised the contractor to immediately cease trenching and cover the trench. As the ground water was saturating the surface, it became necessary to add soils from other portions of the school property to temporarily cover the trench. Further investigation and a possible removal action may need to be implemented to recover the free product that was found.

Ohio EPA has recently received the 2 year work plan and 3-6 year narrative for future site activities. We will use this information to develop work load estimates for this site.

LORDSTOWN ORDNANCE PLANT:

Document Review:

The following documents were reviewed during this reporting period:

Historical records and tax maps were reviewed on February 5, to determine potential boundaries of the facility for investigative purposes.

Site Visits:

February 3:	Site visit to discuss the logistics of time-critical removal action at the on-site waste oil pit. In addition, verbal results from the on-site sampling of the TAMPEEL spring source were presented to the TAMPEEL director.

Meetings and Conference Calls:

February 2:	Ohio EPA and ACOE met to discuss the logistics of a time-critical removal action at the on-site waste oil pit.

Miscellaneous:

Numerous phone calls with the US Army Corps of Engineers (USACE), IT Corporation, and the general public, regarding a variety of issues at the site.

Accomplishments:

It is anticipated that the following documents will be received early next quarter: (1) the revised risk assessment assumptions document; (2) the draft Remedial Investigation Report; and, (3) the application for Authorization from the Director under OAC 3745-27-13. It is also anticipated that the draft work plan for time critical emergency removal of the waste oil pit will be received, and that removal activities will occur during the quarter. There are also plans to sample surface water and sediments at the nearby TAMPEEL during next quarter.

KINGS MILLS ARMY RESERVE:

Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Accomplishments:

A 2 year work plan and 3-6 year narrative for future site activities was completed to provide information for the DSMOA Cooperative Agreement. Work load estimates were developed based on this information. These estimates have been forwarded to the Army Reserve for their review.

RIDGEWOOD WEAPONS PLANT:

Document Review:

The following documents were reviewed during this reporting period:

Removal Action Plan for the former Ridgewood Weapons Plant. Received on January 22, 1998. Comment letter sent on February 6, 1998.

Site Visits:

There were no site visits during this reporting period.

Meetings:

February 18:	Ohio EPA attended a presentation on the proposed bank stabilization project for Mill Creek adjacent to the Center Hill Landfill. This site is located next to the former Ridgewood Weapons Plant, and the bank stabilization may affect this site.
March 5:	Ohio EPA attended the Public Meeting for the former Ridgewood Ordnance Plant.

Accomplishments:

A 2 year work plan and 3-6 year narrative for future site activities was completed to provide information for the DSMOA Cooperative Agreement. Work load estimates were developed based on this information. These estimates have been forwarded to ACOE for their review.

CLEAN-UP SERVICES PERFORMED BY OHIO DURING 1ST QUARTER, 1998

SERVICE	DOCUMENTS REVIEWED	ARARS IDENTIFIED	RABS ATTENDED	PARTNERING ATTENDED	OTHER MEETINGS	SITE VISITS	RODS SIGNED	QA/QC	OTHER
DERA ARMY	9	1	1	0	10	1	0	0	1
AIR FORCE	29	3	1	0	1	7	1	0	3
DLA	0	0	0	0	0	0	0	0	0
FUD	8	1	1	0	3	2	0	0	4
BCA 91 AIR FORCE	5	1	1	3	7	0	0	0	1
BCA93 AIR FORCE	7	0	2	3	17	13	0	1	2

II SUPPORTING NARRATIVE (HIGHLIGHT SIGNIFICANT SUCCESSES)

Completition of work load estimates for all sites, meetings with service POCs to resolve workload estimate issues, RI Report for Rickenbacker ANG has been finalized, Initiation of geoprobe field investigation at Gentile AFS, Completion of PCB removal action at AF Plant 85

Please also see attached quarterly report for listing of accomplishments per site.

III ISSUES (HIGHLIGHT SIGNIFICANT ITEMS ADDRESSED OR PENDING RESOLUTION)

Partnering and QAPP issues at DESC, Ohio's concerns about DSMOA Program Review, Ohio's concerns about "Tiger Team."
Free product found during trenching at River Valley Schools (i.e. Marion Engineering Depot)

Please also see attached quarterly report for listing of issues per site.

IV STATE EXPENDITURES (please see financial status report for current figures)

A. DERA	$600,563.82
B. BCA91	93,228.85
C. BCA93	77,236.43
TOTAL	$771,029.10

FORMER MARION ENGINEERING DEPOT:

Document Review:

The following documents were reviewed during this reporting period:

Work Breakdown Structure for Marion Engineering and Scioto Ordnance Plant Investigations. Received on March 6, 1998. Comments provided on March 10, 1998.

Work Plan and Health and Safety Plan for Trenching at the Marion Engineering Depot. Plan reviewed and approved prior to field work on March 28, 1998.

Site Visits:

March 28:	Ohio EPA personnel observed the trenching activities on the grounds of the River Valley Schools
March 29:	Ohio EPA personnel observed the trenching activities on the grounds of the River Valley Schools

Meetings:

February 12:	Ohio EPA, Marion County and City Health Departments, Ohio Department of Health, and ACOE met to discuss the investigative strategy for River Valley Schools (i.e. Marion Engineering Depot) site

Miscellaneous:

Numerous phone calls with the US Army Corps of Engineers (USACE), the media, and the general public, regarding a variety of issues at the site. Due to public concerns about this facility, numerous public meetings have been held and press releases have been issued for this site. All public meetings and press releases have been coordinated with ACOE.

Current Issues:

Due to parents' concerns about the increased cancer rates among graduates of River Valley Schools, Ohio EPA conducted sampling and geophysical surveys of the school grounds. The state of Ohio funded this effort, and this work was not funded under the DSMOA. However, Ohio EPA coordinated these efforts with ACOE. Ohio EPA has

forwarded the results of these studies to ACOE for use in scoping their investigations of this facility and the former Scioto Ordnance Plant.

On March 29 and 30, contractors working for ACOE conducted trenching activities on the grounds of the River Valley School. During this investigation, two small trenches were uncovered that appear to contain significant amounts of free product in the saturated ground water zone. Due to concerns over the potential for contaminants to be released into the air and surface soils, Ohio EPA advised the contractor to immediately cease trenching and cover the trench. As the ground water was saturating the surface, it became necessary to add soils from other portions of the school property to temporarily cover the trench. Further investigation and a possible removal action may need to be implemented to recover the free product that was found.

Ohio EPA has recently received the 2 year work plan and 3-6 year narrative for future site activities. We will use this information to develop work load estimates for this site.

LORDSTOWN ORDNANCE PLANT:

Document Review:

The following documents were reviewed during this reporting period:

Historical records and tax maps were reviewed on February 5, to determine potential boundaries of the facility for investigative purposes.

Site Visits:

February 3:	Site visit to discuss the logistics of time-critical removal action at the on-site waste oil pit. In addition, verbal results from the on-site sampling of the TAMPEEL spring source were presented to the TAMPEEL director.

Meetings and Conference Calls:

February 2:	Ohio EPA and ACOE met to discuss the logistics of a time-critical removal action at the on-site waste oil pit.

Miscellaneous:

Numerous phone calls with the US Army Corps of Engineers (USACE), IT Corporation, and the general public, regarding a variety of issues at the site.

Accomplishments:

It is anticipated that the following documents will be received early next quarter: (1) the revised risk assessment assumptions document; (2) the draft Remedial Investigation Report; and, (3) the application for Authorization from the Director under OAC 3745-27-13. It is also anticipated that the draft work plan for time critical emergency removal of the waste oil pit will be received, and that removal activities will occur during the quarter. There are also plans to sample surface water and sediments at the nearby TAMPEEL during next quarter.

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Document Review:

There were no documents reviewed during this reporting period.

Site Visits:

There were no site visits during this reporting period.

Meetings:

There were no meetings concerning the current or future clean-up during this reporting period.

Accomplishments:

A 2 year work plan and 3-6 year narrative for future site activities was completed to provide information for the DSMOA Cooperative Agreement. Work load estimates were developed based on this information. These estimates have been forwarded to the Army Reserve for their review.

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February 18:	Ohio EPA attended a presentation on the proposed bank stabilization project for Mill Creek adjacent to the Center Hill Landfill. This site is located next to the former Ridgewood Weapons Plant, and the bank stabilization may affect this site.
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Accomplishments:

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AIR FORCE	29	3	1	0	1	7	1	0	3
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BCA93 AIR FORCE	7	0	2	3	17	13	0	1	2

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Please also see attached quarterly report for listing of accomplishments per site.

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Partnering and QAPP issues at DESC, Ohio's concerns about DSMOA Program Review, Ohio's concerns about "Tiger Team."
Free product found during trenching at River Valley Schools (i.e. Marion Engineering Depot)

Please also see attached quarterly report for listing of issues per site.

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A. DERA	$600,563.82
B. BCA91	93,228.85
C. BCA93	77,236.43
TOTAL	$771,029.10

From: Kurt Princic
To: solid waste nedo
Date: Tue, Feb 24, 1998 9:17 AM
Subject: Ground Water Monitoring at 1987 to 1990 Sites

Greetings,

I talked with John Mack yesterday. Here is the Divisions position regarding these types of facilities.

If a site **completed closure** before March 1, 1990 they are not subject to the ground water monitoring requirements of the 1990 or 1994 regulations.

If a site ceased acceptance of waste before April 1, 1990 **but did not complete closure prior to April 1, 1990** then they are subject to the 1990 Ground Water Monitoring Rules.

According to John a programmatic decision has been made with regard to this. The division has taken several enforcement actions at facilities which have not completed closure prior to April 1, 1990 and have require ground water monitoring in accordance with the 1990 rules.

For those of you who have looked at the 1994 rules and discovered that the "Applicability" section does not reference these facilities, John indicated that this was a drafting oversight and 27-10 does apply to sites which did not complete closure prior to April 1, 1990. This issue has been brought up through the HB 473 process and should be addressed in the future.

Therefore if you have any sites which did not complete closure by April 1, 1990 we can proceed with the applicable ground water monitoring requirements. (assessment, compliance etc)

CC: Diane Kurlich, Eileen Mohr, Eric Adams, John Ma...

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

7/6/98
ENV 7/6/98

July 2, 1998

RE: RAVENNA ARSENAL AMMUNITION PLANT
GROUND WATER MONITORING RESULTS
OHR-210-020-730

John Cicero, Jr.
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna OH 44266-9279

Dear Mr. Cicero:

Thank you for your letter dated March 27, 1996, in response to the Ohio EPA letter dated February 27, 1996, regarding the 1992, 1993, and 1994 supplementary annual reports, and the ground water monitoring results for the first through third quarters of 1995, for the Ravenna Arsenal Ammunition Plant (RVAAP) installation at 8451 State Route 5, Ravenna, Ohio. Ohio EPA has the following comments regarding your submittal.

COMMENT:

Regarding comment #1, concerning the results of ground water monitoring for the first three quarters of 1995, RVAAP indicates that it will begin to statistically analyze site specific constituents rather than indicator parameters beginning in June 1996. In a revised ground water sampling and analysis plan, submitted in 1997, RVAAP again proposed to begin statistical analysis of site specific constituents, rather than indicator parameters. However, with the most recent data submitted (March 1998 sampling event), RVAAP is still performing statistics on the indicator parameter data rather than site specifics. RVAAP shall begin performing statistical analysis on site specific constituents, rather than indicator parameters beginning with the next quarterly data submitted to the Ohio EPA for review.

If you should have any questions regarding this matter, please do not hesitate to call me at (330) 963-1189.

Sincerely,

Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddb

cc: Carolyn Princic, DHWM, NEDO
Diane Kurlich, DGW, NEDO
Bob Princic, DERR, NEDO
Eileen Mohr, DERR, NEDO
Mark Navarre, Legal, CO
Montee Suleiman, DHWM, CO
Katheryn Dominic, SAIC
Tim Leet, SAIC
CF: AMSIO-EQE (Whelan)
AMSIO-IR1 (Tingold)

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171
FAX (330) 487-0769

George V. Voinovich
Governor

December 7, 1998

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, CERCLA RISK ASSESSMENT - GROUNDWATER

Mr. John Jent
U.S. Army Corps of Engineers
ATTN: CEORL-ED-GS
600 Martin Luther King Place
P.O. Box 59
Louisville, KY 40201-0059

Dear Mr. Jent:

Attached to this correspondence is an Inter-Office Communication (IOC) regarding the use of filtered groundwater samples for CERCLA risk assessment purposes at the Ravenna Army Ammunition Plant (RVAAP).

If you have any questions concerning the contents of the IOC, 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: Bob Princic, NEDO, DERR
Diane Kurlich, NEDO, DDAGW
Greg Orr, NEDO, DHWM
Jarnal Singh, NEDO, DSIWM
Brian Tucker, CO, DERR, EAU
Catherine Stroup, CO, Legal
Bonnie Buthker, OFFO, SWDO
Mark Patterson, RVAAP
John Cicero, RVAAP
Bob Whelove, IOC
Kevin Jasper, USACE, Louisville
David Brancato, USACE, Louisville
Steve Selecman, SAIC
Samantha Pack, SAIC
Kathy Dominic, SAIC

Attachment

INTER - OFFICE COMMUNICATION

TO: Brian Tucker, CO DERR EAU

FROM: Eileen T. Mohr, NEDO DERR

DATE: December 07, 1998

RE: The Use of Filtered Groundwater from Monitoring Wells at the Ravenna Army Ammunition Plant (RVAAP) for CERCLA Risk Assessment Purposes

On April 1, 1997, I sent a memo to Manjusha Bhide (formerly of CO DERR EAU) regarding the use of filtered or unfiltered groundwater from monitoring wells at the RVAAP for CERCLA risk assessment purposes. Subsequent to the date of the memo, it was decided that the Agency would temporarily require the RVAAP to collect and analyze both filtered and unfiltered groundwater, determine whether or not any significant differences in the analyses were due to the suspended matter, and to then make a final decision as to which (filtered or unfiltered groundwater) would be collected and analyzed. This issue was re-visited during a meeting held at the RVAAP on December 2, 1998.

During that meeting it was decided that groundwater samples obtained for CERCLA risk assessment(s) would consist of filtered groundwater. This decision was based upon the following factors:

1. consistency with the DHWM portion of the program being conducted at RVAAP in which filtered samples are being utilized for risk assessment purposes.

2. consistency with the decision-making tree and associated text in the document (pages 10-20 through 10-22) entitled "Technical Guidance Manual for Hydrogeologic Investigations and Groundwater Monitoring" (OEPA DDAGW, February 1995).

3. consistency with the document entitled "Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual, Part A, Interim Final" (USEPA, December 1989); in which the following is stated (page 4-13):

> "If unfiltered water is of potable quality, data from unfiltered samples should be used to estimate exposure. The RPM should ultimately decide the type of samples that are collected."

It is my best professional judgement that the water samples obtained from the monitoring wells are not of potable quality.

4. the groundwater obtained from the properly installed, constructed, and developed CERCLA monitoring wells at the RVAAP consistently yield water samples that are turbid (i.e. greater than 5 NTUs). This scenario has held true for wells that were purged and sampled utilizing micro-purging techniques, as well as those that were conventionally purged and sampled.

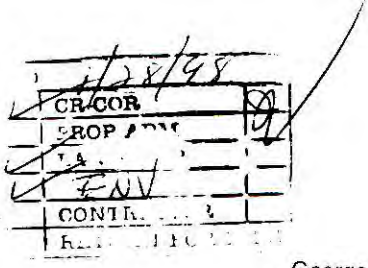
5. analytical data obtained from filtered and unfiltered groundwater samples from the background monitoring wells installed at the facility clearly indicate that the acidification of turbid samples greatly increases the metals concentrations in the sample, compared to filtered samples.

Based upon the above criteria, all samples obtained from monitoring wells at the RVAAP for CERCLA risk assessment purposes will utilize filtered samples if the less than 5 NTU criteria is not achieved. If less than 5 NTUs are achieved, an unfiltered groundwater sample may be compared to a filtered groundwater sample. Every obtained sample must be subjected to field turbidity measurements.

I trust that this accurately reflects the decision made during the above-referenced meeting. If you have any questions, please do not hesitate to contact me at 330-963-1221.

cc: Bob Princic, NEDO DERR
Diane Kurlich, NEDO DDAGW
Greg Orr, NEDO DHWM
Jarnal Singh, NEDO DSIWM
Bonnie Buthker, OFFO SWDO

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 FAX (330) 487-0769



George V. Voinovich
Governor

January 26, 1998

RE: Ravenna Army Ammunition Plant
Portage/Trumbull Counties
Draft SOW for Radiological Field Screening

Mr. John Jent
US Army Corps of Engineers
CELRL-ED-GE
P.O. Box 59
Louisville, KY 40201

Dear Mr. Jent:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the draft Statement of Work (SOW) for radiological field screening at the Ravenna Army Ammunition Plant (RVAAP).

The draft SOW is acceptable to the Ohio EPA, and the Agency looks forward to receiving and reviewing the workplan in the timeframe specified in the schedule. As previously indicated to the Corps of Engineers, the Ohio Department of Health (ODH) will be the lead state agency on this portion of the RVAAP project.

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.wmk

cc: Bob Princic, NEDO DERR
Diane Kurlich, NEDO DDAGW
Greg Orr, NEDO DHWM
Bonnie Buthker, OFFO SWDO
Ruth Vandergrift, ODH Columbus
Bob Whelove, IOC
Mark Patterson, RVAAP
LTC Tom Tadsen, ANG RVAAP
Kevin Jasper, USACE Louisville
Todd Boatman, USACE Nashville

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

April 24, 1998

RE: Ravenna Army Ammunition Plant
Portage/Trumbull Counties
OEPA ID # 267-0859
Radiation Survey Workplan

Mr. Kevin Jasper
Project Manager
U.S. Army Corps of Engineers
Louisville District
ATTN: CEORL-DL-B
P.O. Box 59
Louisville, KY 40201-0059

Dear Mr. Jasper:

The Ohio Environmental Protection Agency (OEPA) Northeast District Office (NEDO) Division of Emergency and Remedial Response (DERR) has received and reviewed a copy of the document entitled "Radiation Survey No. CESWT-SO-P1-05-98, Ravenna Army Ammunition Plant, Ravenna, Ohio, 18-21 May 1998." This document, dated April 10, 1998 and received at OEPA NEDO on April 13, 1998, was prepared by personnel from the U.S. Army Corps of Engineers (USACE), Tulsa District.

The OEPA has the following comments on the draft workplan:

1. Please provide the OEPA with a copy of the report generated as a result of the historical radiological use survey of the Ravenna Army Ammunition Plant (RVAAP) that was conducted by Olin Ordnance in July, 1990. (pg. 6, lines 24-25)

2. The text indicates that the Monazite Sand Storage Area was "...radiologically surveyed and remediated in 1976..." The OEPA requests further information and documentation of this issue, i.e., what did the remedial activities consist of and what regulatory agency provided oversight of the closure, and was any post-closure sampling conducted? (pg. 6, lines 40-41)

3. In section 1.4.2, the text indicates that the"..sources located on Load Line 3 in building 10A were properly disposed of." Please provide documentation to that effect. In addition, the text indicates that other load lines reportedly utilized industrial x-ray machines and that this information is currently being verified. Please include in the text that if the existence of the sources is verified, that appropriate surveys will be conducted if necessary. (pg. 7, lines 4-5 and 7-9)

4. Please adjust the text to read "Concern has been expressed over the *potential* use of Depleted Uranium (DU) at the Firestone Test Facility (FTF)." (pg. 7, lines 40-41 and pg. 3 of the health and safety plan).

5. The Agency requests that the terms "site" and "areas of concern (AOC)" be utilized consistently throughout the document, and in accordance with the terminology defined as part of the phased Remedial Investigation (RI) being conducted at the RVAAP. This is especially true for the objectives of the characterization delineated on page 9. The term "site" refers to the entire installation, and it is not the intent of this workplan and survey to survey the entire RVAAP facility. (pg. 9, lines 10-17 and 30-32)

6. The OEPA requests further discussion and details regarding the disposition of any generated investigation-derived wastes (IDW). For example: it is not permissible to return unused portions of environmental samples to the sample location at RVAAP (pg. 13, lines 18-19 and pg. 17, lines 1-2); and, it is not standard OEPA practice to decontaminate equipment on-site without containerizing and characterizing the resulting fluids prior to proper disposal (pg. 17, lines 13-14 and USAEHA, pg. 5-4). Please provide the OEPA NEDO with the agreed-upon IDW procedure that was utilized at the Marion site, such that this district can review and provide comments on the document.

7. Appendix E (Survey Units, Sampling Plans) indicates that the "estimated sigma is based upon background samples in Painesville, OH." Provide documentation as to how it was determined that samples obtained from the Painesville area represent background conditions.

8. With respect to the decontamination procedures delineated in USAEHE No. 155, the OEPA notes the following: requirements for decontamination should be determined when the sampling plan is developed, in consultation not only with the chosen laboratory, but also with the appropriate regulatory agency(ies) (pg. 5-4); a copious amount of distilled/deionized water should be utilized during the decontamination process (pg. 5-5); and, equipment blanks are warranted in order to test the effectiveness of the decontamination procedure (pg. 5-5).

9. Although the OEPA does not have regulatory authority over health and safety plan (HASPs), the following comments are noted:

   a. a discussion of biological hazards should be included in the text. For example, ticks are quite prevalent throughout the installation;

   b. has there been an EOD survey conducted at the areas which will be studied during this radiation survey;

c. in addition to the meteorological data presented in the text, high humidity can also have an effect not only on personnel at the site, but also on some of the screening instrumentation that will be utilized; and,

d. if any ordnance is discovered, in addition to the contacts named in the document, the Commander's Representative for RVAAP must be notified.

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:cl

cc: Bob Princic, NEDO, DERR
Diane Kurlich, NEDO, DDAGW
Greg Orr, NEDO, DHWM
Brian Tucker, CO, DERR EAU
Ruth VandeGrift, ODH, Columbus
Catherine Stroup, CO, Legal
Bonnie Buthker, OFFO, SWDO
Bob Whelove, IOC
Mark Patterson, RVAAP
David Hays, USACE Tulsa
John Jent, USACE Louisville
LTC Tom Tadsen, ONG/RVAAP
Steve Selecman, SAIC
David Seely, USEPA Region V

From: Eileen Mohr
To: "TMORGAN1@ria-emh2.army.mil"@Central-Office.INTERN...
Date: Wed, Jun 10, 1998 8:47 AM
Subject: Re: Grassland/Brush Burning at Ravenna AAP

Tim

I received your email re: grassland/brush burning at RVAAP. The first place I would start is with the Akron Air Agency. They are the authorized agency under our air program, and you would get any needed permits from them.

Other than that, I can't think of any other permits that you would need. Again, you would need to be away from any identified areas of concern, or where there may be UXO present, or other explosives, contaminants of concern, etc..

Where/when were you thinking about doing this?

Given the volume of calls that the RVAAP received regarding the detonations last week, you may want to think of doing some up-front public relations/community relations work.

Give me a call if you have any questions... 330-963-1221.

Eileen

CONVERSATION RECORD

TIME

DATE 6/3/98

TYPE
☐ VISIT ☐ CONFERENCE ☒ TELEPHONE
☐ INCOMING ☒ OUTGOING

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO.
Alan Hunter	OEPA	614 644-2820

SUBJECT Modifications to Demo List.

ROUTING	
NAME/SYMBOL	INT

SUMMARY

Alan considers two deletions of items and addition of two items to donor list "minor changes". These changes can be reported as required in permit after demo work is done.

ACTION REQUIRED

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
	Mark Pett	6/5/98

ACTION TAKEN

SIGNATURE	TITLE	DATE

From: <TMORGAN1@ria-emh2.army.mil>
To: Central-Office.NEDO(Emohr)
Date: Tue, Jun 9, 1998 4:19 PM
Subject: Grassland/Brush Burning at Ravenna AAP

Eileen,

Jim McGee and I met with Ravenna's new Fire Chief and Captains today to talk about fire fighting procedures and to familiarize them with RVAAP. I asked if they would be interested in conducting controlled grass/brush fires for training. All thought this would be a good idea. I could use fire for vegetation management and fire depts. could get needed training and experience working at RVAAP.

What type of permit is needed to do this?

Tim

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

June 24, 1998

RE: Ravenna Army Ammunition Plant
Portage/Trumbull Counties
Partnering at the RVAAP

Mr. Robert Whelove, Jr.
Environmental Engineer
HQ Army
Industrial Operations Command
AMSIO-EQE
Rock Island, IL 61299-6000

Dear Mr. Whelove:

This correspondence is written in order to memorialize our recent telephone conversation in which you asked me, as the designated Ohio Environmental Protection Agency (OEPA) project coordinator for the CERCLA activities at the Ravenna Army Ammunition Plant (RVAAP), my opinion of the investigative work being conducted by the Dayton, OH and Oak Ridge, TN offices of Science Applications International Corporation (SAIC).

The work performed by the SAIC personnel - from the actual field investigations to the development of workplans and reports - is of the highest quality. In particular, the expertise of Steve Selecman and Kathy Dominic has resulted in the most efficient, and effective, field operation for which I have provided oversight. Quality decisions and revisions are made in the field by the SAIC project managers, with input from the appropriate regulatory personnel. Subsequent to scoping and decision meetings held with all of the RVAAP project team, high quality workplans and reports are produced in a timely-fashion by SAIC personnel.

Over the years, an excellent partnering relationship has developed between headquarters Army, RVAAP personnel, the Ohio National Guard (ONG), the US Army Corps of Engineers (USACE), the OEPA, and SAIC. The willingness of this team to negotiate through and resolve difficult issues has been a positive experience. In addition, the partnering has resulted in: continuity of personnel assigned to the various projects; a stream-lined approach to workplan development; the willingness to try innovative techniques such as in-situ field techniques for explosives determination; and more efficient and effective use of the limited restoration funds that are available. Personnel from the Oak Ridge and Dayton offices of SAIC have been an integral part of this team.

I trust that this correspondence accurately memorializes our recent telephone conversation. 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:cl

cc: Bob Princic, NEDO DERR
Graham Mitchell, OFFO SWDO
Bonnie Buthker, OFFO SWDO
John Cicero, RVAAP
Mark Patterson, RVAAP
LTC Tom Tadsen, ONG RVAAP
Kevin Jasper, USACE Louisville
John Jent, USACE Louisville
David Seeley, USEPA Region V
Steve Selecman, SAIC
Kathy Dominic, SAIC

since 1827
MASON & HANGER CORPORATION
RAVENNA ARMY AMMUNITION PLANT

7/16/98
CR-COR
ENV

July 15, 1998

THRU: Contracting Officer's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, Ohio 44266-9297

TO: State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
ATTN: Mr. Bill Zawiski

Subject: Ravenna Army Ammunition Plant NPDES Permit #31O00000

Dear Mr. Zawiski:

This letter is to inform you that the maximum daily discharge limitation for COD was exceeded in a sample taken from the discharge at outfall 3IO00000006 on June 18, 1998. Sample results indicated that COD was measured at 39 mg/l; the daily maximum discharge limitation specified in the permit is 30 mg/l. Actual discharge from outfall 006 occurred from 7 AM to 4 PM on June 16, 17 and 18. Total amount discharged over that time period was 3,657 gallons. This exceedance was reported by telephone to OEPA Emergency Response as specified in the permit; the incident number assigned to that report is 9807-67-2911.

We believe the increase in COD was caused by a combination of warm temperatures and too-infrequent recirculation of the carbon units. We have instituted a more frequent recirculation schedule for the carbon, which should prevent future problems of this nature.

If you have any questions or would like further information, please contact either Susan McCauslin at (330) 358-7400 or myself at (330) 358-7406.

Sincerely,
Mason & Hanger Corporation

James D. McGee
James D. McGee
Site Manager

mailed by M&H 7/16/98

8451 State Route 5 • Ravenna, Ohio 44266-9297 • 330-358-7400 • fax 330-358-7414

Facsimile Transmittal

Quanterra Incorporated
4101 Shuffel Dr.
North Canton, Ohio 44720
(330) 497-9396 Switchboard
(330) 966-9792 Direct Inward Dial
(330) 497-0772 Fax

Quanterra®

Date: **July 14, 1998**

Number of Pages: 6

Deliver to: **Lynette Windland**

Company: Mason & Hanger

Fax Number: **330-358-7414**

From: Rebecca Strait, Project Manager (Direct Dial 330-966-9792)

Fax Number: 330-497-0772

Comments:

Lynette, again -- sorry about the delay.

N.Canton's TOC instrument has been down for a week, so the samples with TOC on them are not complete ... the repairman came in again today, so I'm not certain what the status - or timing - is. We are also still waiting on the propellant data from W.Sacramento.

The lab went in and locked only the NPDES samples.

Please call if you need additional information.

Regards.

Becki

MASON & HANGER-SILAS MASON CO., INC.

Client Sample ID: PINK H2O (006) MID

HPLC

Lot-Sample #...: A8F190178-019 **Work Order #...:** CJ654104 **Matrix.....:** WATER
Date Sampled...: 06/18/98 **Date Received..:** 06/19/98
Prep Date.....: 06/23/98 **Analysis Date..:** 07/02/98
Prep Batch #...: 8174138
Dilution Factor: 1 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
RDX	ND	0.50	ug/L
2,4,6-Trinitrotoluene	ND	0.20	ug/L
2,4-Dinitrotoluene	ND	0.20	ug/L
2,6-Dinitrotoluene	ND	0.20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1-Chloro-3-nitrobenzene	96	(39 - 157)

MASON & HANGER-SILAS MASON CO., INC.

Client Sample ID: PINK H2O (006) MID

General Chemistry

Lot-Sample #...: A8F190178-019 **Work Order #...:** CJ654 **Matrix.....:** WATER
Date Sampled...: 06/18/98 **Date Received..:** 06/19/98

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (liquid)	**7.6**		**No Units**	**MCAWW 150.1**	**06/19/98**	**8173235**
	Dilution Factor: 1					
Chemical Oxygen Demand (COD)	ND	10	mg/L	MCAWW 410.4	07/01-07/02/98	8183336
	Dilution Factor: 1					
Nitrate	ND	0.1	mg/L	MCAWW 353.2	06/19/98	8174262
	Dilution Factor: 1					
Nitrogen, as Ammonia	**1.4**	**1.0**	**mg/L**	**MCAWW 350.2**	**07/08/98**	**8189309**
	Dilution Factor: 1					
Total Suspended Solids	ND	10	mg/L	MCAWW 160.2	06/22-06/23/98	8173142
	Dilution Factor: 1					

MASON & HANGER-SILAS MASON CO., INC.

Client Sample ID: PINK H2O (006) FINAL

GC Volatiles

Lot-Sample #...: A8F190178-020 **Work Order #...:** CJ65F104 **Matrix.....:** WATER
Date Sampled...: 06/18/98 **Date Received..:** 06/19/98
Prep Date.....: 06/23/98 **Analysis Date..:** 06/23/98
Prep Batch #...: 8177275
Dilution Factor: 1 **Method.....:** CFR136A 602

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Toluene	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	99	(76 - 121)

MASON & HANGER-SILAS MASON CO., INC.

Client Sample ID: PINK H2O (006) FINAL

HPLC

Lot-Sample #...: A8F190178-020 **Work Order #...:** CJ65F105 **Matrix.....:** WATER
Date Sampled...: 06/18/98 **Date Received..:** 06/19/98
Prep Date.....: 06/23/98 **Analysis Date..:** 07/02/98
Prep Batch #...: 8174138
Dilution Factor: 1 **Method.....:** SW846 8330

PARAMETER	RESULT	REPORTING LIMIT	UNITS
RDX	ND	0.50	ug/L
2,4,6-Trinitrotoluene	ND	0.20	ug/L
2,4-Dinitrotoluene	ND	0.20	ug/L
2,6-Dinitrotoluene	ND	0.20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1-Chloro-3-nitrobenzene	95	(39 - 157)

MASON & HANGER-SILAS MASON CO., INC.

Client Sample ID: PINK H2O (006) FINAL

General Chemistry

Lot-Sample #...: A8F190178-020 **Work Order #...:** CJ65F **Matrix.....:** WATER
Date Sampled...: 06/18/98 **Date Received..:** 06/19/98

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (liquid)	**8.0**		**No Units**	**MCAWW 150.1**	**06/19/98**	**8173235**
	Dilution Factor: 1					
Chemical Oxygen Demand (COD)	**39**	**10**	**mg/L**	**MCAWW 410.4**	**07/01-07/02/98**	**8183336**
	Dilution Factor: 1					
Nitrate	ND	0.1	mg/L	MCAWW 353.2	06/19/98	8174262
	Dilution Factor: 1					
Nitrogen, as Ammonia	ND	1.0	mg/L	MCAWW 350.2	07/08/98	8189309
	Dilution Factor: 1					
Total Suspended Solids	ND	10	mg/L	MCAWW 160.2	06/22-06/23/98	8173142
	Dilution Factor: 1					

From: <MPATTERS@RIA-EMH2.ARMY.MIL>
To: Central-Office.NEDO(Emohr)
Date: Mon, Aug 3, 1998 3:03 PM
Subject: OSHA Lead In Construction Info

Eileen,

FYI

_____ Forward Header _____

Subject: OSHA Lead In Construction Info
Author: ERCLEAD@aol.com at SMTP-DDN
Date: 7/14/98 4:47 PM

Hi Mark.. the appropriate citation is 24CFR1926.62, May 4, 1993....

In summary:

Employee protection requirements for constuction workers exposed to lead.

PEL.. 50 ug/m3 as an 8-hour time weighted average (TWA) and an action level of 30 ug/m3 TWA. The standard also adresses exposure assessment, methods of compliance, respiratory protection, protective clothing and equipment, hygiene facilities and practices, medical surveilance, medical removal protection, employee information and training, signs, recordkeeping, and observation of monitoring.. An action level of 30 ug/m3 TWA establishes the level at which employers must initiate certain compliance activities.

Effective Date June 3, 1993

Applies to all construction work where an employee may be occupationally exposed to lead. All construction work excluded from coverage in the general industry standard (like Battery manufacturing, smelter operations, etc.) 24CFR1910.1025, is covered in this standard..... includes the following... (1) demolition or salvage of structures where lead or materials containing lead are present.

"...interim protection ... is required where lead containing coatings or paint are present on structures while performing: (A)abrasive blasting, (B)welding, (C)cutting, and (D)torch burning... until the employer performs an employee exposure assessment as required under paragraph d of this section and determines actual employee exposure, the employer shall provide to employees performing the tasks with interim protection.....it shall be assumed that workers in this category will be exposed to greater than 2,500 ug/m3 TWA.... shall implement interim measures including 1/2 mask supplied air respirators operated in pressure demand or other positive-pressure mode...."

I hope this is helpful Mark... i can fax you some of the pages from the document that might make it clearer... however, review of the full citation is important to see the impact of torch cutting the leaded structural steel. The regulations clearly state that any lead present makes it a lead project, high levels such as those we measured make this irrefutable and of high impact.

Further contamination of the environment is also a result of such activities with impact on soils and air contamination and risk assessments.

Lynn

From: <MPATTERS@RIA-EMH2.ARMY.MIL>
To: Central-Office.NEDO(Emohr)
Date: Mon, Aug 3, 1998 5:01 PM
Subject: IRP/Bldg. Demo

Eileen,

Below is email message I sent out on Thursday regarding coordination. It went to all parties at IOC who might be involved including woodhouse and king. I thought it was pretty provocative with mention of high lead levels, demo work already done without employee exposure assessment plan,etc. But no response yet. Will let you know if I hear anything.

Mark

The ECAS team cited the RVAAP asbestos abatement project in September 1997 as deficient because an EA had not been prepared prior to the start of work. The EA should have been done to comply with NEPA. The project could not have been covered under a REC because there are no applicable categorical exclusions and non of the existing EAs addressed the abatement work. I had discussed this with Carl, Tim Morgan, and Rosemary and decided the best option would be to update the existing facility wide "Change from Modified Caretaker Status EA" which was produced for RVAAP in 1993. The update could be used to address the asbestos abatement and any other active or proposed projects that the original EA did not. Information was entered in the Environmental Program Requirements database to get the project considered for funding. The project was estimated to cost $100,000.00. To date the project has not been funded and I have not heard anything further.It would probably take 4 to 6 months to complete.

The largest project that currently needs to be addressed in a new EA is the demolition of the Load Lines so the 337s can be done. Originally, the IRP phase II field work was to begin on LL 1 this fall. This has been postponed since finding out about the demo plans. We would like to reschedule the phase II work for late spring 1999 after the demo work is complete. This makes getting the EA finished ASAP imperative. Also, the OEPA has requested we coordinate all demo work and the IRP to prevent building contamination from entering the environment. High lead and arsenic levels have been found in the LL 1 buildings using X-Ray Fluorescent field screening. Debris samples from the floor have lead levels as high as 47,000 ppm and arsenic as high as 1,500 ppm. The exterior seals on the screws used to attach the transite to the structural steel has lead exceeding 50% (500,000 ppm) and arsenic levels exceeding 26,000 ppm. The paint on the structural steel also contains lead(5mg/mc2) in excess of the national standard (1mg/cm2). To comply with current lead regulations (24 CFR1926.62), an employee exposure assessment(including PPE) has to be

in effect for demolition work when lead coatings or paint is known to exist. There have been no employee exposure assessment done by any of the scrapping contractors doing demolition work during the last year. This is in direct violation of the regs.

Another source of contamination is the mortar used to fill the gaps where the bottom of the corrugated transite meets the concrete slab floors. These plugs are visibly contaminated with high levels of explosives from the frequent steam washing. The explosives and heavy metals would be released to the environment either from the demo work itself or from the remaining concrete being exposed to rain and the elements. John Jent of the Louisville Corps and I are continuing the testing. We should have more information within three weeks. after that time we would like to meet with all parties involved in the IRP and Demolition work to develop an coordination plan for the projects to prevent further environmental contamination.

Mark

OHIO ARMY NATIONAL GUARD
RAVENNA TRAINING AND LOGISTICS SITE
1488 Newton Falls-Portage Road
Newton Falls, OH 44444

AGOH-OT-RTLS 25 August 1998

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

SUBJECT: Request for OAC 3745-27-13 Determination.

1. Re: our telephone conversation this date, the enclosed drawings are provided. The drawings are excerpted from our Project # 970013, which is pending a Record of Environmental Consideration approval by Mark Patterson, of the Ravenna Army Ammunition Plant.

2. The parking area in Training Area "G" is an existing parking area, constructed between 1949 and 1953. The parking area was constructed of railroad track ballast (provided from onsite stores) which was placed directly over the soil surface and partially compacted. Over the years since 1953, the railroad track ballast has sunk within the soil base. The resultant parking surface is limited to fair weather use.

3. Project # 970013 will remove the existing railroad track ballast from the parking area, level the soil base, emplace geotextile material, and return the railroad track ballast and additional finer gravel to stabilize the parking surface. Installation of this improved surface will return all excavated material to the same site, will improve drainage from the parking surface, and will create a true all-weather parking area to support troop usage while minimizing environmental impact.

4. I would appreciate your attention to the matter. Please consider approval of this portion of Project # 970013, re: OAC 3745-27-13. I believe there will be no significant environmental impact resultant from this Project, and that its full scope falls within the regulatory guidelines.

5. POC is the undersigned, at (330) 872-5954

Encl as

Thomas A. Tadsen
THOMAS A. TADSEN
LTC, AV, OHARNG
Deputy Installation Commander

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

9/1/98 96
ENV

George V. Voinovich
Governor

August 28, 1998

RE: Ravenna Army Ammunition Plant
Portage/Trumbull Counties
OAC 3745-27-13 Determination

LTC Tom Tadsen
Ohio Army National Guard
Ravenna Training and Logistics Site
1448 Newton Falls-Portage Road
Newton Falls, OH 44444

Dear LTC Tadsen:

I am in receipt of your correspondence dated August 25, 1998 requesting a determination as to whether authorization is required under Ohio Administrative Code (OAC) 3745-27-13 for the upgrading of the parking lot in Training Area G.

Subsequent to the review of your project plans and the above-referenced rule, it is the determination of the Agency that authorization from the Director under OAC 3745-27-13 is not required for the proposed project.

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

Sincerely,

Eileen T. Mohr
Division of Emergency and Remedial Response

ETM:cl

cc: Bob Princic, NEDO-DERR
Bonnie Buthker, OFFO-SWDO
Catherine Stroup, CO-Legal
Mark Patterson, RVAAP

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

September 3, 1998

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
RADIATION SURVEY REPORT

Mr. John Jent
U.S. Army Corps of Engineers
ATTN: CELRL-ED-E
600 Martin Luther King Place
P.O. Box 59
Louisville, KY 40201-0059

Dear Mr. Jent:

The Ohio Environmental Protection Agency (OEPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed a copy of the document entitled, "Radiation Survey Report, No. CESWT-SO-R1-05-98, Ravenna Army Ammunition Plant, Ravenna, Ohio, 18-22 May 1998". This report, prepared by the Tulsa District of the U.S. Army Corps of Engineers (USACE) for the Louisville District of USACE, was received at OEPA, NEDO on September 1, 1998.

As previously indicated to the USACE, the Ohio Department of Health will be the lead state agency on this particular portion of the investigative activities being conducted at the Ravenna Army Ammunition Plant, as this is their area of expertise.

The only comments that OEPA has on the submitted document are minor in nature:

1. the RVAAP installation is not part of the Base Realignment and Closure (BRAC) program. (pg. 5)

2. please note the correct spelling of "Trumbull" County and the "Mahoning" silt loam. (throughout the course of the document); and,

3. please provide a time frame for the receipt of the radiation report related to the Monazite Sand Storage Area.

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: Bob Princic, NEDO, DERR
Bonnie Buthker, OFFO, SWDO
Ruth Vandergrift, ODH, Columbus
Mark Patterson, RVAAP
David Hays, USACE, Tulsa

since 1827
MASON & HANGER CORPORATION
RAVENNA ARMY AMMUNITION PLANT

September 21, 1998

THRU: Contracting Officer's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, Ohio 44266-9297

TO: State of Ohio
Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

ATTN: Mr. Jarnal Singh, Solid Waste Management

Subject: Change in Operating Contractors at Ravenna Army Ammunition Plant (RVAAP)

Dear Mr. Singh:

This letter is to inform you that effective September 28, 1998 Mason & Hanger Corporation will no longer serve as the Operating Contractor at the Ravenna Army Ammunition Plant. If you should have questions or wish to contact us after that date, Mason & Hanger administrative personnel will remain on site until October 15, 1998 and can be reached at (330) 358-7400; after October 15 you can contact our Lexington office at the following address:

Mr. Dave Morgan, Vice President
Mason & Hanger Corporation
2355 Harrodsburg Road
Lexington, Kentucky 40504-3363
(606) 223-2277

Any questions you may have regarding future operations at RVAAP should be directed to the Army's point of contact, Mr. John A. Cicero, Jr., who can be reached at (330) 358-7311.

Sincerely,
MASON & HANGER CORPORATION

James D. McGee

James D. McGee
Site Manager

S: 10/5/98

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY INDUSTRIAL OPERATIONS COMMAND
ROCK ISLAND, ILLINOIS 61299-6000

S: 5 October 1998

REPLY TO
ATTENTION OF

AMSIO-IBR

04 SEP 1998

MEMORANDUM FOR DISTRIBUTION

Subject: New Points of Contact (POC) for Clean Water and Safe Drinking Water Acts

1. The Industrial Operations Command has gone through some changes in the past few months. One of these changes is the dissolvent of the Deputy Chief of Staff for Environmental Management (AMSIO-EQ) and the reassignment of Environmental Media assignments.

2. As a part of these changes the new primary and secondary POCs for Clean Water and Safe Drinking Water Acts (CWA/SDWA) actions are now James Small, and Brad Wright, AMSIO-IBR, DSN 793-1116, 793-1197, email smallj@ioc.army.mil and wrightb@ioc.army.mil, respectively.

3. To accommodate this change it is requested that all IOC installations provide copies of their current National Pollutant Discharge Elimination System (NPDES) permits, and water withdrawal permits to AMSIO-IBR. Also all Discharge Monitoring Reports (DMRs) and any Drinking Water Monitoring Reports are required to be provided in conjunction with your transmittal to State and/or Environmental Protection Agency(s) submittals.

4. This request for permits and reports will aid in the consolidation and formulation of IOC needs for CWA and SDWA requirements.

5. This tasking should not cause undue hardship on our installations as most of this information is already provided to the Headquarters. This memorandum only serves to provide centralized consolidation of this information. This information is requested by, 5 October 1998.

Copy of NPDES
mailed 10/1/98 M.P.

AMSIO-IBR
SUBJECT: New Points of Contact (POC) for Clean Water and Safe Drinking Water Acts

6. The POC for this action is Mr. James Small, DSN 793-1116, (309) 782-1116, email smallj@ioc.army.mil.

CRAIG J. COLLEDGE
Chief, Radford/Holston Team

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171
FAX (330) 487-0769

George V. Voinovich
Governor

November 4, 1998

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, DETERMINATION OF FACILITY BACKGROUND

Mr. Kevin Jasper
U.S. Army Corps of Engineers
ATTN: CEORL-DL-B (Jasper)
600 Martin Luther King, Jr. Pl.
P.O. Box 59
Louisville, KY 40201-0059

Dear Mr. Jasper:

The Ohio Environmental Protection Agency (OEPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), has received and reviewed the document entitled, "Preliminary Draft, Determination of Facility-Wide Background at the Ravenna Army Ammunition Plant, Ravenna, Ohio". This document, dated October, 1998 and received at OEPA on October 16, 1998, was prepared by the sub-contractor for the U.S. Army Corps of Engineers (USACE), Louisville District.

This correspondence solely represents comments from OEPA/NEDO/DERR. Additional comments will be forthcoming, under separate cover, from personnel in the OEPA Central Office (CO), DERR, Environmental Assessment Unit (EAU).

The OEPA/NEDO/DERR has the following comments on the above-referenced document:

1. The text indicates that analytical results that were more than three standard deviations above the mean were examined to determine if the results were valid and whether they should be used in the statistical analyses. As such, this is essentially the determination of an "outlier." Further discussion is warranted as to how this methodology was chosen. In OEPA's Division of Hazardous Waste Management (DHWM), outliers are identified as values that exceed the upper cutoff limit (upper quartile + 1.5 x inter-quartile range), and removed from the data set. This removal generally results in bringing a data set closer to normality. The Agency requests that the data also be evaluated in accordance with the DHWM methodology, such that it can be determined which method ultimately results in a more accurate and conservative representation of background conditions at the installation.

2. Provide additional details on the data which were rejected for use in the background data set. In addition, provide a discussion on the potential for laboratory contamination in

several samples (sub-surface soil, sediment, and unfiltered groundwater) and any potential resulting impact on the background data set.

3. Provide additional documentation to ensure that proper chain of custody (COC) procedures were followed; that the samples arrived intact and at the proper temperature at the laboratory; that analyses were conducted within the specified holding times, etc..

4. Provide additional discussion on the determination that the unfiltered groundwater is the proper data set to utilize in order to identify outliers. In addition, please provide a description of the visual appearance of the filtered vs. unfiltered groundwater samples (field log notes from the sampling event are acceptable).

5. With respect to the groundwater samples, provide an explanation as to why the detection limits for several constituents (hexachlorobenzene, pentachlorophenol, benzo(a)pyrene, and vinyl chloride) exceeded the corresponding Maximum Contaminant Levels (MCLs). (The MCLs are solely being utilized for comparison purposes).

6. In the section describing the summary statistics for filtered groundwater samples (both in the unconsolidated and bedrock wells), please provide an explanation as to why the constituent aluminum does not appear in the corresponding tables.

7. It is noted (for groundwater) that the proposed background levels for the following constituents exceed the corresponding primary MCLs, secondary MCLs and/or action levels: lead, arsenic, thallium, nickel, iron, manganese, and aluminum (unfiltered groundwater from monitor wells in the unconsolidated material), manganese (filtered groundwater from monitor wells in the unconsolidated material), lead, aluminum, iron, and manganese (unfiltered groundwater from bedrock monitoring wells), and, iron and manganese (filtered groundwater from bedrock wells).

8. The text of the report should contain a discussion regarding the number of samples obtained from each environmental medium. In addition, information should be provided as to whether or not the number of samples that were obtained are sufficient to support the statistical methods utilized in determining the potential background concentrations.

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: Bob Princic, NEDO/DERR
Catherine Stroup, CO/Legal
Bonnie Buthker, OFFO/SWDO
Brian Tucker, CO/DERR/EAU
Diane Kurlich, NEDO/DDAGW
Greg Orr, NEDO/DHWM
Mark Patterson, RVAAP
John Cicero, RVAAP
Bob Whelove, IOC
Carl King, IOC
John Jent, USACE/Louisville
David Brancato, USACE/Louisville
David Seeley, USEPA/Region V
Steve Selecman, SAIC

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

George V. Voinovich
Governor

December 11, 1998

RE: RAVENNA ARMY AMMUNITION PLANT, PORTAGE/TRUMBULL COUNTIES, MONAZITE ORE AOC - DRAFT REPORT

Mr. John Jent
U.S. Army Corps of Engineers
ATTN: CEORL-ED-GE
600 Martin Luther King Jr. Place
P.O. Box 59
Louisville, KY 40201-0059

Dear Mr. Jent:

The Ohio Environmental Protection Agency (OEPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR), has received and reviewed the document entitled, "Radiation Survey Report, No. CESWT-SO-R2-05-98, Monazite AOC, Ravenna Army Ammunition Plant, Ravenna, Ohio, 18-22 May 1998." This report prepared for the U.S. Army Corps of Engineers (USACE) Louisville District by David Hays of the USACE Tulsa District, was received at NEDO on November 24, 1998.

The OEPA, NEDO, DERR has the following comments on the document:

1. Section 4.1.2 should be revised to indicate "A *preliminary* assessment was conducted and documented in..."

2. Section 4.3.1 indicates that "... the west rail bed had recently been dug up to remove the rail ties." This statement raises two concerns:

   a. Can the potential exposure effect on the workers who recently removed the railroad ties and rails be calculated, and

   b. was this recent intrusive activity taken into account when looking into the depth of contamination at the Area of Concern (AOC)?

3. Section 4.3.2 indicates that "two crushed and badly corroded drums were on the site" and that they were contaminated with radioactive material. The Agency requests that the drums and any contents be removed and disposed of in accordance with all applicable State and Federal rules, laws, and regulations.

4. Were any readings obtained from the 48 m^2 concrete pad that is located in the contaminated area east of tank 1306? (Section 4.3.3) If so, please provide this information in the text.

5. The footnote to Section 4.4 indicates that the Derived Concentration Guidelines (DCGL) presented in Table 4.4 were representative of an industrial use scenario. The future land use of the Ravenna Army Ammunition Plant (RVAAP) has not been determined and, as such, it is premature to focus on an industrial use scenario. In addition, the Ohio National Guard (ONG) may soon be signing a lease agreement for a majority of the installation property. It is strongly recommended that the appropriate representatives from the ONG and/or National Guard Bureau (NGB) be involved in the review and comment on any pertinent documents, and also be included in any meetings discussing site-related issues.

6. Section 5.1.6 indicates that the daily response check was not recorded for the Ludlum 2350 with GM probe, which was utilized to scan personnel out of the exclusion zone. Confirmation is requested that the above-referenced meter accurately responded to the check source on a daily basis.

7. In Section 5.2, please provide a discussion on what criteria were utilized to determine the selected reference area.

8. On Figure 5-2, does the potential exist for contamination to be present outside of the grid area due to the previous intrusive activities, i.e., the removal of the existing railroad ties and rails? Please provide any additional available information in the revised text.

9. Section 5.4.3.1 indicates that the removal of "extremely elevated" counts in the AOC resulted in an average of 10,967 counts per minute (cpm). How was the 50,000 cpm level (and above) determined to be extremely elevated? Was this based upon a specified statistical evaluation of the data? In addition, is this the criteria for determining what constitutes a "hot-spot? Please provide further information regarding these issues in the revised text.

10. Were any readings obtained from the railroad ties that were removed from this AOC? If so, please provide this information in the revised text. Any available data needs to be evaluated, as it may potentially effect options for the disposal of the railroad ties. Were any readings obtained from the railroad ballast? (Section 5.2.2)

11. The text in Section 5.5.5 indicates that "However, if excavation is selected, a remedial action survey such as in-situ gamma spectrometry to guide the excavation would provide

the accuracy to insure a cost effective and protective remediation and eliminate the potential need for additional sampling." The OEPA requests further documentation regarding the use of the in-situ gamma spectrometry, including (but not all inclusive) whether or not this has been standard operating procedure (SOP) at other sites in Ohio, the accuracy in determining the limits of the excavation utilizing such technology, and, the pertinent associated quality assurance/quality control (QA/QC) manuals. In addition, the Agency's position is that confirmation sampling of the remaining soils would be required to ensure that the clean-up has achieved the agreed-upon criteria.

12. The OEPA agrees that there must be regulator approval of the DCGLs prior to the commencement of any remedial actions. (Section 6.1.3)

13. A description of the "external pathway" should be provided in the text of the report. (Section 6.1.3.1)

14. With respect to the alternatives presented in Section 6.2, the OEPA's position is that the "no action" alternative, the "fence" alternative, the "cover" alternative, and the "in-situ treatment alternative", are not viable options. Alternative # 4, which consists of remediation and disposal of the contaminated soil, appears to be the most acceptable option. Clarification is requested with respect to Table 6-2, i.e., do the costs reflect the removal of the entire AOC, or solely the "hot-spot" areas? Because of un-resolved future land use issues, and the potential dispersion of contaminants, etc., the Agency's position is that any portion of the AOC exhibiting concentrations greater than the determined installation background should be excavated.

15. The OEPA position is that the remedial activities should focus on the elimination of the source. (Section 7.3)

16. Appendix C contains the quality assurance information, including the Chain of Custody (COC) form for samples submitted to the laboratory for analysis. It is noted that the COC was not signed by the person to whom the samples were relinquished, nor was a copy of the FedEx waybill included with the COC form. Please provide these items in the revised document.

17. Several of the maps of the monazite sand storage tank farm area delineate the approximate location of a "crushed drum." The text in Section 4.3.2 indicate that two crushed/corroded drums were identified at this AOC. Are the two drums located in the same grid area?

18. Please provide a copy of the Resrad Summary Report (Scenario B - residential) in the revised document.

If you have any comments or 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: Bob Princic, NEDO, DERR
Diane Kurlich, NEDO, DDAGW
Greg Orr, NEDO, DHWM
Brian Tucker, CO, DERR, EAU
Bonnie Buthker, OFFO, SWDO
Catherine Stroup, CO, Legal
Ruth Vandegriff, ODH, Columbus
Bob Whelove, IOC
Mark Patterson, RVAAP
John Cicero, RVAAP
David Hays, USACE, Tulsa
Kevin Jasper, USACE, Louisville
LTC Tom Tadsen, ONG/RVAAP
David Seely, USEPA, Region V

OhioEPA

State of Ohio Environmental Protection Agency

STREET ADDRESS:
1800 WaterMark Drive
Columbus, OH 43215-1099

TELE: (614) 644-3020 FAX: (614) 644-2329

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

1/20/99 ENV

December 16, 1998

Re: Portage and Trumbull Counties / City of Newton Falls / Braceville Township
Grant of Section 401 Certification
Project to after-the-fact fill three acres of wetland to construct a parking lot
Public Notice No. (P)199700503

Ohio Army National Guard
Attn: Capt. Tom Daugherty
AGOH-FM-EN
2825 West Dublin Granville Road
Columbus, Ohio 43235

Environmental Protection Agency
By: ______ Date ______

ENTERED DIRECTOR'S JOURNAL DEC 16 98

Ladies and Gentlemen:

Pursuant to Section 401 of the Federal Water Pollution Control Act, Public Law 95-217, the Director of Ohio Environmental Protection Agency hereby certifies that the above-referenced project will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act. This certification is specifically limited to a 401 certification with respect to water pollution and does not relieve the applicant of further certifications or permits as may be necessary under the law. I have determined that a lowering of water quality in an unnamed tributary to the West Branch of the Mahoning River as authorized by this certification is necessary. I have made this determination based upon the consideration of all public comments, and including the technical, social, and economic considerations concerning this application and its impact on waters of the state. This certification is issued subject to the following conditions:

Fill used in this project shall consist of suitable material free from toxic contaminants in other than trace quantities.

Extreme care must be employed throughout the course of this project to avoid the creation of unnecessary turbidity which may degrade water quality or adversely affect aquatic life outside of the project area.

Any damages to the immediate environment of the project by equipment needed for construction or hauling will be repaired immediately.

Mitigation shall be as shown in plan attached to applicant's letter to Ohio EPA dated November 30, 1998.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code by any person who was a party to this proceeding. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the Environmental Review

Appeals Commission within thirty (30) days after the notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency and the Environmental Enforcement Section of the Office of the Attorney General within three (3) days of the filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission, 236 East Town Street, Room 30, Columbus, Ohio 43266-0557.

Sincerely,

Donald R. Schregardus
Director

cc: S. Hans, U.S. Army Corps of Engineers, Pittsburg District
Dave Schulenberg, U.S. EPA, Region 5
Kent Kroonemeyer, U.S. Fish & Wildlife Service
Kim Baker, ODNR, Division of Real Estate & Land Management
M. Smith, DSW, CO
401 file

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

December 30, 1998

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
DLA STOCKPILE CLOSURES

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

Dear Mr. Patterson:

On December 02, 1998, a meeting was held at the Ravenna Army Ammunition Plant (RVAAP) to discuss the Defense Logistics Agency (DLA) stockpiles that currently exist at the installation, and those that had been previously excessed (sold). The meeting was attended by representatives from the RVAAP, DLA, Army Environmental Center (AEC), U.S. Army Corps of Engineers (USACE), and the Ohio Environmental Protection Agency (OEPA).

During the meeting, the DLA representatives indicated that while removing the strategic ore piles, typically 2 - 3 % of the material is left on the ground surface and that post-closure investigation and sampling has not been required by other states in which DLA stockpiles are located. Subsequent to the meeting, the Agency contacted various other entities to investigate the closure of DLA stockpiles in their respective states. Several responses were received and two of these are summarized below:

1. Whittier, AK - At this installation, the regulatory agency(ies) worked with the DLA through the active Army to ensure that investigation and clean-up activities were conducted at the DLA tank farms. The Army's position was that the property needed to be returned to them without any potential environmental liabilities.

2. Savanna, IL - At this installation, the DLA's position on investigation and clean-up is unclear, however, the installation plans to conduct sampling activities and remediation efforts (if needed). At the very least, Preliminary Assessment (PA) and Site Investigation (SI) type efforts are anticipated to occur.

At a minimum, I would anticipate that the residual materials would meet the regulatory definition of solid waste, which in part states that it "means such unwanted residual solid or semi-solid materials as results from industrial, commercial, agricultural and community operations..." In addition, the Community Environmental Response Facilitation Act (CERFA) of 1992 amended the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in an

effort to facilitate base closure and reuse. This act provides guidance for the identification of uncontaminated parcels with regulatory concurrence, and allows transfer of remediated parcels when the successful operation of an approved remedy is demonstrated to the regulatory agency(ies).

It is the position of the Ohio EPA that all of the closed (and closing) DLA stockpiles located at the RVAAP must be evaluated for any potential effects on human health and the environment. Details of what would constitute an acceptable investigative and sampling effort can be discussed with the appropriate parties in future scoping meetings.

I trust that this correspondence clarifies the Ohio EPA's position on this issue. If you have any questions or concerns, 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: Bob Princic, NEDO, DERR
Diane Kurlich, NEDO, DDAGW
Jarnal Singh, NEDO, DSIWM
Greg Orr, NEDO, DHWM
Brian Tucker, CO, DERR, EAU
Bonnie Buthker, OFFO, SWDO
John Cicero, RVAAP
Bob Whelove, IOC
LTC Tom Tadsen, ONG, RVAAP
John Jent, USACE, Louisville
David Seely, USEPA, Region V

OhioEPA
State of Ohio Environmental Protection Agency
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George V. Voinovich
Governor

April 30, 1998

RE: Ravenna Army Ammunition Plant
Portage/Trumbull Counties
OEPA ID # 267-0859
Additional AOC Report

Mr. Kevin Jasper
Project Manager
U.S. Army Corps of Engineers
Louisville District
ATTN: CEORL-DL-B
P.O. Box 59
Louisville, KY 40201-0059

Dear Mr. Jasper:

The Ohio Environmental Protection Agency (OEPA) Northeast District Office (NEDO) Division of Emergency and Remedial Response (DERR) has received and reviewed a copy of the document entitled "Draft Additional AOCs at RVAAP, OH." This document, dated April 13,1998, was prepared by personnel from the U.S. Army Corps of Engineers (USACE), Louisville District, and was received at OEPA on April 14, 1998.

The OEPA has reviewed the document and the following comments are provided:

1. The OEPA concurs that all of the potential areas of concern (AOCs) detailed in this document should be ranked utilizing the Relative Risk Site Evaluation (RRSE) process, and subsequently scoped and investigated as part of the phased the remedial investigations (RIs) being conducted at the installation.

2. Any intrusive activities conducted at these AOCs must be preceded by authorization from the Director under Ohio Administrative Code (OAC) 3745-27-13.

3. On pg. 3, please note that the text should indicate that AOCs 32-38 were added during the preliminary assessment (PA) process.

4. The OEPA requests further discussion on the list of potential contaminants of concern (PCOCs) detailed for each potential AOC on page 4. For example (not all inclusive), metals analyses would seem to be appropriate for many of the AOCs (for example AOCs 39-50), as well as propellants, explosives (for example at AOCs 54-55), and pesticides/herbicides at AOC 52. The list of PCOCs should be finalized between all stakeholders prior to any field work being initiated by the USACE or the United States Army Center for Health Promotion and Preventive Medicine (USACHPPM).

5.. The OEPA concurs that RVAAP-4 (Demolition Area # 2) should be expanded to include the additional demolition areas south of Sand Creek and those areas where white phosphorous may have been buried. Given the nature of the activities conducted in this area, and the potential for the presence of Unexploded Ordnance (UXO), Explosives Ordnance Demolition (EOD) personnel should be on-site during any reconnaissance and investigative activities.

6. In the descriptions of the potential new AOCs, the text should indicate how the approximate sizes of the AOC were determined (i.e. from historical aerial photographs, fenceline to fenceline, etc.).

7. In the description of the individual additional AOCs, the following comments are related to the suggested sampling section (for all AOCs):

   a. further discussion is warranted regarding the constituents of concern list for samples that will be sent to the laboratory for analysis, as the list is not complete;

   b. the text indicates that "At any field detects, take a soil sample and analyze for the full suite of explosives, TAL metals, and cyanide." Is this based upon field detects for explosives (TNT or RDX) and/or lead analyses? In addition, further discussion is warranted regarding the implementation of field screening methods for metals analyses;

   c. is the proposed work being used for RI purposes, i.e. determining the nature and extent of contamination? If so, the analytical suite must be consistent with the phased RI work already being conducted at RVAAP, i.e., at least 10% of the obtained samples should be analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and pesticides/PCBs, in addition to analyses for Target Analyte Metals (TAL), cyanide, and explosives; and,

   d. 15% of the non-detect explosives samples should also be submitted to the laboratory for analysis.

8. If known, please provide any information regarding the different types of fuzes and primers manufactured at the various Load Lines detailed in this document. For example, was the difference merely due to a size differential, or were there any differences in the chemical composition?

9. Further discussion with other OEPA divisions may be warranted regarding the proper closure of the igloos located at the wet storage area. In addition to the constituents listed on the suggested sampling list, the samples should be analyzed for the full suite of explosives, consistent with the earlier phases of work conducted at the installation.

10. To the best of my recollection, there was an herbicide tank located at potential AOC # 52 (Locomotive Repair Shop) in addition to the tank located at AOC # 53. If this is correct, the analytical suite of constituents will need to be expanded at AOC # 52 to include pesticides/herbicides.

11. The Agency recommends that EOD personnel be on-site during the investigation of the Atlas Scrap Yard based upon the potential for UXO to be present in the area.

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:cl

cc: Bob Princic, NEDO DERR
Diane Kurlich, NEDO DDAGW
Greg Orr, NEDO DHWM
Brian Tucker, CO DERR EAU
Catherine Stroup, CO Legal
Bonnie Buthker, OFFO SWDO
Bob Whelove, IOC
Mark Patterson, RVAAP
John Jent, USACE Louisville
LTC Tom Tadsen, ONG/RVAAP
Steve Selecman, SAIC
David Seely, USEPA Region V

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

May 18, 1998

RE: RAVENNA ARMY AMMUNITION PLANT
OH5 210-020-730
DRAFT RCRA CLOSURE FIELD
INVESTIGATION REPORT

Mr. Kevin Jasper, Project Manager
U.S. Army Corps of Engineers, Louisville District
ATTN: CEORL-DL-B
P.O. Box 59
Louisville, KY 40201-0059

Dear Mr. Jasper:

On March 5, 1998 the Ohio EPA received your document dated March 1998, regarding the draft report of the RCRA closure field investigation for the Ravenna Army Ammunition Plant's (RVAAP) Deactivation Furnace Area (DFA), Open Detonation Area (OD), Building 1601 (1601), and Pesticides Building (PB), located within the RVAAP installation at 8451 State Route 5, Ravenna, Ohio. Based upon review of this document, the following comments have been made:

COMMENTS:

1. The text should be made clearer to indicate which analyses for explosives were conducted in the laboratory, and which were in-situ tests.

2. Based upon the presence of nitrocellulose in several soil samples at the OD area, RVAAP shall analyze for propellents each time explosive compounds are sampled.

3. Based upon the results of the slag analyses, it would appear that the slag is not the source of beryllium as had been speculated. RVAAP may wish to investigate other possible sources of beryllium contamination. The explanation of this contamination may be addressed once further background assessments are done.

RVAAP shall address the above mentioned comments prior to the submittal of the final report.

If you should have any questions or concerns regarding these comments, please feel free to contact me at (330) 963-1189.

Sincerely,

Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO:ddb

cc: Carolyn Princic, DHWM, NEDO
Bob Princic, DERR, NEDO
Diane Kurlich, DGW, NEDO
Eileen Mohr, DERR, NEDO
Kathryn Dominic, SAIC
Tim Leet, SAIC
John Ciecero, Jr., RVAAP
John Jent, USACE Louisville
Mark Patterson, RVAAP

OHIO ENVIRONMENTAL PROTECTION AGENCY

EMERGENCY HAZARDOUS WASTE PERMIT

Name of Applicant: Ravenna Army Ammunition Plant

Mailing Address: 8451 State Route 5, Ravenna, Ohio 44266

Facility Location: Ravenna Army Ammunition Plant, 8451 State Route 5, Ravenna, Ohio 44266

Treatment Location: Ravenna Army Ammunition Plant, 8451 State Route 5, Ravenna, Ohio 44266

Ohio ID Number: 02-67-711E

Effective Date: May 27, 1998

Expiration Date: June 10, 1998

AUTHORIZED ACTIVITIES

Pursuant to Ohio Revised Code Section 3734.02(C) and rules promulgated thereunder (Ohio Administrative Code Rule 3745-50-57) and Ohio Revised Code Section 3704.03(E) and rules promulgated thereunder (Ohio Administrative Code Chapter 3745-19), an emergency permit is issued to the applicant indicated above (hereinafter "Permittee") to operate a hazardous waste treatment facility and cause or allow open burning at the location indicated in the terms and conditions of this permit. The conditions of this permit were developed in accordance with applicable provisions of Ohio Administrative Code Chapter 3745-19, Chapter 3745-50 and the Hazardous Waste Facility Standards Chapters 3745-50 et seq. Verbal approval to conduct this activity was authorized by the Director of the Ohio EPA on May 26, 1998.

PERMIT APPROVAL

The Permittee shall comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (including those in any attachments) and the applicable rules specified in the permit. Applicable rules are those which are in effect on the date of the issuance of this permit. This permit may be revoked at any time without process if the Director determines that revocation is appropriate to protect public health, safety or the environment. The terms and conditions of this permit may be revised during its duration if the Director determines that such revision is necessary to protect public health, safety or the environment.

by _____
Jennifer Tiell
Assistant Director

Date: August 18, 1998

OHIO E.P.A.

AUG 18 98

ENTERED DIRECTOR'S JOURNAL

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: _____ Date 8-18-98

I. Standard Conditions. The Permittee shall comply with Rule 3745-50-58, of the Ohio Administrative Code (OAC) "Conditions applicable to all permits", which conditions are incorporated herein by reference.

II. General Facility Conditions. The Permittee shall comply with the following rules of the Ohio Administrative Code which are incorporated herein by reference:

3745-54-14(A), (B)	- Security
3745-54-15(A)	- General Inspection Requirements
3745-54-17(A), (B)	- General Requirements for Ignitable, Reactive or Incompatible Waste
3745-54-31	- Design and Operation of Facility
3745-54-32	- Required Equipment
3745-54-33	- Testing and Maintenance of Equipment
3745-54-34	- Access to Communications or Alarm System
3745-54-37	- Arrangements With Local Authorities
3745-54-55	- Emergency Coordinator
3745-54-56	- Emergency Procedures
3745-54-73(A), (B)(1), (B)(2)	- Operating Record
3745-54-74	- Availability, Retention and Disposal of Records
3745-55-11	- Closure Performance Standards
3745-55-14	- Disposal or Decontamination of Equipment
3745-55-47	- Liability Requirements
3745-55-48	- Incapacity of Owners or Operators, Generators, or Financial Institutions

III. Special Conditions.

A. Waste Identification. The Permittee may treat items listed in Attachment I.

B. Method of Treatment. Authorized treatment under this permit shall be detonation of the hazardous wastes cited above.

C. Location. Treatment shall occur on-site at the Ravenna Army Ammunition Plant. Selection of the treatment area shall be made on the basis of topography, wind direction, proximity to utility lines and/or other man-made constructions and any other factors, so as to minimize any deleterious effect on the public and the environment. The Permittee shall take all appropriate measures to minimize noise occasioned by the detonation and to minimize the emissions of air contaminants.

Isolation distances shall be at least those required by OAC Rule 3745-68-82.

Pounds of waste, explosives or propellants	Minimum distance detonation to the property of others
0 - 100	204 meters (670 feet)
101 - 1,000	300 meters (1,250 feet)
1,001 - 10,000	530 meters (1,730 feet)
10,001 - 30,000	690 meters (2,260 feet)

D. Preparedness and Prevention. Detonations shall occur in an area capable of withstanding a blast. Adequate security shall be provided by the Permittee, to prevent the entry of persons into dangerous areas surrounding the detonation zone. Adequate firefighting and first aid equipment shall be provided by the Permittee and/or by the local fire department.

Handling and transportation of the waste to the treatment area shall be accomplished by persons with experience and/or training in the handling of reactive and ignitable materials. All wastes shall be properly packed and stabilized prior to transportation.

The detonation shall take place under the direct supervision of Mr. Mark Patterson or his authorized designee.

E. Inspection/Disposal of Residues. The Permittee shall inspect the treatment area after each detonation for undetonated waste. The Permittee shall determine whether detonation residues are hazardous

wastes pursuant to the OAC Rules 3745-50-01 et seq. with such determination subject to confirmation by Ohio EPA personnel. All residues determined to be hazardous waste shall be managed as such pursuant to the OAC Chapters 3745-50 et seq.

F. Other Approvals. Prior to treatment under this permit, the Permittee shall obtain all necessary federal and local approvals, permits, and/or licenses.

G. Required Notices. Mr. Mark Patterson shall notify the Ohio EPA, Division of Hazardous Waste Management upon completion of this emergency treatment. The information to be supplied in this report should be a brief summary of the activity authorized by this permit and should include the following elements:

1. The type and quantity of hazardous waste involved;
2. The specific location of the activity authorized by this permit;
3. The name of the authorized designee (if one is so appointed);
4. The method of treatment (oper burning/open detonation, if such activity is involved); and,
5. A description of any unusual circumstances involved in the management of the hazardous waste described in this permit.

Send the notification to: Ohio EPA, Division of Hazardous Waste Management, Attn: Data Management Section, 1800 WaterMark Drive, Columbus, Ohio 43215-1099.

c:\emergprt\facprt

OHIO E.P.A.
AUG 18 98
ENTERED DIRECTOR'S JOURNAL

Munitions to be Detonated at RVAAP Detonation Area #2 under OEPA Emergency Permit

Building	Quantity	Description	Date Detonated	EOD Supervisor Signature
3-D-12	26 each	Fuzes		
3-D-12	25 lbs.	Black Powder		
3-D-12	34 each	152 MM Projectile		
3-D-12	8 each	Electric Squibes		
3-D-12	21 each	Copper Head Flight Fin Sections		
3-D-12	500 each	Electric Squibes		
3-D-12	11 each	Reload Kits for 1001 MI Fire Extinguisher		
3-D-12	80 lbs.	50 Caliber Ball Propellant		
3-D-12	25 lbs.	Black Powder		
3-D-12	1 each	105 ApDS-T Projectile		
3-D-12	44 each	M-571 Fuzes		
3-D-12	9 each	Detonating Assembly for M-571 Fuzes		
3-D-12	2 each	90 MM TP-T Cartridge		
3-D-12	39 each	105G Apers-T M494 CRTG		
3-D-12	28 each	105G Apers-T M494 CRTG with Mechanical Fuze		
3-D-12	27 each	MK 22 Fuzes		
3-D-12	554 each	Type A Electrical Squibs		
3-D-12	100 each	Type B Electrical Squibs		
3-D-12	39 each	105G Apers-T M494 CRT		
F-15	1 each	Submunition M - Cheesewedge		
F-15	1 each	90 MM Fuze		
F-15	1 each	Unknown Booster		
F-15	1 each	M205 C&G Case		
F-15	6 each	Small Bags of Powder		
F-15	1 each	Stick TNT		
F-15	4 each	Concrete TPT M764 with Live Tracers		

Munitions to be Detonated at RVAAP Detonation Area #2 under OEPA Emergency Permit

Buildin	Quantity	Description	Date Detonated	EOD Supervisor Signature
F-15	1 each	80 MM mortar		
F-15	1 each	81MM Mortar with Fuze		
F-15	100 each	Various Primers		
F-15	311 each	40 MM Cartridge		
F-15	1 each	Can TNT Stuff		
I-C-13	200 each	45 Caliber Ball Rounds		
I-C-13	8805 each	5.56 Ball Rounds		
I-C-13	2 lbs. 6 oz.	M-1 Propellant		
I-C-13	2 lbs. 6 oz.	WC 846 Propellant		
6-C-4	69 lbs.	Scrap Comp B		
6-C-4	7, 300 Ft.	Det Cord		
6-C-5	550 each	Electric Squibes		
6-C-5	678 each	M-6 Electric Blasting Caps		
2-D-7	11351 eac	3"/50 ADF		

Donor Material to be Used as Needed to Detonate Munitions*

Building	Quantity	Description	Amount Used	Date Used	EOD Supervisor Signature
6-D-2	50 lbs.	Tetryl			
6-D-2	120 lbs.	Cyclotol			
6-D-2	60 lbs.	Comp A5			
6-D-2	60 lbs.	Comp A5			
6-D-2	120 lbs.	Comp A5			
6-D-2	240 lbs.	Comp A5			
6-D-2	414 lbs.	Nitro			
6-D-2	1000 lbs.	Comp A5			

* All Donor Material is currently classified as unserviceable and will be used in the order listed. Only the amount of Donor Material needed to detonate the munitions will be used.

STATE OF OHIO
ENVIRONMENTAL PROTECTION AGENCY
P.O. BOX 1049, 1800 WATERMARK DRIVE
COLUMBUS OH 43216-1049

OhioEPA

8/19/98
CF CR-COR 8/19
DEOP/ARM
ENV 8/19
CONTR
RECEIVED

TELECOPIER COVER LETTER

PLEASE DELIVER THE FOLLOWING PAGE(S) TO:

NAME: Eileen Mohr COMPANY: Ohio EPA - NEDO FAX #:
NAME: COMPANY: FAX #:
NAME: COMPANY: FAX #:
NAME: COMPANY: FAX #:
NAME: COMPANY: FAX #:
NAME: COMPANY: FAX #:
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NAME: COMPANY: FAX #:
NAME: COMPANY: FAX #:

TOTAL NUMBER OF PAGES INCLUDING COVER SHEET: 8

DATE: August 18, 1998

SENDER: Alan Harness, OHWM 644-2820

ADDITIONAL MESSAGE: Here is a copy of the emergency permit for Ravenna Arsenal - It will be mailed to them tomorrow.

IF YOU DO NOT RECEIVE ALL OF THE PAGES AND/OR IF ANY PROBLEMS ARISE DURING TRANSMISSION, PLEASE CALL ASAP AT (614) 644-3020.

MY FACSIMILE NUMBER IS: (614) 644-2329

INTER - OFFICE COMMUNICATION

TO: **Greg Orr, NEDO DHWM**

FROM: **Eileen T. Mohr, NEDO DERR**

DATE: **August 04, 1998**

RE: **Ravenna Army Ammunition Plant (RVAAP) RCRA Closure Workplans**

The following documents were received at OEPA NEDO on July 02, 1998 and July 08, 1998 and reviewed by the DERR project coordinator for the RVAAP:

1. "Draft, Project Management Plan, Site-Wide Safety and Health Plan, Chemical Data Acquisition Plan, Contractor Quality Control Plan, Groundwater and Surface Water Management Plan, Ravenna Army Ammunition Plant, Ravenna, Ohio;"

2. "Draft, Closure Activities Workplan, Buildings W-221 and X-232, Ravenna Army Ammunition Plant, Ravenna, Ohio;"

3. "Draft, Closure Activities Workplan, Pesticide Building T-4452, Ravenna Army Ammunition Plant, Ravenna, Ohio;"

4. "Draft, Closure Activities Workplan, Building 1601, Ravenna Army Ammunition Plant, Ravenna, Ohio;"

5. "Draft, Closure Activities Workplan, Deactivation Furnace Area, Ravenna Army Ammunition Plant, Ravenna, Ohio;" and,

6. "Draft, Closure Activities Workplan, Open Burning Ground Facility, Ravenna Army Ammunition Plant."

These documents, dated July, 1998, were prepared by the contractor for the U.S. Army Corps of Engineers (USACE), Louisville District, under contract number DACA27-97-D-0005, delivery order number 0009.

The comments detailed in this memo, were verbally presented to representatives of USACE and International Technology (IT) Corporation during a meeting held at RVAAP on August 04, 1998. The comments are general in nature, and are applicable to all of the above-referenced documents. During the meeting, it was requested that the following changes be made to all applicable documents:

1. All workplans and project management plans must accurately reflect, and be in accordance with, the Closure Plans that have been approved by the Director of

2. The correct spelling for "Trumbull" County should be inserted into the texts at the appropriate places.

3. When the disposition of investigation-derived wastes (IDW) is referenced, it is requested that the text read ".. in accordance with all applicable state and federal rules, laws, and regulations."

4. Specific to the closure workplan for the deactivation furnace area, it was requested that any available information regarding the former (or potentially still present) contents of the above-ground storage tank (AST) be researched prior to conducting demolition activities. This issue was raised as a potential health and safety issue for on-site workers.

5. The revised workplans should indicate that the borrow material that will be utilized during closure activities will be obtained from an off-site source, and not from the RVAAP installation.

6. The issue of using roll-off boxes for generated soil IDW vs. stockpiling the IDW was discussed during the meeting. The Agency was assured that a stringent stockpile management plan will be followed daily to ensure that no problems with the IDW are encountered. (No changes to the text are needed - this is a point of information).

7. The USACE and IT Corporation were encouraged to look at utilizing the Load Line 12 Waste Water Treatment Plant (WWTP) for the for the disposal of the liquid IDW. This WWTP has been utilized during CERCLA activities, subsequent to DSW approval, as long as it meets all applicable requirements. (No changes to the text are required - this is a point of information.)

8. Prior to the disposition of any IDW, the appropriate testing criteria will be discussed and agreed-upon by the USACE, RVAAP, IT, and Ohio EPA. However, it is recognized that the ultimate responsibility for this issue, lies with the generator of the waste material, and that the generator needs to work closely with the accepting disposal facility.

9. Specific to the deactivation furnace area and the open burning grounds (burn tray area) there is the potential for unexploded ordnance (UXO) to exist. The text of both these workplans should reflect that EOD support will be required.

10. Boreholes (unless from the 0-6" interval) must be abandoned by utilizing a

bentonite grout. Back-filling the boreholes with excess soil is not acceptable.
The text of the workplans (specifically the Building 1601 document) should be

changed to reflect this comment.

11. The approximate detection limits for the immunoassay testing for field screening for pesticides/herbicides should be presented in the text of the pesticide building workplan. In addition, the text of the workplan (pg. 8) indicates that "Soil samples for immunoassay field screening will be collected from the base of two excavations at Building T-4452 to determine if significantly impacted soils have been removed." How is the term "significantly" defined? The text of this workplan should also indicate that the requested turn-around time for the confirmation soil samples will be 48 hours. Relevant information from the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) Relative Risk Site Evaluation (RRSE) document should also be referenced in this workplan.

12. The text of the Buildings W-221 and X-232 workplan should be revised to indicate that no observable cracks were noted in the floors of the buildings (pg. 3). Confirmation sampling in one of the 90 day storage buildings (i.e. the one that contained solvents) will also include VOCs and SVOCs - the text should be revised to reflect this change. On page 7, the reference to the "..removal of existing drums from the buildings..." should be stricken from the text, as no drums are currently present in the buildings.

13. The text of the workplans should indicate that if dust suppression techniques are implemented at any of the areas, it will consist of a mist of clean water (i.e., no brines, waste oils, etc. will be utilized).

14. During the site meeting/visit on August 04, 1998, six locations within Building 1601 were chosen as the potential areas to be sampled. In each case, the locations were either in a cracked area, stained area, or in a potential "downgradient" direction, or a combination of these criteria. The locations are acceptable to DERR, however, it was re-iterated that DHWM has the lead on this portion of the project and that the locations should be checked with your division. (No changes to the text are required - this is a point of information).

15. In the Contractor Quality Control Plan (located in the project management plan), all references to the Joliett Army Ammunition plant should be replaced with Ravenna Army Ammunition Plant.

16. In the Groundwater and Surface Water Management Plan (located in the project

management plan) - the Ohio EPA should be consulted prior to the discharge of groundwater from the holding tank(s).

cc: Bob Princic, NEDO DERR
Bonnie Buthker, OFFO SWDO
Diane Kurlich, NEDO DDAGW
Mark Patterson, RVAAP
John Jent, USACE Louisville
Bill Norton, IT Corporation
W. Charles Shafer, IT Corporation

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

August 7, 1998

RE: DRAFT CLOSURE ACTIVITIES
WORK PLAN COMMENTS
RAVENNA ARMY AMMUNITION PLAN
OH5-210-020-736

John P. Jent, P.E.
U.S. Corps of Engineers
600 Martin Luther King, Jr. Pl.
Louisville, KY 40201-0059

Dear Mr. Jent:

On July 2, 1998 the Ohio EPA received the following documents:

* "Draft, Closure Activities Work plan, Open burning Ground Facility, Ravenna Army Ammunition Plant (RVAAP);"

* "Draft, Closure Activities Work plan, Building 1601, RVAAP, Ravenna, Ohio;"

* "Draft Closure Activities Work plan, Deactivation Furnace Area, RVAAP, Ravenna, Ohio;"

* "Draft, Closure Activities Work plan, Buildings W-221 and X-232, RVAAP, Ravenna, Ohio;"

* Draft, Closure Activities Work plan, Pesticides Building T-4452, RVAAP, Ravenna, Ohio;" and,

* "Draft, Project Management Plan, Site-Wide safety and health Plan, Chemical Data Acquisition Plan, Contractor Quality Control Plan, Groundwater and Surface Water Management Plan, RVAAP, Ravenna, Ohio."

These documents were submitted to describe how closure of the above mentioned areas will be implemented. The documents, dated July 1998, were prepared by the International Technology Corporation, for the U.S. Army Corp of Engineers (USACE), Louisville district, under contract number DAC27-97-D-0005, delivery number 0009. The RVAAP is located at 8451 State Route 5, Ravenna, Ohio.

I am providing you with a statement of comments and/or concerns with the draft plans outlined in Attachment A.

As in these drafts the final modified work plans should be prepared in accordance with the following editorial protocol or convention:

1. Old language is overstruck, but not obliterated.

2. New Language is capitalized.

3. Page headers should indicate date of submission.

4. If significant changes are necessary, pages should be re-numbered, table of contents revised, and complete sections provided as required.

The final modified work plans should be submitted to: Ohio Environmental Protection Agency, Division of Hazardous Waste Management, Attn: Tom Crepeau, Manager, Data Management Section, P.O. Box 1049, Columbus, Ohio 43216-1049. A copy should also be sent to : Gregory Orr, Ohio EPA, Northeast District Office, 2110 East Aurora Road, Twinsburg, Ohio 44087.

Please be advised that the work plans must accurately reflect and be in accordance with the Closure Plans that have been approved by the director of the Ohio EPA. The Director's approval for the Open Detonation Area (OD), Container Management Area (Building 1601), and the Open Burning Grounds (OBG) closure plans were issued on February 12, 1998. Please be advised that RVAAP must comply with applicable Ohio Administrative Code (OAC) rules pertinent to closure, specifically rule 3745-66-13. If closure can not be completed in the time frame allowed then an extension request must be submitted.

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/sp

Enclosures

cc: Carolyn Princic, DHWM, NEDO
Diane Kurlich, DGW, NEDO
Eileen Mohr, DERR, NEDO
Mark Navarre, Legal, CO
Montee Suleiman, DHWM, CO
Mark Patterson, RVAAP
Bill Norton, IT Corporation

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

August 7, 1998

RE: RAVENNA ARMY AMMUNITION PLANT
OH5 210-020-730
RCRA CLOSURE FIELD
INVESTIGATION REPORT

Mr. Kevin Jasper
Project Manager
U.S. Army Corps of Engineers
Louisville District
ATTN: CEORL-DL-B
P.O. Box 59
Louisville, KY 40201-0059

Dear Mr. Jasper:

The Ohio EPA received your document dated June 1998, regarding the final draft report of the RCRA closure field investigation for the Ravenna Army Ammunition Plant's (RVAAP) Deactivation Furnace Area (DFA), Open Detonation Area (OD), Building 1601 (1601), and Pesticides Building (PB), located within the RVAAP installation at 8451 State Route 5, Ravenna, Ohio. Based upon review of this document, the following comments have been made:

COMMENTS:

1. The text in the third paragraph of Section 2.2, page 5, has been modified to indicate that TNT was detected in one surface soil sample and two soil samples collected from the 2-4 foot interval at concentrations ranging from <1 to 34 ppm. The symbol <1 indicates that a compound was not detected. Given that the text indicates that the range of concentrations documented are what was detected, it is unclear why it includes <1. This should be clarified and the section modified accordingly.

2. The draft document indicated that nitrocellulose was detected in three surface soil samples, including SS-17. The final document has omitted reference to SS-17. The reason for this omission is unclear. The data sheets included in Appendix A indicate the nitrocelluose was detected in sample SS-17 at an estimated value of 2.8 mg/kg. Even though the concentration of nitrocellulose was estimated, it was detected. This section as modified indicates that the propellant was only detected in two samples instead of three. This section should be modified accordingly.

3. It is unclear why references to "slag" in Section 5.1 have been changed to "stone." This should be clarified. In addition, in the last sentence of the first paragraph of Section 5.1 on page 14, slag is referenced. It is unclear if the facility meant to indicate slag or whether this reference also was to have been changed to stone. This should be clarified and the text modified accordingly. If the reference to slag in this sentence is correct, the location of the slag should be clarified.

4. It is unclear why Appendix C does not include boring logs for all of the borings installed during this investigation. This should be clarified. If additional logs are available, they should be submitted for insertion into this report.

RVAAP shall address the above mentioned comments.

If you should have any questions or concerns regarding these comments, please feel free to contact me at (330) 963-1189.

Sincerely,

Gregory Orr
Environmental Specialist
Division of Hazardous Waste Management

GO/sp

cc: Carolyn Princic, DHWM, NEDO
Bob Princic, DERR, NEDO
Diane Kurlich, DGW, NEDO
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John Jent, USACE Louisville
Mark Patterson, RVAAP

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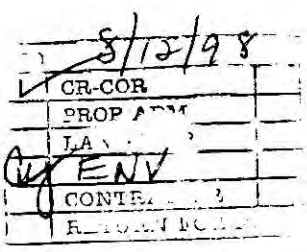


Mark - Copy

George V. Voinovich
Governor

August 7, 1998

RE: RAVENNA ARMY AMMUNITION PLANT
OH5 210-020-730
RCRA CLOSURE FIELD
INVESTIGATION REPORT

Mr. Kevin Jasper
Project Manager
U.S. Army Corps of Engineers
Louisville District
ATTN: CEORL-DL-B
P.O. Box 59
Louisville, KY 40201-0059

Dear Mr. Jasper:

The Ohio EPA received your document dated June 1998, regarding the final draft report of the RCRA closure field investigation for the Ravenna Army Ammunition Plant's (RVAAP) Deactivation Furnace Area (DFA), Open Detonation Area (OD), Building 1601 (1601), and Pesticides Building (PB), located within the RVAAP installation at 8451 State Route 5, Ravenna, Ohio. Based upon review of this document, the following comments have been made:

COMMENTS:

1. The text in the third paragraph of Section 2.2, page 5, has been modified to indicate that TNT was detected in one surface soil sample and two soil samples collected from the 2-4 foot interval at concentrations ranging from <1 to 34 ppm. The symbol <1 indicates that a compound was not detected. Given that the text indicates that the range of concentrations documented are what was detected, it is unclear why it includes <1. This should be clarified and the section modified accordingly.

2. The draft document indicated that nitrocellulose was detected in three surface soil samples, including SS-17. The final document has omitted reference to SS-17. The reason for this omission is unclear. The data sheets included in Appendix A indicate the nitrocelluose was detected in sample SS-17 at an estimated value of 2.8 mg/kg. Even though the concentration of nitrocellulose was estimated, it was detected. This section as modified indicates that the propellant was only detected in two samples instead of three. This section should be modified accordingly.

3. It is unclear why references to "slag" in Section 5.1 have been changed to "stone." This should be clarified. In addition, in the last sentence of the first paragraph of Section 5.1 on page 14, slag is referenced. It is unclear if the facility meant to indicate slag or whether this reference also was to have been changed to stone. This should be clarified and the text modified accordingly. If the reference to slag in this sentence is correct, the location of the slag should be clarified.

CF: AMSIO-EQE (P Whitlow)
AMSIO-IRI (MR INGOLD)

5. At several of the AOCs, there is the potential for unexploded ordnance (UXO) to exist. As such, EOD support in these areas is warranted.

6. Further clarification is requested on "Site F - Locomotive Service Building 47-40." Specifically, under what funding source will this area be investigated and remediated?

7. The photographs associated with the Locomotive Repair Shop indicate the presence of a potential "solvent storage" area. Please provide additional information regarding this area.

8. The text indicated that several additional areas were investigated, but were not selected for any further DERA activity. Additional discussion on why these areas were deleted as potential AOCs is warranted and requested.

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:cl

cc: Bob Princic, NEDO-DERR
Dave Sage, NEDO-DERR
Melissa Faldowski, NEDO-DERR
Greg Orr, NEDO-DHWM
Bonnie Buthker, OFFO-SWDO
Mark Patterson, RVAAP
Kevin Jasper, USACE Louisville

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

September 3, 1998

RE: RAVENNA ARMY AMMUNITION PLANT
PORTAGE/TRUMBULL COUNTIES
DRAFT SAMPLING PLAN - NEW AOCS

Mr. James R. Sheehy
USACHPPM
ATTN: MCHB-DC-EHM
Aberdeen Proving Ground, MD 21010-5422

Dear Mr. Sheehy:

The Ohio Environmental Protection Agency (OEPA) has received and reviewed the draft document entitled, "Sampling Plan, Relative Risk Site Evaluation for Newly Added Sites at the Ravenna Army Ammunition Plant, Project Number 37-EF-5360-99, Ravenna, OH, 19-27 October 1998". This document was received at OEPA's Northeast District Office (NEDO) via fax on September 3, 1998.

It is the OEPA's understanding that the express purpose of the proposed sampling is to provide data to score the additional Areas of Concern (AOCs) at the Ravenna Army Ammunition Plant (RVAAP) that need to be added to the Defense Site Environmental Restoration Tracking System (DSERTS) database as "not-evaluated", which would therefore require Relative Risk Site Evaluation (RRSE) scoring. Data that will be generated during the sampling effort will be solely used for program management purposes and are not intended to constitute Preliminary Assessment (PA), Site Investigation (SI) or Remedial Investigation (RI) type activities.

Given the above-stated understanding, the OEPA has the following comments on the draft sampling plan:

General Comments:

1. The limited sampling that is proposed will not be considered to constitute the definitive absence of contamination, nor will it be accepted to support quantitative risk assessment activities.

2. The abbreviated decontamination sequence for non-dedicated sampling equipment presented in this sampling plan is acceptable solely for this sampling effort. Any future on-site work must adhere to the decontamination procedures detailed in the site-wide work plans. In addition, the OEPA will not entertain the notion that contamination at an AOC may be due to cross-contamination from another AOC. If contamination is detected in a sample at a particular AOC, it will be assumed that the contamination is inherent to that AOC.

3. All investigation-derived wastes must be properly containerized, characterized and disposed of in accordance with all applicable State and Federal rules, laws and regulations.

4. With respect to AOC specific sampling strategies, the OEPA requests that the worst case scenario be pursued, i.e., sampling in areas with visible contamination, areas of obviously stressed/dead vegetation, production areas, etc.. In addition, it is requested that the analytical methods that are utilized achieve the lowest detection levels possible.

5. It is requested that the United States Army Center for Health Promotion and Preventive Medicine (USACHPPM) provide the OEPA with a final version of the RRSE sampling plan and health and safety plan prior to the commencement of sampling activities that are scheduled from 19-27 October 1998.

Specific Comments:

1. The text of the sampling plan should clearly delineate how it was determined that the surface water/sediment and groundwater pathways are "not complete" for several of the AOCs. In addition, based upon the discussion on page 6, RVAAP-48 (Anchor Test Area) should be added to the groundwater discussion as having a completed pathway (pg. 2).

2. In the text (pgs. 2 and 3), provide an explanation for the termination depth of 12 - 16 feet for geoprobe boreholes, if groundwater is not encountered. This depth is significantly less than the termination depth utilized during the 1996 USACHPPM studies at RVAAP.

3. On page 2, in the groundwater section, the text should read: "This method is consistent with the derivation of soil screening levels and the investigation and modeling efforts conducted at Superfund *sites* to develop soil cleanup goals and groundwater protection goals."

4. On page 4 (RVAAP-39), page 5 (RVAAP-42 and 43) and page 6 (RVAAP-44), please provide information in the text that details when the referenced samples for RVAAP-26 were obtained. In addition, please discuss whether or not this data will provide adequate information to score the current groundwater conditions existing at RVAAP-39, RVAAP-42, RVAAP-43 and RVAAP-44.

5. Attached to this correspondence is a chart from the document entitled, "Final, RVAAP Additional Environmental AOCs Report", which is dated August 21, 1998. This attached chart details the potential contaminants of concern (PCOCs) at each of the additional AOCs. The OEPA requests that the proposed sampling at each of the AOCs be expanded in order to encompass the PCOCs listed in the attached chart. (This comment affects pages 4 through 7, and the summary chart.)

6. It is the OEPA's position that the groundwater pathway is potentially complete at each new AOC. This would include the following AOCs: RVAAP-45, RVAAP-46, RVAAP-47 and RVAAP-51 (pgs. 2, 6, 7).

7. To the best of my recollection, there was a well-defined drainage area in the vicinity of Buildings F-15 and F-16 (RVAAP-46). If this is correct, the OEPA recommends that the sediment pathway also be considered "complete" at this AOC (pg. 6).

8. In the discussion of RVAAP-49 (Central Burn Pits) and RVAAP-50 (Atlas Scrap Yard), the text of the report should indicate that sub-surface soil samples will be collected for Volatile Organic Compound (VOC) analysis. The text would then be consistent with the summary chart located in the appendices.

9. With respect to the chart entitled, "Ravenna Army Ammunition Plant Not-Evaluated AOC Summary", please cross-reference comment # 5 detailed above. In addition, for the four AOCs, whose groundwater pathway may be evaluated by previously-obtained data for RVAAP-26, there should be a footnote to that effect at the bottom of the chart.

10. It is acceptable to provide the maps of the new AOCs in the revised sampling plan.

11. The OEPA requests further discussion regarding the analyte list presented in the draft sampling plan. It is the Agency's position that the constituents that are analyzed for in the RRSE investigation should be consistent with the revised "New AOCs Report" and consistent with the Remedial Investigation (RI) activities being conducted at the installation. For example (not all inclusive): Table D-1 should represent Target Analyte list (TAL) metals; Table D-2 should represent the list of explosives compounds analyzed under the low-level method of 8330 and propellants should be added to the analyte list.

I am looking forward to the investigative activities being conducted during the last two weeks of October. 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: Bob Princic, NEDO, DERR
Bonnie Buthker, OFFO, SWDO
Mark Patterson, RVAAP
John Jent, USACE Louisville

Attachment

ADDITIONAL ENVIRONMENTAL AOC's at RVAAP, OH

ADDITIONAL ENVIRONMENTAL AOC's

AOC NO.	AOC NAME	POTENTIAL CONTAMINANTS
39	LL-5/ Fuze Line 1	Lead azide, lead styphnate, black powder, TNT, Composition B, TAL metals, explosvies, propellants
	LL-6/ Fuze Line 2	Lead azide, lead styphnate, black powder, TNT, Composition B TAL metals, explosives, propellants
	(Expand existing AOC RVAAP-33 to include)	
40	LL-7/ Booster Line 1	Lead azide, lead styphnate, black powder, TNT, Composition B TAL metals, explosives, propellants
41	LL-8/ Booster Line 2	Lead azide, lead styphnate, black powder, TNT, Composition B TAL metals, explosives, propellants
42	LL-9/ Detonator Line	Lead azide, lead styphnate, black powder, TNT, Composition B TAL metals, explosives, propellants
43	LL-10/ Percussion Element	Lead azide, lead styphnate, black powder, TNT, Composition B, antimony sulfide, lead thiocyanate, TAL metals, explosives, propellants
44	LL-11/ Artillery Primer	Lead azide, lead styphnate, black powder, TNT, Composition B TAL metals, explosives, propellants
45	Wet Storage Area	Lead azide, mercury fulminate, tetryl, explosives, TAL metals propellants
46	Building F-15	Explosives and propellants, TAL metals
	Building F-16	Explosives and propellants, TAL metals
47	Bldg T-5301 (Decontamination)	Explosives and propellants, TAL metals
48	Anchor Test Area	Explosives, propellants, and TAL metals
49	Central Burn Pits	Solvents, hydraulic oils, PCB's, degreasers, semivolatiles, TAL metals, explosives, propellants
50	Atlas Scrap Yard	Hydraulic oils, PCB's, PCP's, degreasers, semivolatiles, TAL metals, possible UXO, explosives, propellants
51	Dump Along Paris-Windham Road	Asbestos, explosives, propellants, TAL metals

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 **FAX** (330) 487-0769

George V. Voinovich
Governor

9/14/98
KENV

September 10, 1998

RE: CLOSURE ACTIVITIES
WORK PLAN COMMENTS
RAVENNA ARMY AMMUNITION PLAN
OH5-210-020-736

John P. Jent, P.E.
U.S. Corps of Engineers
600 Martin Luther King, Jr. Pl.
Louisville, KY 40201-0059

Dear Mr. Jent:

On August 27, 1998 the Ohio EPA received the following documents:

* "Final, Closure Activities Work plan, Open burning Ground Facility, Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio;"

* "Final, Closure Activities Work plan, Building 1601, RVAAP, Ravenna, Ohio;"

* "Final Closure Activities Work plan, Deactivation Furnace Area, RVAAP, Ravenna, Ohio;"

* "Final, Closure Activities Work plan, Buildings W-221 and X-232, RVAAP, Ravenna, Ohio;"

* "Final, Closure Activities Work plan, Pesticides Building T-4452, RVAAP, Ravenna, Ohio;"

These documents were submitted to describe how closure of the above mentioned areas will be implemented. The documents, dated August 1998, were prepared by the International Technology Corporation, for the U.S. Army Corp of Engineers (USACE), Louisville district, under contract number DAC27-97-D-0005, delivery number 0009. The RVAAP is located at 8451 State Route 5, Ravenna, Ohio.

I am providing you with a statement of comments and/or concerns with the final plans outlined in Attachment A.

The final modified work plans should be prepared in accordance with the following editorial protocol or convention:

1. Old language is overstruck, but not obliterated.

2. New Language is capitalized.

3. Page headers should indicate date of submission.

CF AMSIO-IBI-DISP (MR. INGOLD)

ATTACHMENT A

GENERAL COMMENTS:

1. RVAAP failed to re-submit corrections made to the Project Management Plan, Site-wide Safety and Health Plan, Chemical Data Acquisition Plan, Contractor Quality Control Plan, Ground Water and Surface Water Management Plan. Please provide an explanation why this was not done.

2. All work plans and project plans must accurately reflect, and be in accordance with the Closure Plans that have been approved by the Director of the Ohio EPA. All other applicable local, state and federal rules and regulations must be complied with as well.

3. Regarding the Project Schedules, the Ohio EPA must be notified at least 5 working days prior to any major event. Also, at least thirty working days must be allowed for any review of plans by the Ohio EPA. The plan should be modified to address this issue.

4. The plans must describe how ground water contamination will be addressed if discovered.

SPECIFIC TO THE PESTICIDE BUILDING:

5. In the text of the pesticide building workplan, the statement on page 7 should read: "Waste characterization sampling will be performed on all collected/containerized IDW to facilitate proper disposal in accordance with all applicable state and federal *rules*, laws and regulations."

SPECIFIC TO BUILDING 1601:

6. In the text of the Building 1601 workplan, contradictory information is presented on pages 4 and 10 with respect to the final depth of boreholes installed in the interior of Building 1601. Clarification is requested as to the termination depth of the boreholes.

7. Figure 2-1 should be modified to reflect all of the proposed soil boring locations as indicated during our meeting on August 28, 1998.

8. RVAAP must formally amend this approved closure plan. The amended plan should be sent to the Director of the Ohio EPA.

SPECIFIC TO DEACTIVATION FURNACE AREA:

9. The plan does not reflect that the extent of contamination (vertically) will be determined. The plan should be modified to address this issue.

DEPARTMENT OF THE ARMY
RAVENNA ARMY AMMUNITION PLANT
8451 STATE ROUTE 5
RAVENNA, OHIO 44266-9297

REPLY TO
ATTENTION OF

10/2/98
ENV

Mark-
your file c-g

October 1, 1998

SIORV-CR (200-la)

Subject: Ohio Administrative Code 3745-27-13 Generic Request for Authorization for the Ravenna Army Ammunition Plant

Mr. Donald Schregardus, Director
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216-1049

Dear Sir:

Please find enclosed the revised generic request for authorization to conduct investigative activities at previously uninvestigated Areas of Concern at RVAAP that are regulated under the Ohio Administrative Code 3745-27-13.

This request is forwarded for your review and concurrence.

Point of contact is Mr. Mark Patterson, (330) 358-7311.

Sincerely,

John A. Cicero, Jr.
Commander's Representative

Enclosures

Copies Furnished:
Ms. Eileen Mohr, Ohio Environmental Protection Agency, Division of Emergency and Remedial Response, Northeast District Office, 2110 East Aurora Road, Twinsburg, Ohio 44087
Commander, U.S. Army Industrial Operations Command, ATTN: AMSIO-IBI-REST (Mr. Whelove), Rock Island, IL 61299-6000
Commander, U.S. Army Industrial Operations Command, ATTN: AMSIO-IBI-ADV (Mr. Cramond), Rock Island, IL 61299-6000
Mr. Kevin Jasper, U.S. Army Corps of Engineers, Louisville District, ATTN: CELRL-DL-B, P.O. Box 59, Louisville, KY 40201-0059
Mr. Steve Selecman, Science Applications International Corporation, P.O. Box 2502, Oak Ridge, TN 37831
Mr. Stan Levenger, R&R International Inc., Ravenna Army Ammunition Plant, 8451 State Route 5, Ravenna, OH 44266-9297
LTC Tom Tadsen, Ravenna Training and Logistics Site, 1488 Newton Falls-Portage Road, Newton Falls, OH 44444
Commander, U.S. Army Center for Health Promotion and Preventive Medicine, ATTN: MCHB-TS-EHM (Mr. Sheehy), Aberdeen Proving Ground, MD 21010-5422

mailed
10/2/98

OHIO ADMINISTRATIVE CODE 3745-27-13

REQUEST FOR AUTHORIZATION
FOR THE
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

1. INTRODUCTION

This is a generic request for authorization from the Ohio Environmental Protection Agency (OEPA) to conduct investigative activities at Areas of Concern (AOCs) at the Ravenna Army Ammunition Plant (RVAAP) that are regulated under the Ohio Administrative Code (OAC) 3745-27-13 (Authorization to engage in filling, grading, excavating, building, drilling, or mining on land where a hazardous waste facility or solid waste facility was operated), hereinafter referred to OAC Rule 13. The request for authorization under OAC Rule 13 addresses measures necessary to ensure that investigative activities (surface soil sampling, groundwater sampling, subsurface soil sampling, surface water and sediment sampling, etc.), necessary to score these AOCs under the Installation Restoration Program (IRP), Relative Risk Site Evaluation guidelines are protective of human health and the environment.

This request includes the previously uninvestigated AOCs listed in the Defense Site Environmental Restoration Tracking System database at RVAAP where hazardous waste or solid waste activities are known to have operated based on currently available information. The AOCs proposed for investigation are listed in Table 1-1.

Table 1-1 Proposed OAC Rule 13 Applicable AOCs

AOC Number	AOC Name
RVAAP-39	LL-5/ Fuze Line 1
RVAAP-40	LL-7/Booster Line 1
RVAAP-41	LL-8/Booster Line 2
RVAAP-42	LL-9/Detonator Line
RVAAP-43	LL-10/Percussion Element
RVAAP-44	LL-11/Artillery Primer
RVAAP-45	Wet Storage Area
RVAAP-46	Building F-15 and Building F-16
RVAAP-47	Building T-5301 (Decontamination)
RVAAP-48	Anchor Test Area
RVAAP-49	Central Burn Pits
RVAAP-50	Atlas Scrap Yard
RVAAP-51	Dump Along Paris-Windham Road

Following is a brief summary of the hazardous or solid waste management activities conducted at each of these AOCs and their current status:

RVAAP-39, Load Line-5/ Fuze Line 1. This AOC was a load line (LL) operated from 1941 to 1945 to produce fuzes for artillery projectiles. Load Line 5 was deactivated and its equipment removed in 1945. The buildings near which samples will be collected will be selected based on the production use. Emphasis will be placed on those buildings that were used to produce the black powder and mercury fulminate. These explosives may have been released during spills or routine cleaning operations.

RVAAP-40, LL-7/ Booster Line 1. This AOC was used to produce booster charges for artillery projectiles between 1941 and 1945. Load Line 7 was deactivated and the equipment was removed in 1945. The LL-7 was used again in 1969 and 1970 to produce 40mm projectiles, and between 1989 and 1993 the LL-7 Pink Water Treatment Plant was in operation. The buildings near which samples will be collected will be selected based on production use. Sample point selection will emphasize melt/pour facilities and explosive storage buildings. Explosives may have been released during spills or routine cleaning operations.

RVAAP-41, LL-8/Booster Line 2. This AOC was used to produce booster charges for artillery projectiles between 1941 and 1945. Load Line 8 was deactivated and the equipment was removed in 1945. The buildings near which samples will be collected will be selected based on production use. Sample point selection will emphasize melt/pour facilities and explosive storage buildings. Explosives may have been released during spills or routine cleaning operations.

RVAAP-42, LL-9/Detonator Line. This AOC operated from 1941 to 1945 to produce detonators. Load Line 9 was deactivated and its equipment removed in 1945. The buildings near which samples will be collected will be selected based on production use. Sample point selection will emphasize melt/pour facilities and explosive storage buildings. Explosives may have been released during spills or routine cleaning operations.

RVAAP-43, LL-10/Percussion Element. This AOC operated from 1941 to 1945 to produce percussion elements. Load Line 10 was placed on standby in 1945. From 1951 to 1957 LL-10 produced primers and percussion elements. From 1969 to 1971 LL-10 was used again to produce primers. It has been inactive since. The buildings near which samples will be collected will be selected based on production use. Sample point selection will emphasize melt/pour facilities and explosive storage buildings. Explosives may have been released during spills or routine cleaning operations.

RVAAP-44, LL-11/Artillery Primer. This AOC operated from 1941 to 1945 to produce primers for artillery projectiles. Load Line 11 was placed on standby in 1945. From 1951 to 1957 LL-11 was used to produce primers, and from 1969 to 1971 LL-11 was used to produce fuzes. The buildings near which samples will be collected will be selected based on production use. Sample point selection will emphasize melt/pour facilities and explosive storage buildings. Explosives may have been released during spills or routine cleaning operations.

RVAAP-45, Wet Storage Area. This AOC was used from 1941 to 1945 to store lead azide, mercury fulminate, and tetryl. The product was stored covered in water in drums. There is no documentation concerning any spills in the area. However, samples will be collected outside of the door, just off of the edge of the concrete pad from each of the five buildings used for storage.

RVAAP-46, Building F-15 and Building F-16. These buildings were used during World War II, the Korean War, and the Vietnam War to test miscellaneous explosives. Quantities and exact dates of testing are unknown. Releases may have occurred by contaminants being washed off of the concrete floor onto the adjacent ground. Samples will be collected outside of the doors of the buildings.

RVAAP-47, Building T-5301 (Decontamination). This building was used to clean and decontaminate small miscellaneous production equipment of explosives and propellants. Quantities and dates of testing are unknown, but should correspond to dates of production (intermittent from World War II to Vietnam). Releases may have occurred by contaminants being washed off of the concrete floor onto the adjacent ground. Samples will be collected outside of the doors of the building. An additional sample will be collected from a sediment trap outside of the building near Sand Creek.

RVAAP-48, Anchor Test Area. The function of this area is unknown. It currently consists of several dirt mounds with a nearby sand pit. There is some metal debris in the area. It is believed that the site was used for some type of testing. The dates of use for this AOC are unknown.

RVAAP-49, Central Burn Pits. This AOC was used for the burning of non-explosive, scrap materials. The dates of operation for the site are unknown. Releases in the area would be associated with both the materials to be burned at the site and any accelerants or fuels used to aid combustion.

RVAAP-50, Atlas Scrap Yard. This AOC is the site of an old construction camp built to house workers during the construction of the plant. Facilities were demolished following World War II, and since that time, the area has been used as a scrap yard for miscellaneous materials. There is currently a large quantity of material still in the yard with both wood and

metal debris. Any releases in the area would be associated with the scrapping and storage activities on the site.

RVAAP-51, Dump Along Paris-Windham Road. This AOC is an area adjacent to Sand Creek that was used as a landfill for miscellaneous materials including transite siding. The dates of operation for the landfill are unknown. Releases at the site would be associated with the disposal activities since the site was not a properly designed landfill.

The status, plans, and schedule for current characterization activities of AOCs at RVAAP are presented in the *Action Plan for the Ravenna Army Ammunition Plant, Ravenna, Ohio* (USAEC, 1996). The facility Action Plan is revised annually to reflect current and planned environmental activities.

The following sections include the information required under an OAC Rule 13 authorization request, in the order in which it is specified. Because much of the information required under the provisions of OAC Rule 13 is contained in existing facility documents and sampling plans developed for conducting Relative Risk Site Evaluations of AOCs at RVAAP, references to existing documentation are used where appropriate to meet the requirements of the rule.

2. LOCATION AND DESCRIPTION - OAC 3745-27-13(C)(1)

RVAAP is located in northeastern Ohio within Portage and Trumbull Counties, approximately 4. 8 kilometers (3 miles) east-northeast of the Town of Ravenna and approximately 1.61 kilometers (1 mile) northwest of the Town of Newton Falls. The installation consists of 21,419 acres (8668 hectares) contained in a 17.7-kilometers-long (11-mile-long), 5.63 kilometers-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 land use surrounding the installation is primarily farmland with sparse private residences. The Michael J. Kirwan Reservoir is located immediately south of the facility.

RVAAP is a government-owned, contractor-operated, U.S. Army Industrial Operations Command (IOC) facility. Currently, RVAAP is inactive, maintained by the contracted caretaker R & R International, Inc. Table 2-1 presents the RVAAP Command Organization, IRP executing agencies, and lead regulatory agencies.

Over the years, RVAAP handled and stored strategic and critical materials for various government agencies and received, stored, maintained, transported, and demilitarized military ammunition and explosive items. RVAAP maintains the capabilities to load, assemble, and pack military ammunition; however, these operations are inactive. As part of the RVAAP mission, the inactive facilities are maintained in a standby status by keeping equipment in a condition to permit resumption of production within Army prescribed time limitations.

The location of the RVAAP facility on a 7.5 minute USGS topographic map is provided in the *Preliminary Assessment for the Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 1996). The location, description, and operating history for the AOCs at RVAAP, including those currently covered under this OAC Rule 13 request for authorization, are also included in the Preliminary Assessment. Figure 1 is an installation map showing the general location of the AOCs, and Figures 2 through 14 are large scale maps of the AOCs currently proposed under this request, as required.

Table 2-1. RVAAP Organizational Responsibilities

Command Organization
Major Command: U.S. Army Materiel Command Major Subordinate Command: U.S. Army Industrial Operations Command Installation: RVAAP, Commander's Representative Installation Contractor: R & R International, Inc.
Installation Restoration Program Executing Agency
U.S. Army Corps of Engineers, Louisville District
Regulatory Agencies
Ohio Environmental Protection Agency, Northeast District U.S. Environmental Protection Agency, Region V

3. INVESTIGATION ACTIVITIES - OAC 3745-27-13(C)(2)

The activities for which authorization is requested are necessary to score the AOCs prior to their ranking under the IRP. The "Not Evaluated" AOCs identified in the facility action plan must be ranked prior to receiving funds for restoration in the future. The sampling at the AOCs is expected to include investigative activities to evaluate potential sources of contamination and their impact on adjacent soils, groundwater, surface water, and sediment. The specific investigation activities for each AOC will be defined in an investigation specific sampling plan and submitted in draft for OEPA review and comment prior to conducting any investigative activities at an AOC. The sampling is not a part of a Preliminary Assessment/Site Investigation (PA/SI), a Remedial Investigation (RI), or a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI). Data generated during this project will be used for IRP management purposes only, specifically to determine the order in which PA/SI and RI activities will take place on an Army-wide basis.

Planned investigative activities at the AOCs addressed under this request are: (1) subsurface soil sampling with a Geoprobe Hydropunch, (2) groundwater sampling with a Geoprobe Hydropunch, (3) surface soil sampling, and (4) surface water and sediment sampling. Following is a brief description of the investigative activities planned:

Subsurface soil sampling with a Hydropunch The hydropunch will hydraulically press an acetate-line core sampler in and/or adjacent to the former waste management areas in order to collect subsurface soil samples for laboratory analysis to characterize potential contaminants in the soils.

Groundwater sampling - The hydropunch will hydraulically press a screen point ground water sampler adjacent to or in the AOCs to collect groundwater samples for laboratory analysis to characterize associated groundwater.

Surface soil sampling - Surface soil samples will be collected from surface soils adjacent to or in former waste management areas and submitted for laboratory analysis to characterize the potential impact of disposal practices.

Surface water and sediment sampling - Surface water and sediment samples may be collected from surface streams and drainage ditches adjacent to or in the former waste management areas and submitted for laboratory analysis to characterize impacts on these areas.

4. PREVIOUS AND EXISTING PERMITS, APPROVALS, AND ORDERS - OAC 3745-27-13(C)(3)

There are no previous or existing permits, approvals, or orders pertaining to the AOCs for which authorization under OAC Rule 13 is being requested. The regulatory history of AOCs at RVAAP are presented in the Preliminary Assessment and the facility Action Plan.

5. LETTERS OF ACKNOWLEDGMENTS - OAC 3745-27-13(C)(4)

All parcels of land to which this request pertains are owned by the U. S. Army. Consequently, no letters of acknowledgment are included in this request for authorization under OAC Rule 13.

6. LETTERS OF NOTICE - OAC 3745-27-13(C)(5)

Letters of notice of this request for authorization are required, under the provisions of the OAC Rule 13, to be sent to the board of health for the health district and the local zoning authority for the area within which the facility is located. The Department of Health for both Trumbull and Portage Counties, Ohio, have been notified and the copies of the letters of notice are attached to this request for authorization as Attachments I and II. Because the Federal Government owns the RVAAP, local zoning authorities do not have jurisdiction over the

facility; therefore, notices of this request for authorization were not sent to these agencies. The local zoning authorities were contacted to confirm their jurisdiction at RVAAP.

7. HISTORY OF HAZARDOUS WASTE OR SOLID WASTE TREATMENT, STORAGE OR DISPOSAL OPERATIONS - OAC 3745-27-13(C)(6)

A summary of all currently known hazardous waste and solid waste treatment, storage and disposal facilities at RVAAP is presented in the Preliminary Assessment. The histories of the AOCs proposed under this authorization request are included in the introduction to this document.

8. CLOSURE ACTIVITIES - OAC 3745-27-13(C)(7)

No formal closure activities have previously been initiated at the AOCs covered under this request for authorization. However, hazardous waste and solid waste treatment, storage and disposal operations have ceased at all AOCs at RVAAP. A summary of all known previous closure activities for AOCs at RVAAP is presented in the Preliminary Assessment, and additional information is presented in the facility Action Plan.

9. INVESTIGATION METHODS AND PROCEDURES - OAC 3745-27-13(C)(8)

The investigation of AOCs at RVAAP will be conducted in accordance with an investigation specific sampling plan. This plan contains detailed methods and procedures for performing the described investigation activities. Facility-wide work plans consist of *Sampling Plan for the Relative Risk Site Evaluation for Ravenna Army Ammunition Plant, Ravenna, Ohio* and a *Site Safety and Health Plan for the Relative Risk Site Evaluation for Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACHPPM 1998). The intent of these documents is to guide the investigation activities expected at the "Not Evaluated" AOCs at RVAAP.

Detailed procedures describing the investigative methods are contained in the sampling plan as follows:

Soil sampling with a Hydropunch - Sampling Plan, Section 5.b.(5)

Groundwater sampling - Sampling Plan, Section 5.b.(4)

Surface soil sampling - Sampling Plan, Section 5.b.(1)

Surface water and sediment sampling - Sampling Plan, Section 5.b.(2) and 5.b.(3)

10. ENVIRONMENTAL PROTECTION - OAC 3745-27-13(C)(9)

As previously described in Section 9 of this request, the investigation of AOCs at RVAAP will be conducted in accordance with the investigation specific sampling plan. This plan contains detailed methods and procedures for performing investigation activities. The primary focus of this project is to produce scores that will be used as part of a ranking process for funding prioritization of the IRP. These procedures contain provisions for protection of the environment from investigative activities. In addition the sampling plan (Section 5.e.) details that investigation derived wastes (IDWs) will be collected, containerized, sampled, and disposed of in accordance with applicable state and federal regulations.

11. REMOVAL OF SOLID OR HAZARDOUS WASTE, OR POTENTIALLY CONTAMINATED SOILS - OAC 3745-27-13(C)(10)

The only potentially contaminated material to be generated during the investigation of the AOCs at RVAAP is expected to be purged groundwater and sampling equipment decontamination water. Excess soils which could be potentially contaminated will not be generated during sampling activities. Section 5.e. of the sampling plan contains provisions for sampling and analysis of IDW in accordance with applicable state and federal regulations. If the IDW generated during the investigation is determined to be a hazardous waste, a copy of a letter of acceptance from a disposal facility will be submitted to the director prior to any removal of waste from the property.

12. CLOSURE PROCEDURES - OAC 3745-27-13(C)(11)

The Relative Risk Site Evaluation process is not intended to be used for the formal closure of a facility and will not be used as such at RVAAP. The information gathered through sampling and analysis is to be used as a management tool only.

13. OAC RULE 13 AUTHORIZATION REQUEST SIGNATURES - OAC 3745-27-13(C)(12)(D)(l)(d)

The statements and assertions of fact made in this application are true and complete to my knowledge and comply fully with applicable state requirements as stated in OAC Rule 3745-27-13.

John A. Cicero, Jr.
Commander's Representative
Ravenna Army Ammunition Plant

Signed By John A. Cicero Jr., before me a Notary Public, this 2nd Day of October, 1998.

Notary Public My commission expires 6-2-2002

Figure 1. General AOC Locations.

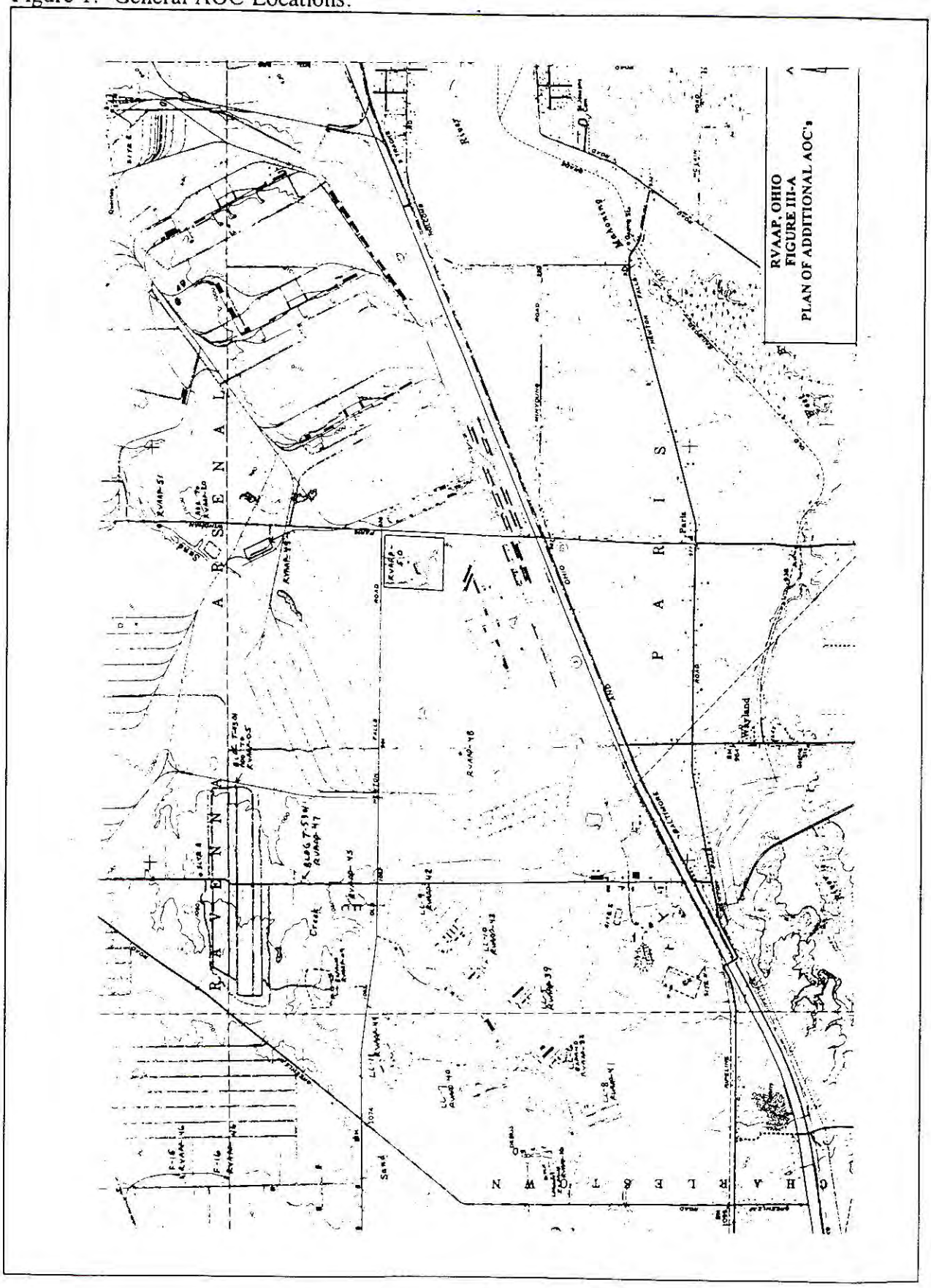


Figure 2. RVAAP-39, LL-5/ Fuze Line 1.

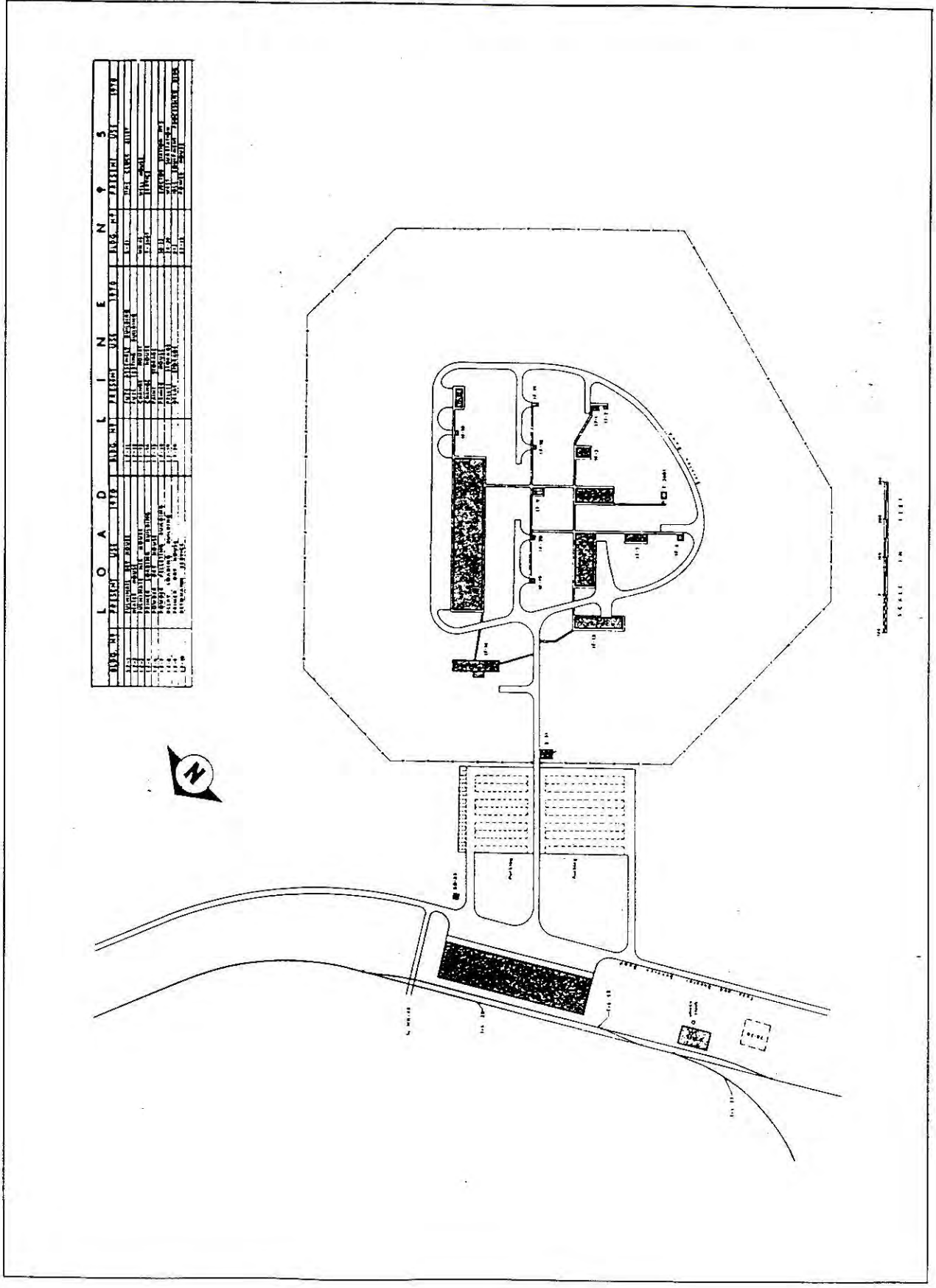


Figure 3. RVAAP-40, LL-7/ Booster Line 1.

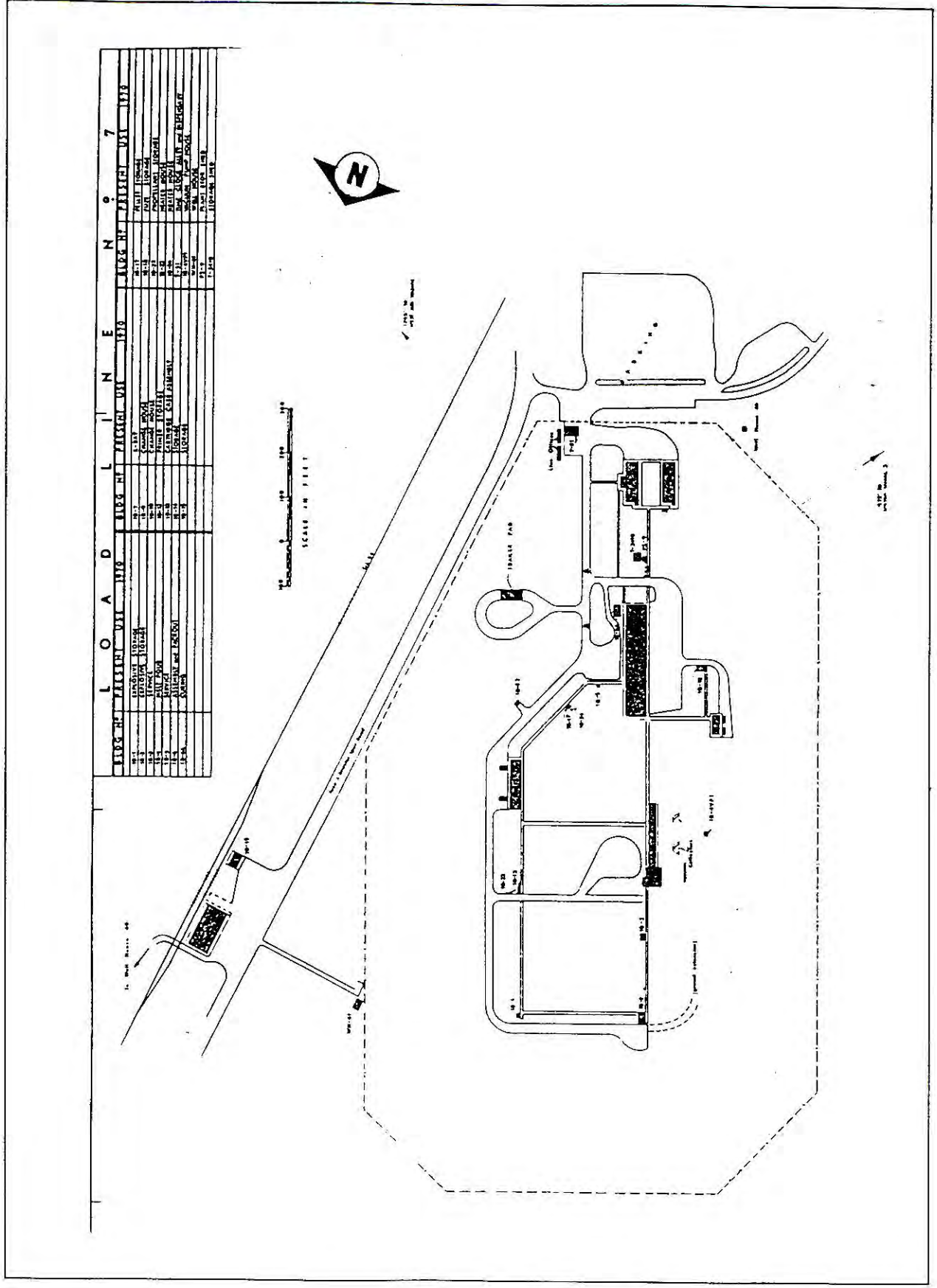


Figure 4. RVAAP-41, LL-8/ Booster Line 2.

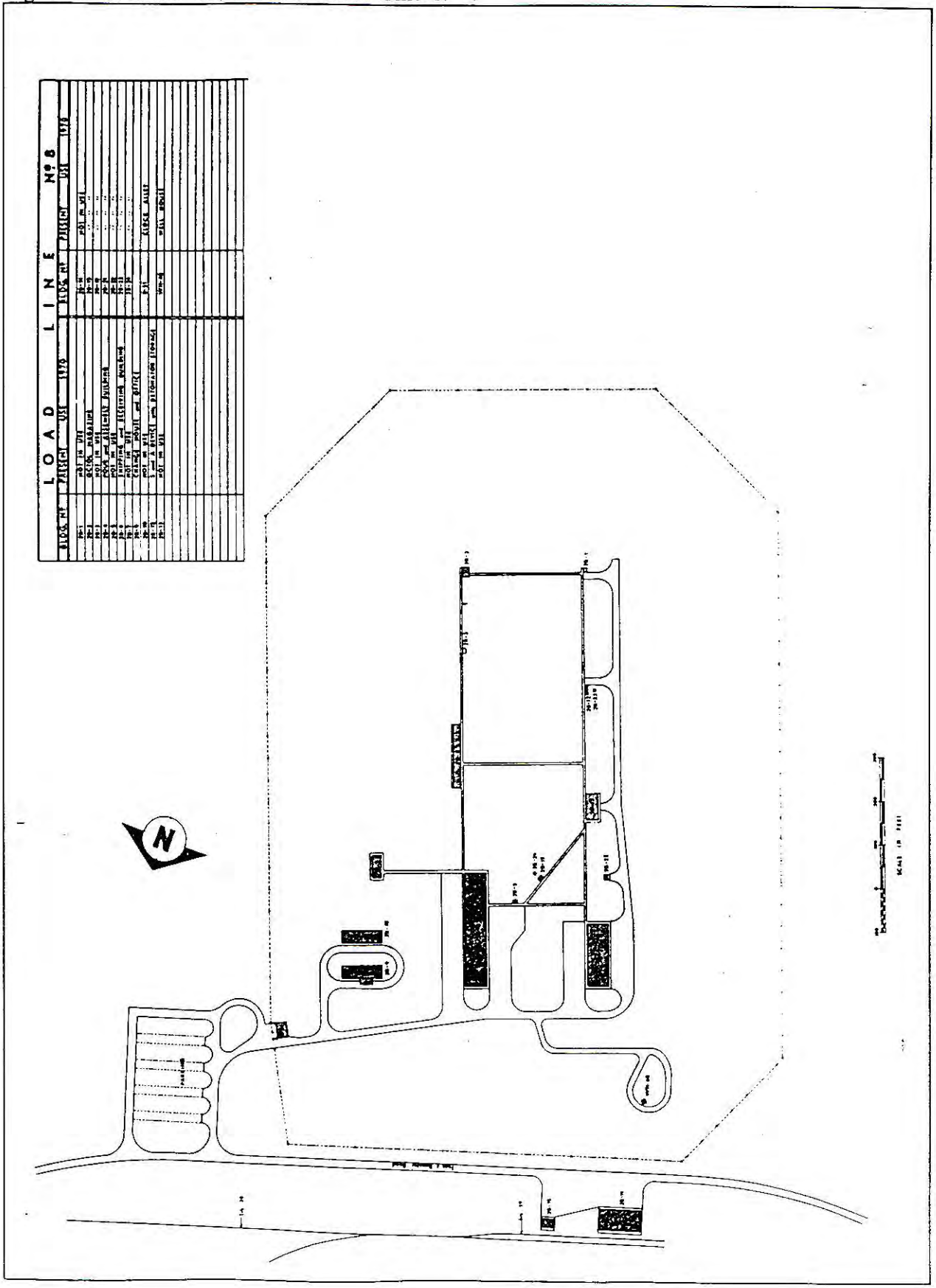


Figure 5. RVAAP-42, LL-9/ Detonator Line.

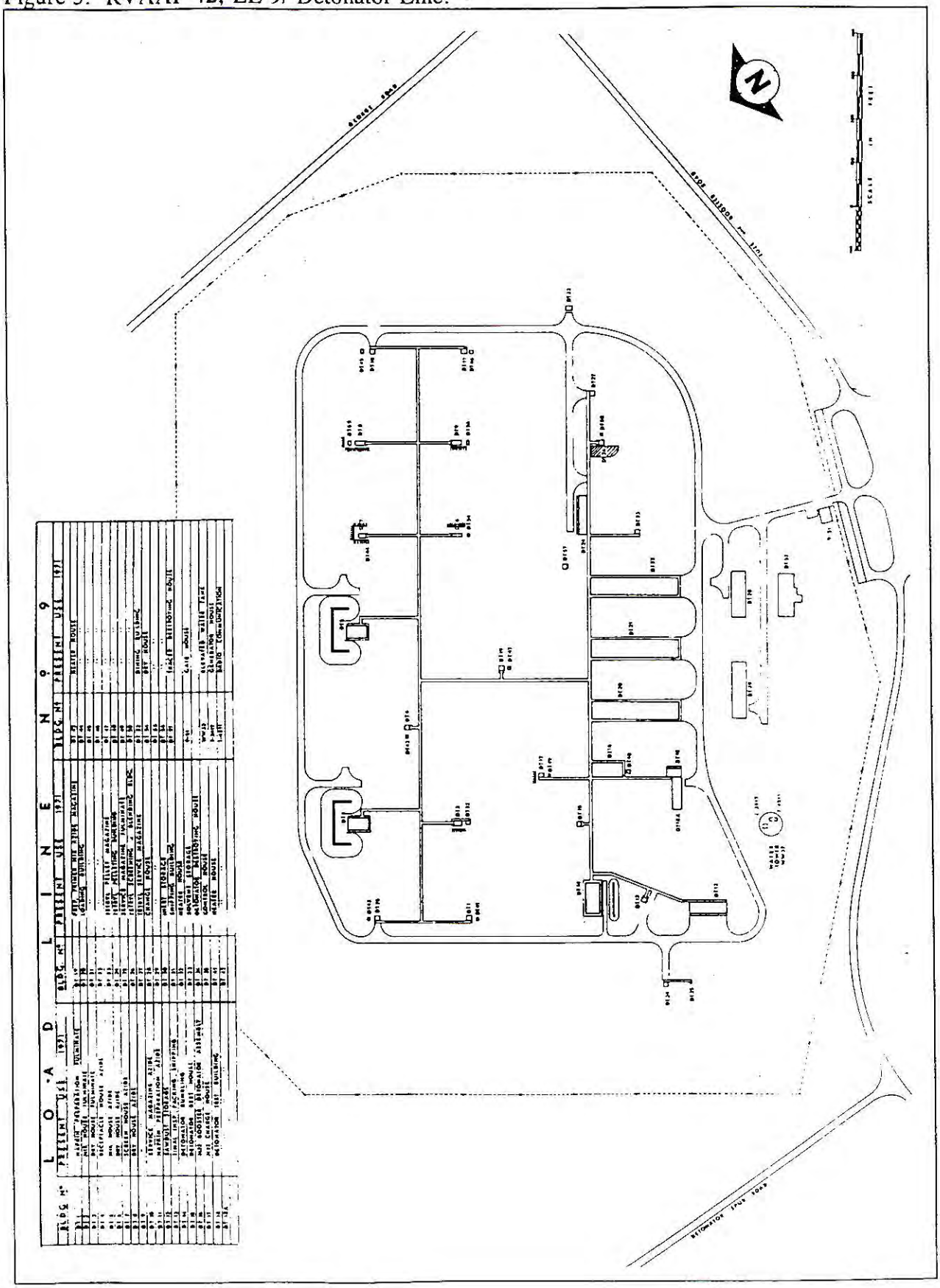


Figure 6. RVAAP-43. LL-10/ Percussion Element.

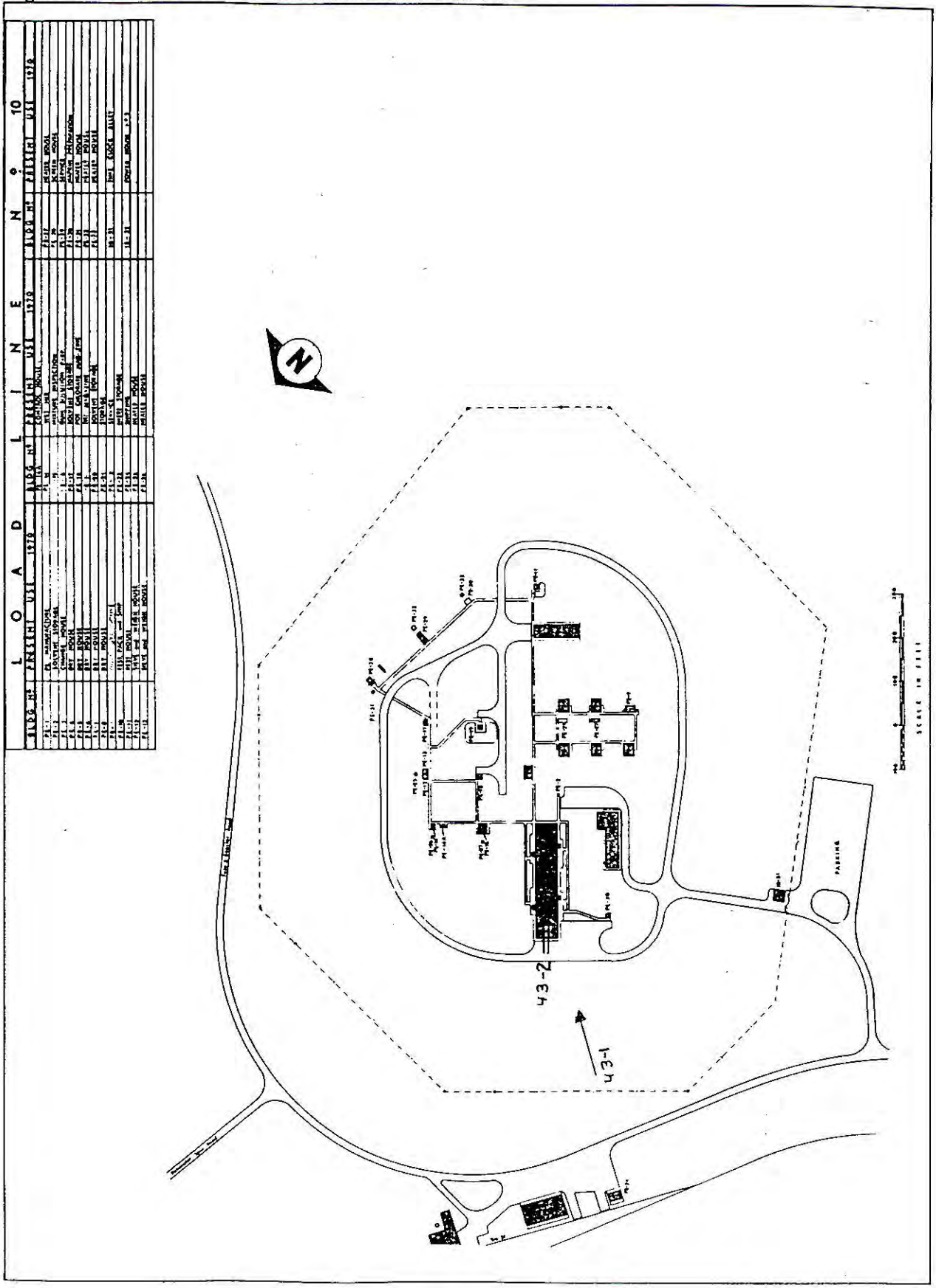


Figure 7. RVAAP-44, LL-11/ Artillery Primer..

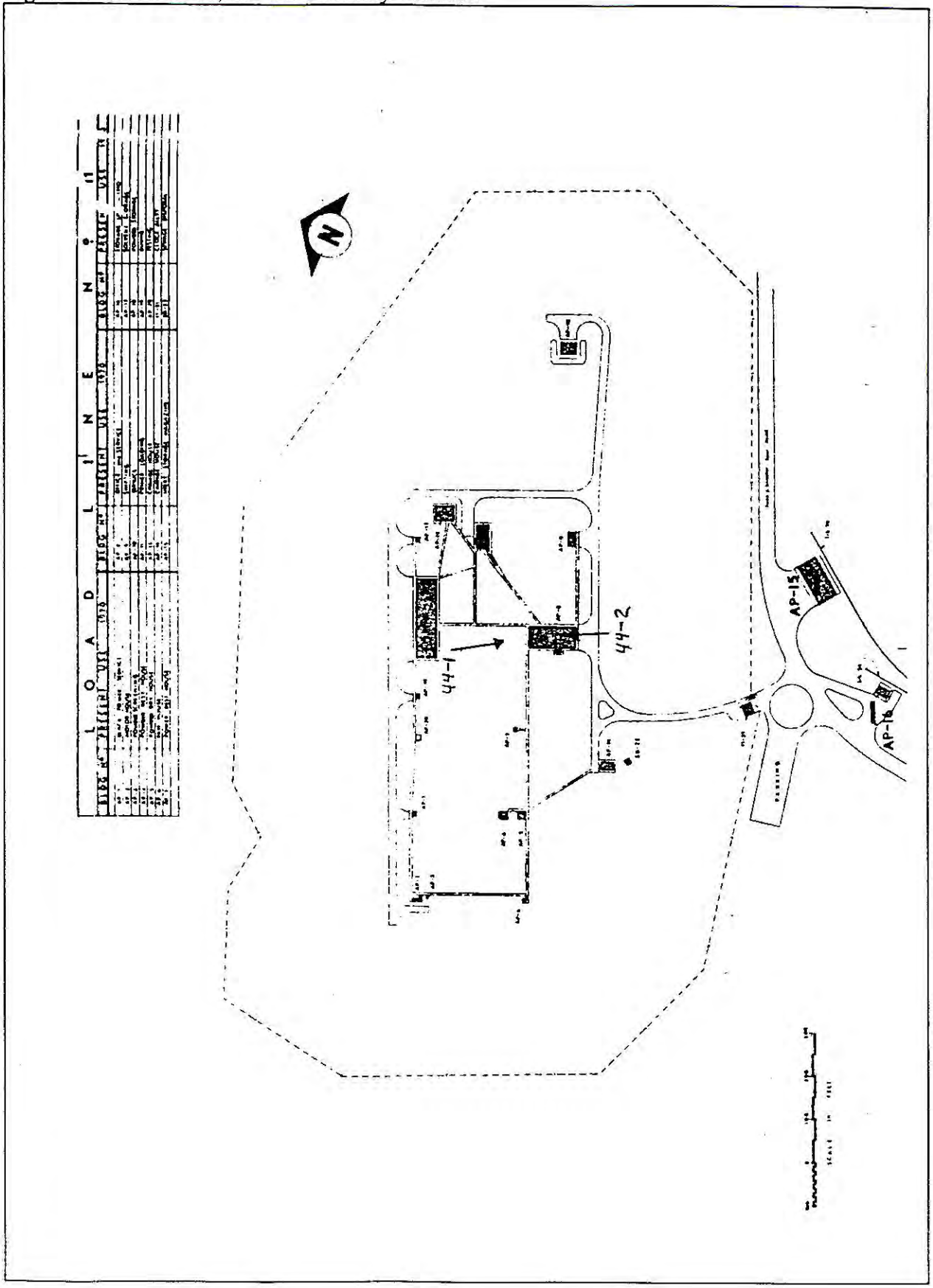


Figure 8. RVAAP-45, Wet Storage Area.

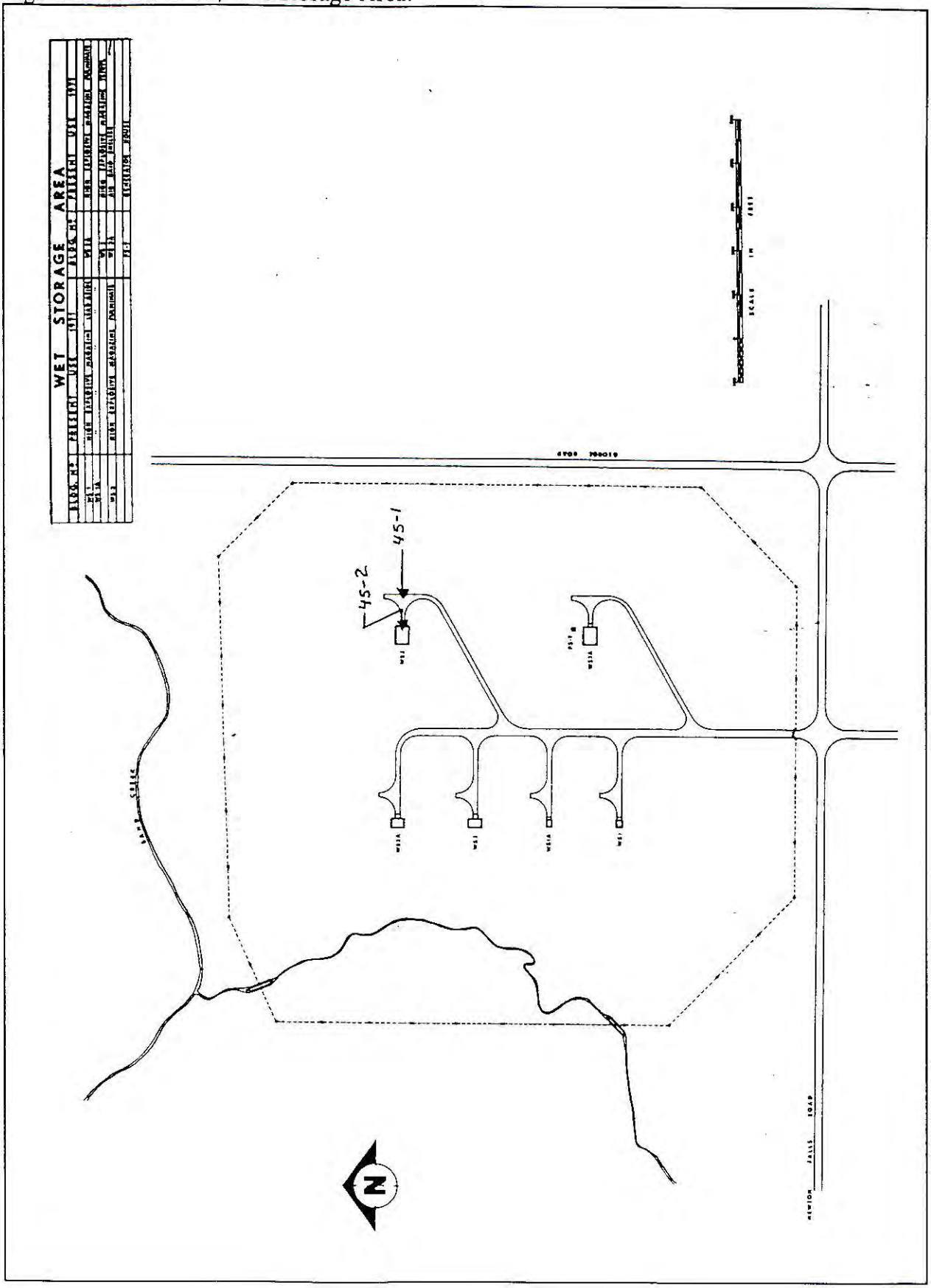


Figure 9. RVAAP-46 Building F-15 and Building F-16.

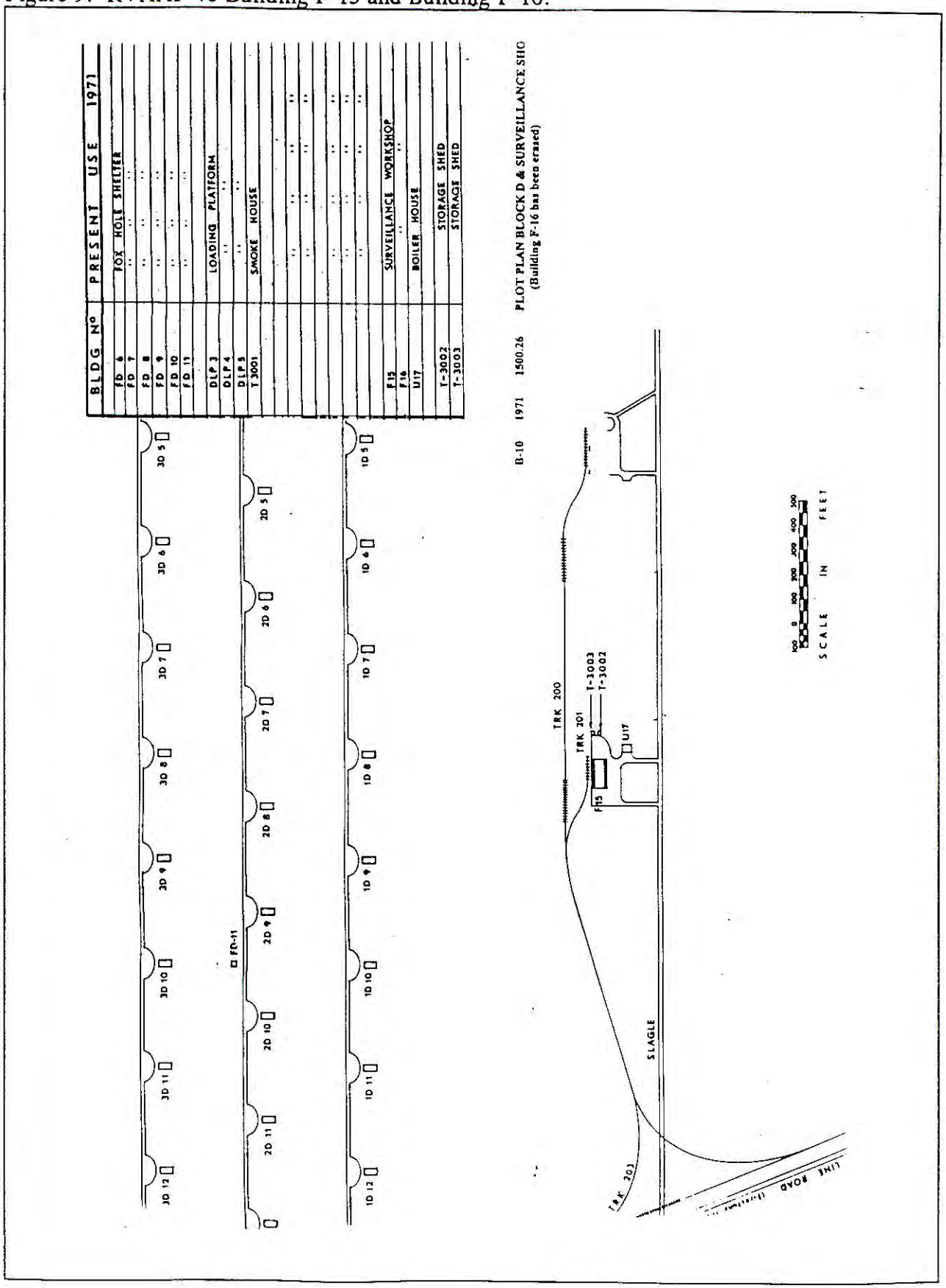


Figure 10. RVAAP-47, Building T-5301 (Decontamination).

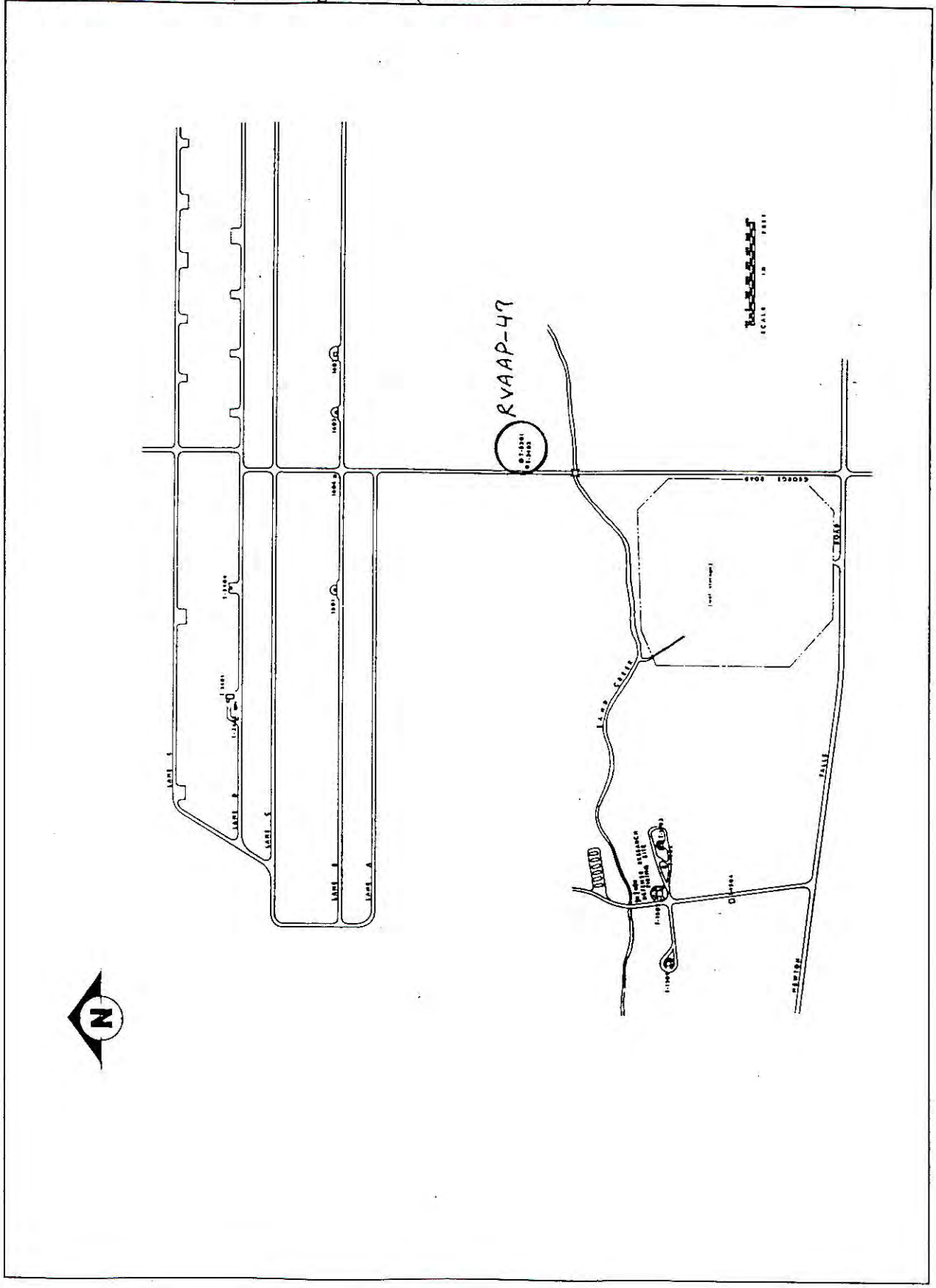
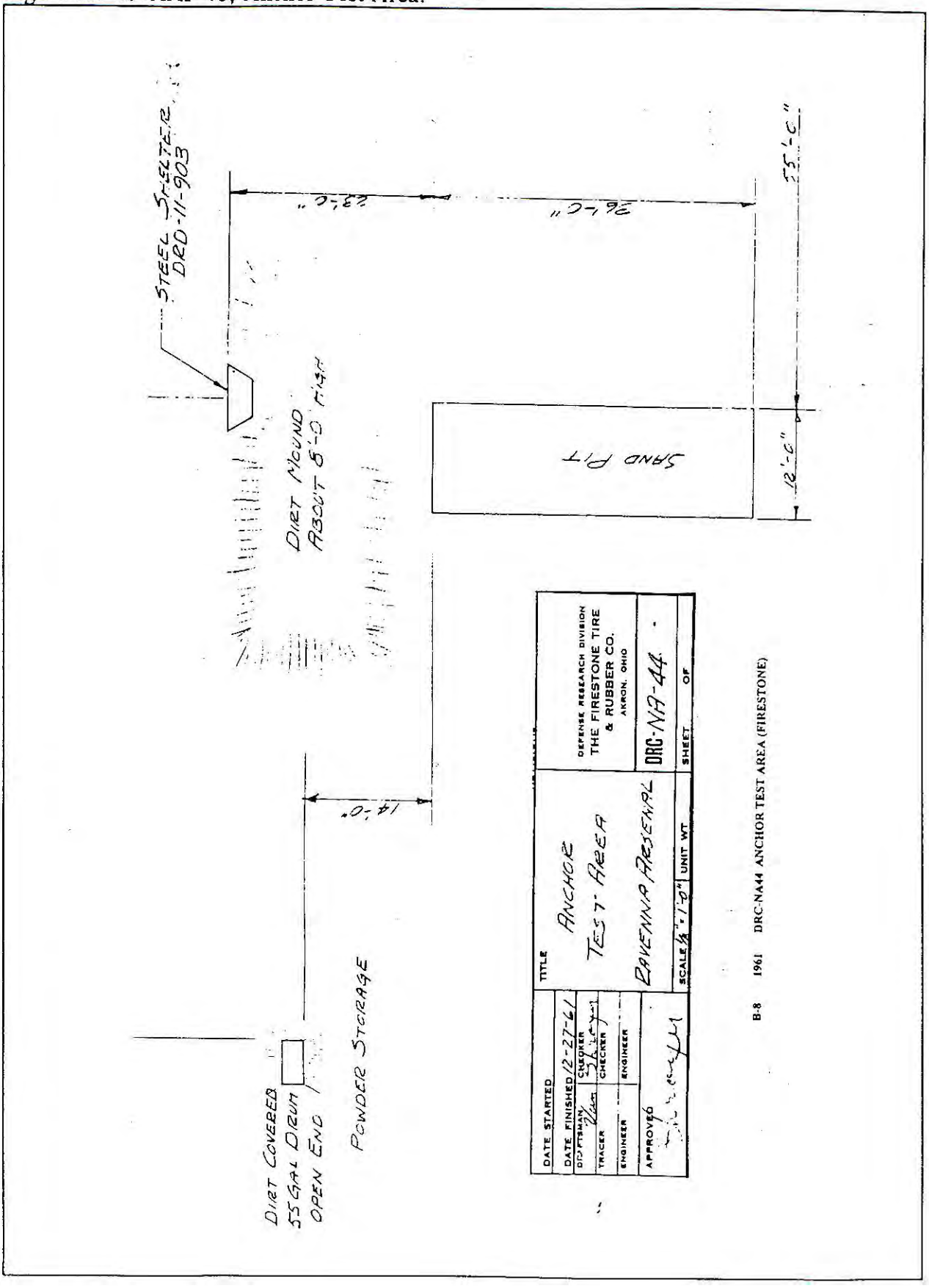


Figure 11. RVAAP-48, Anchor Test Area.



B-8 1961 DRC-NA44 ANCHOR TEST AREA (FIRESTONE)

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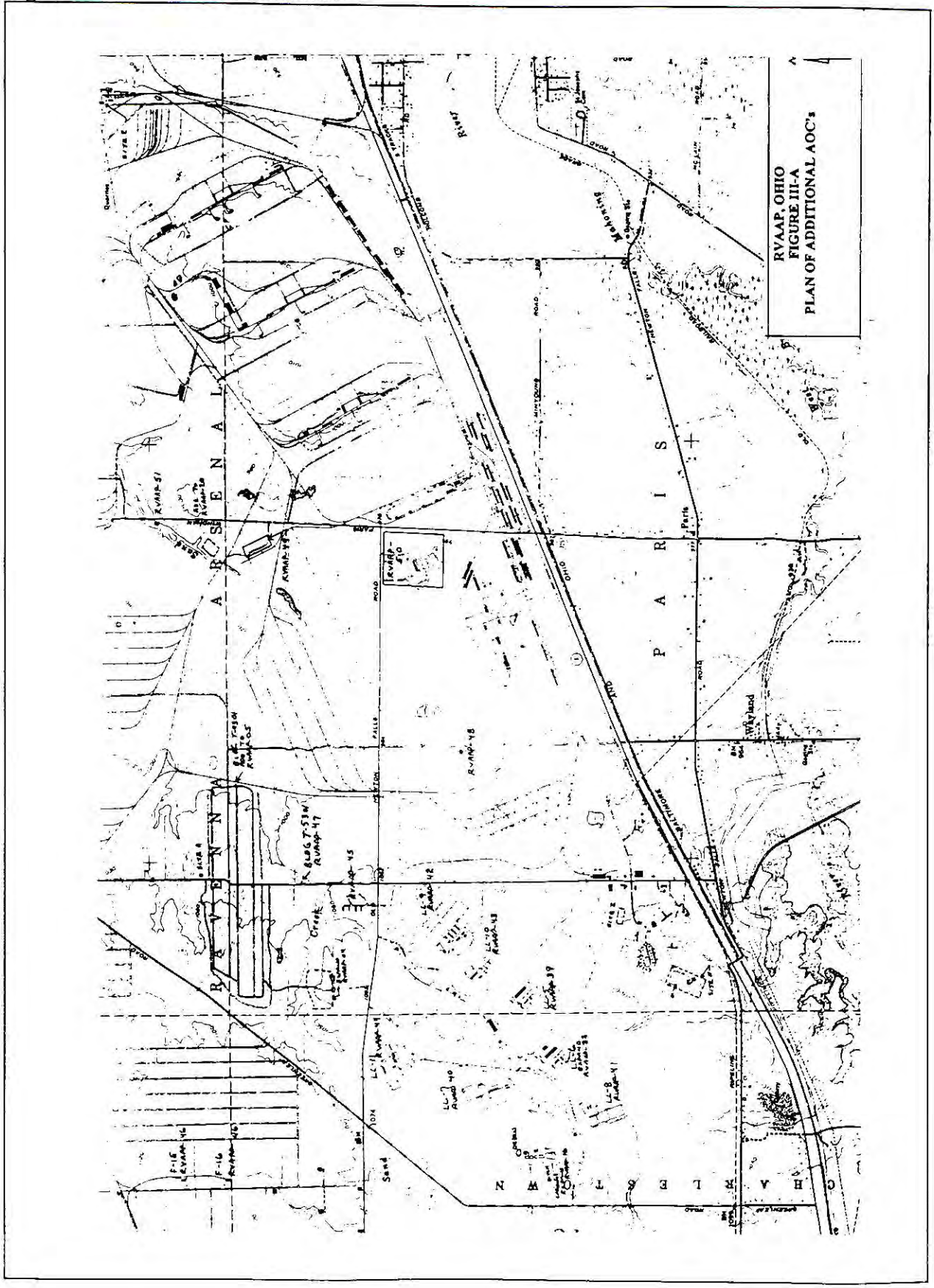

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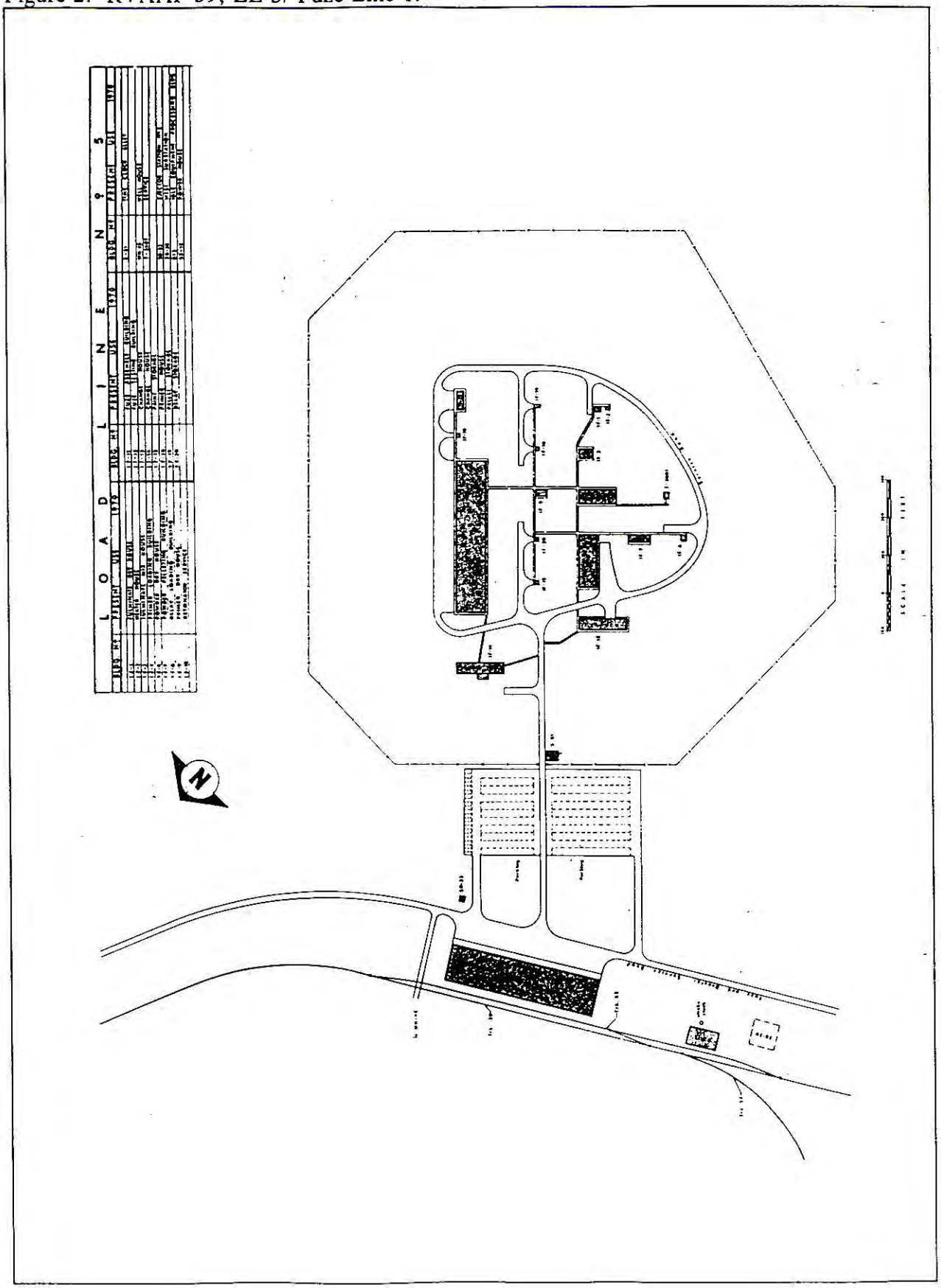

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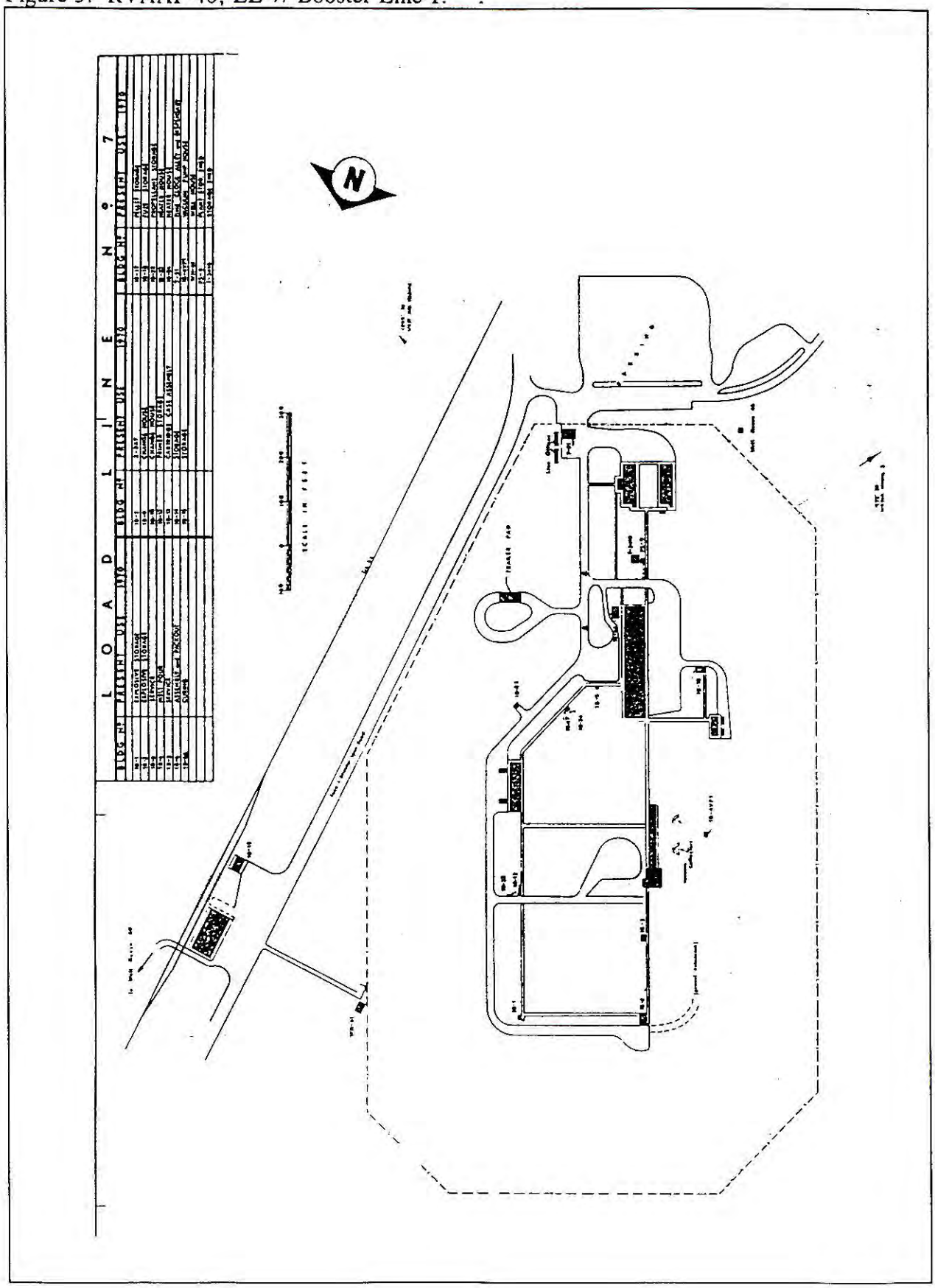

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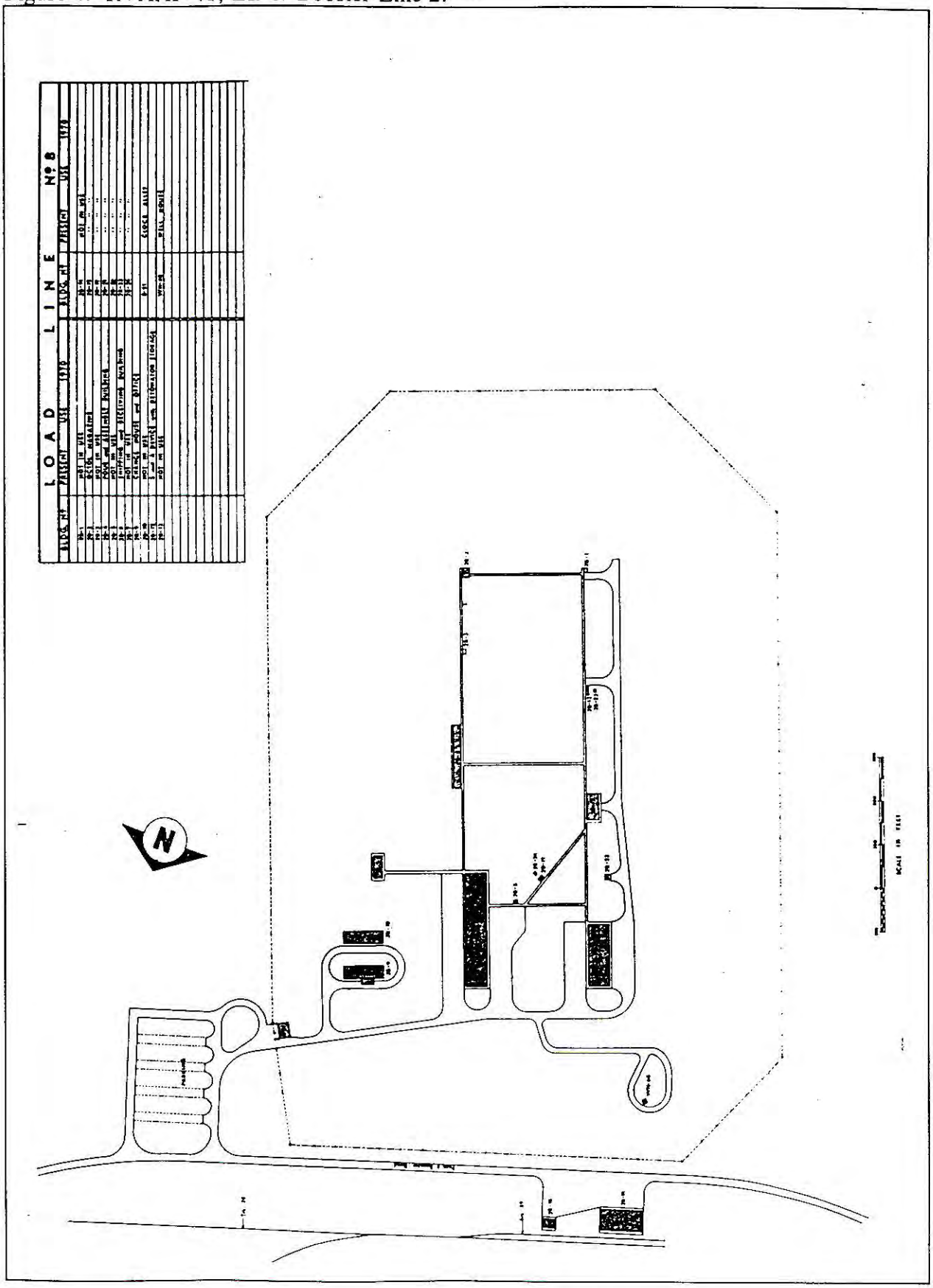

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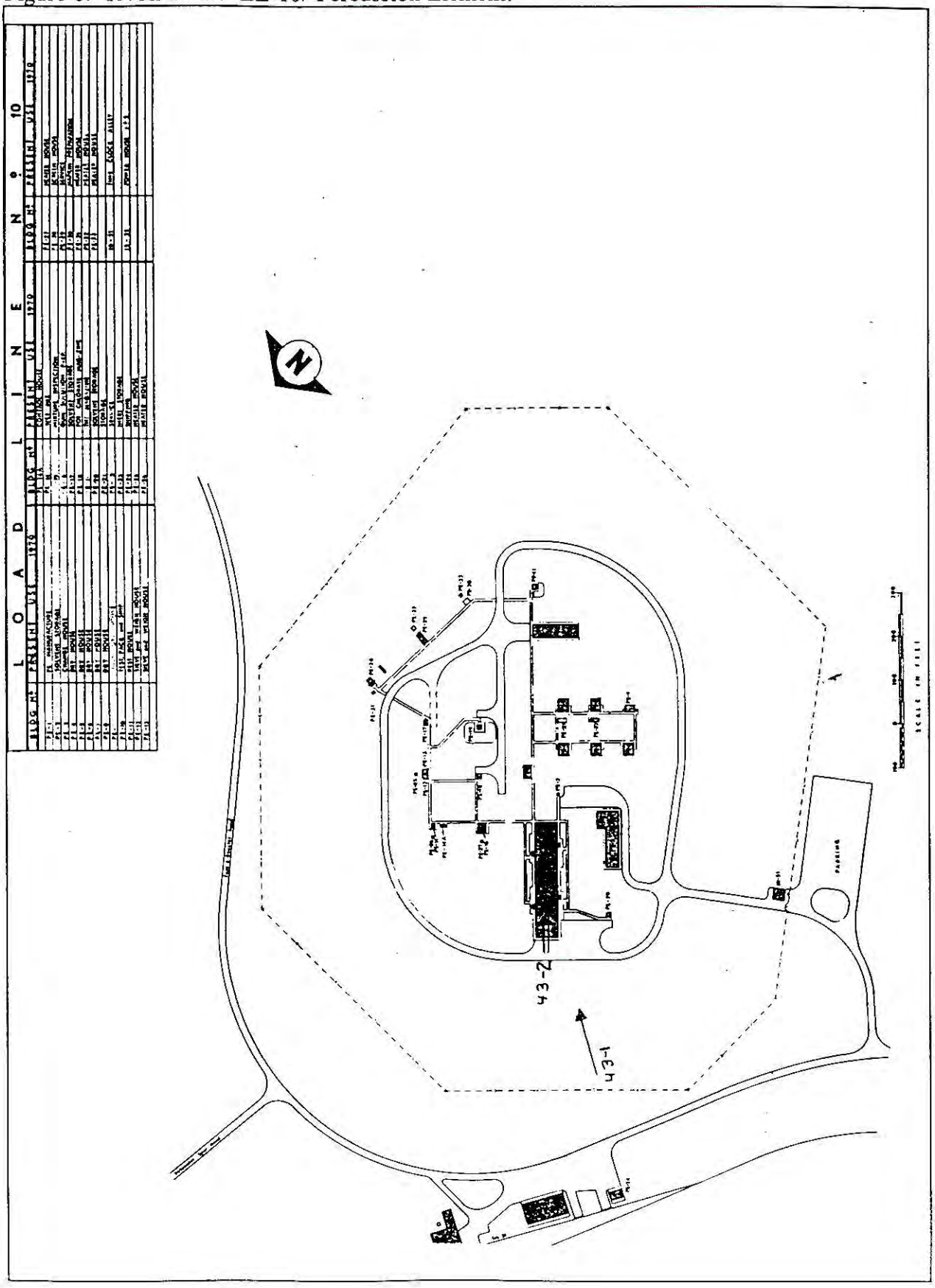

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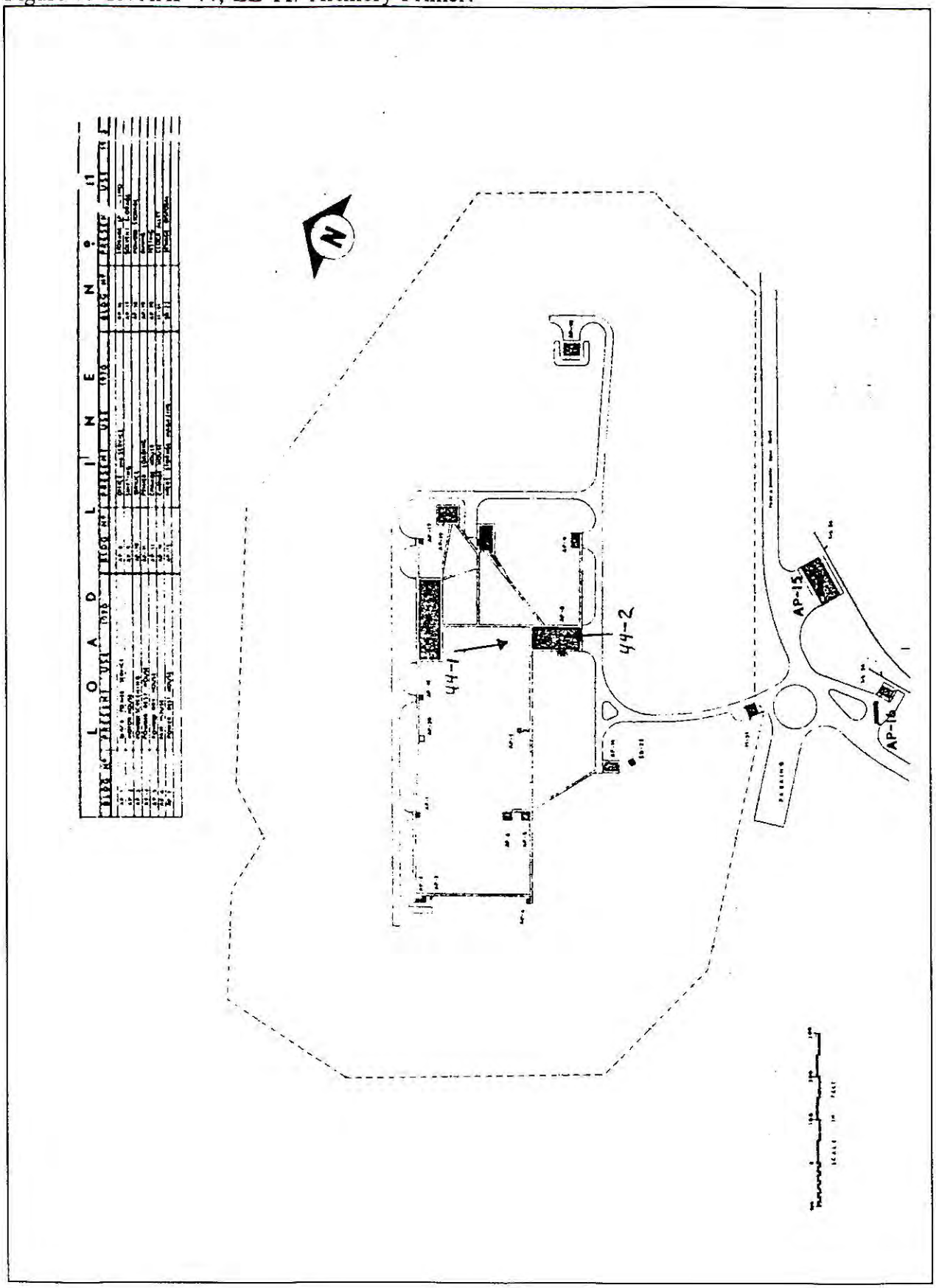

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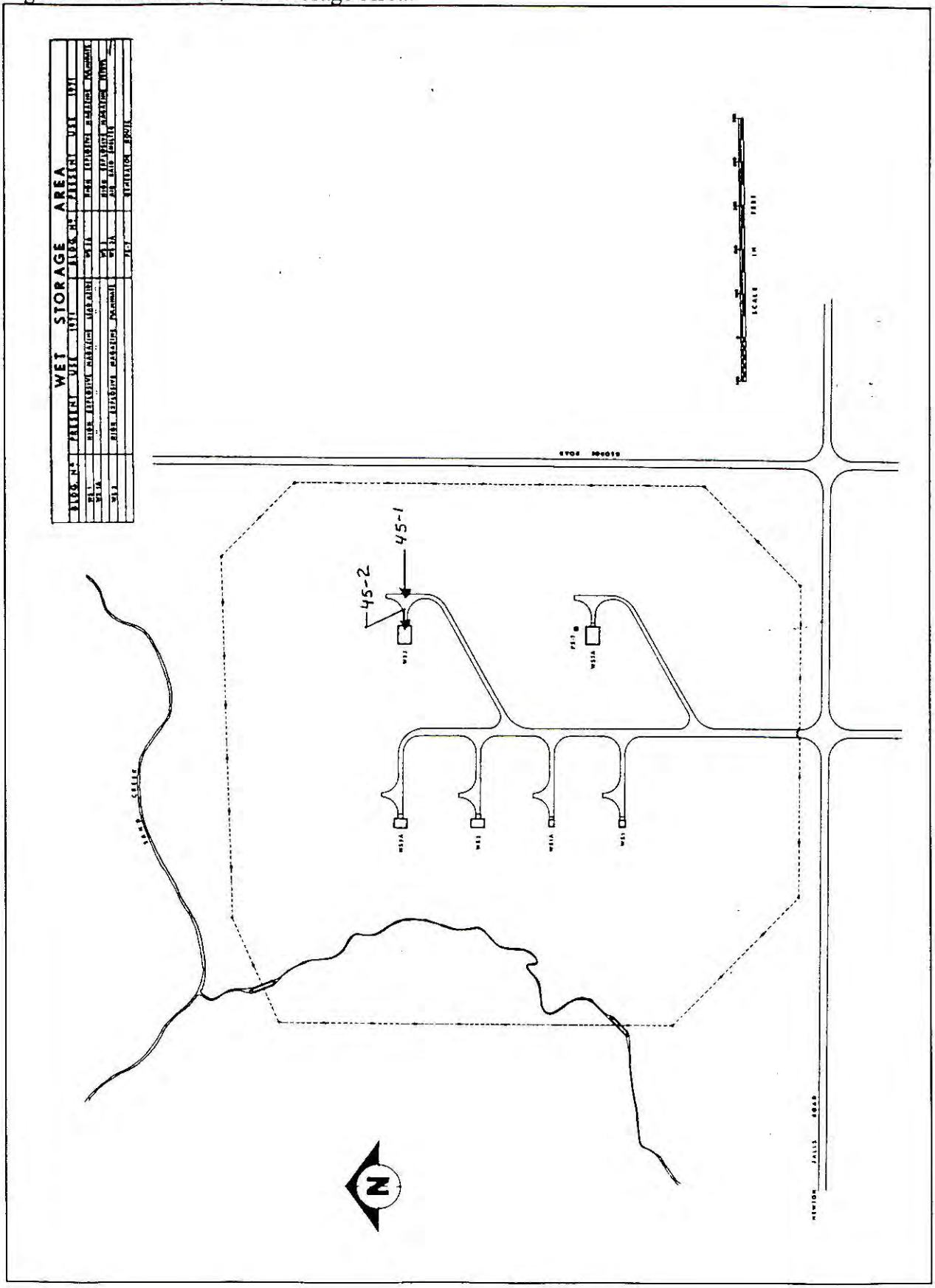

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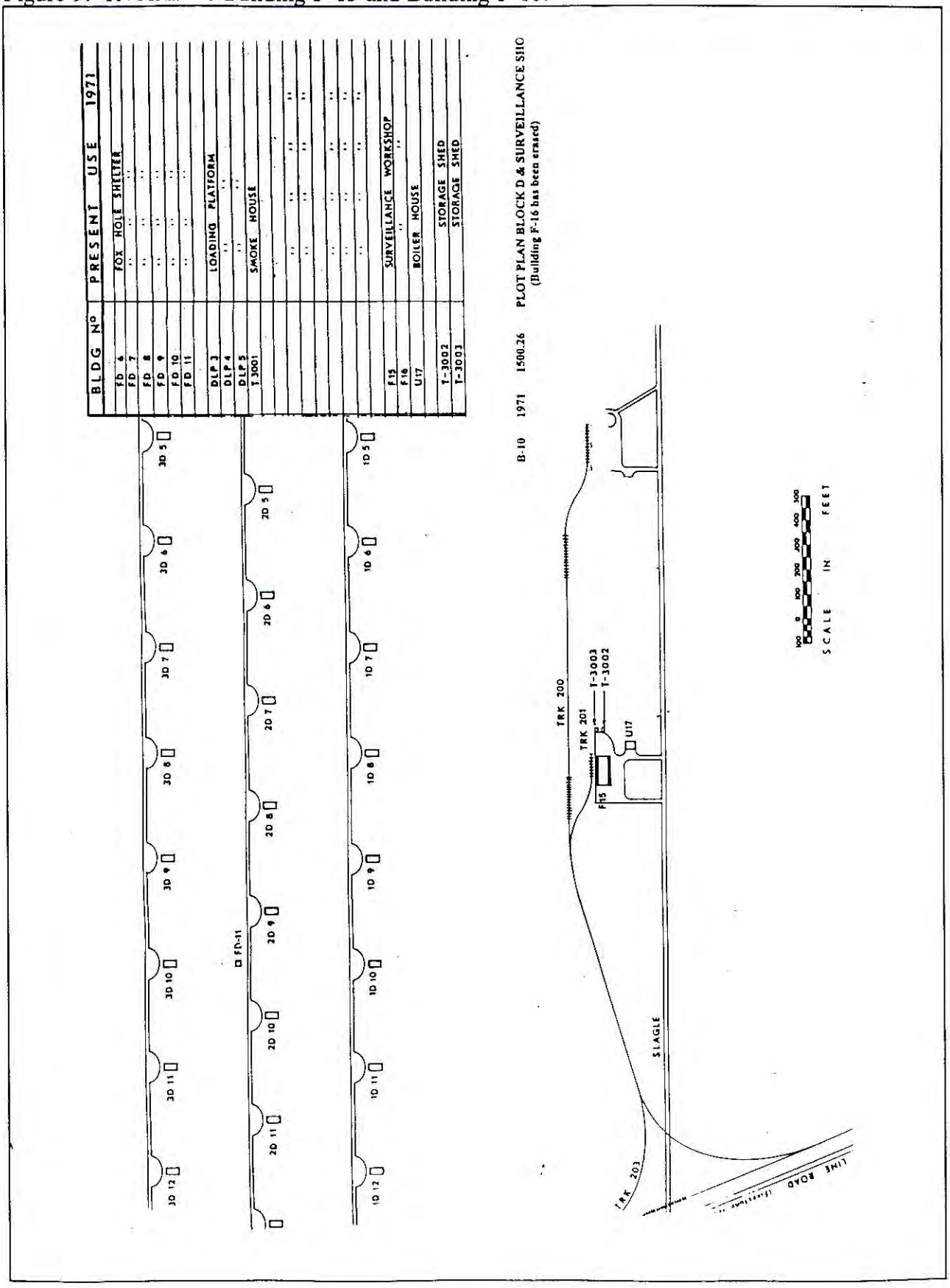

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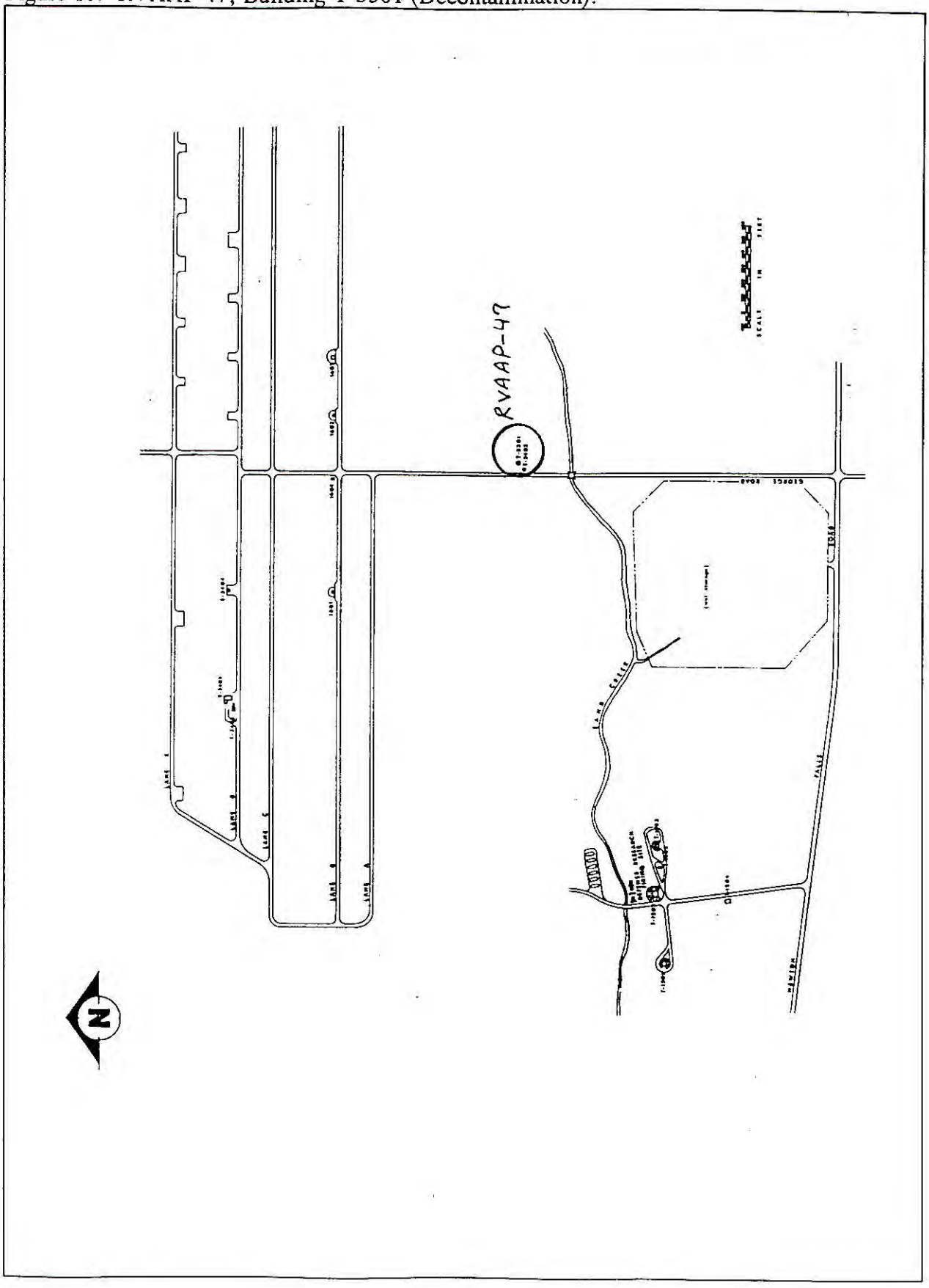

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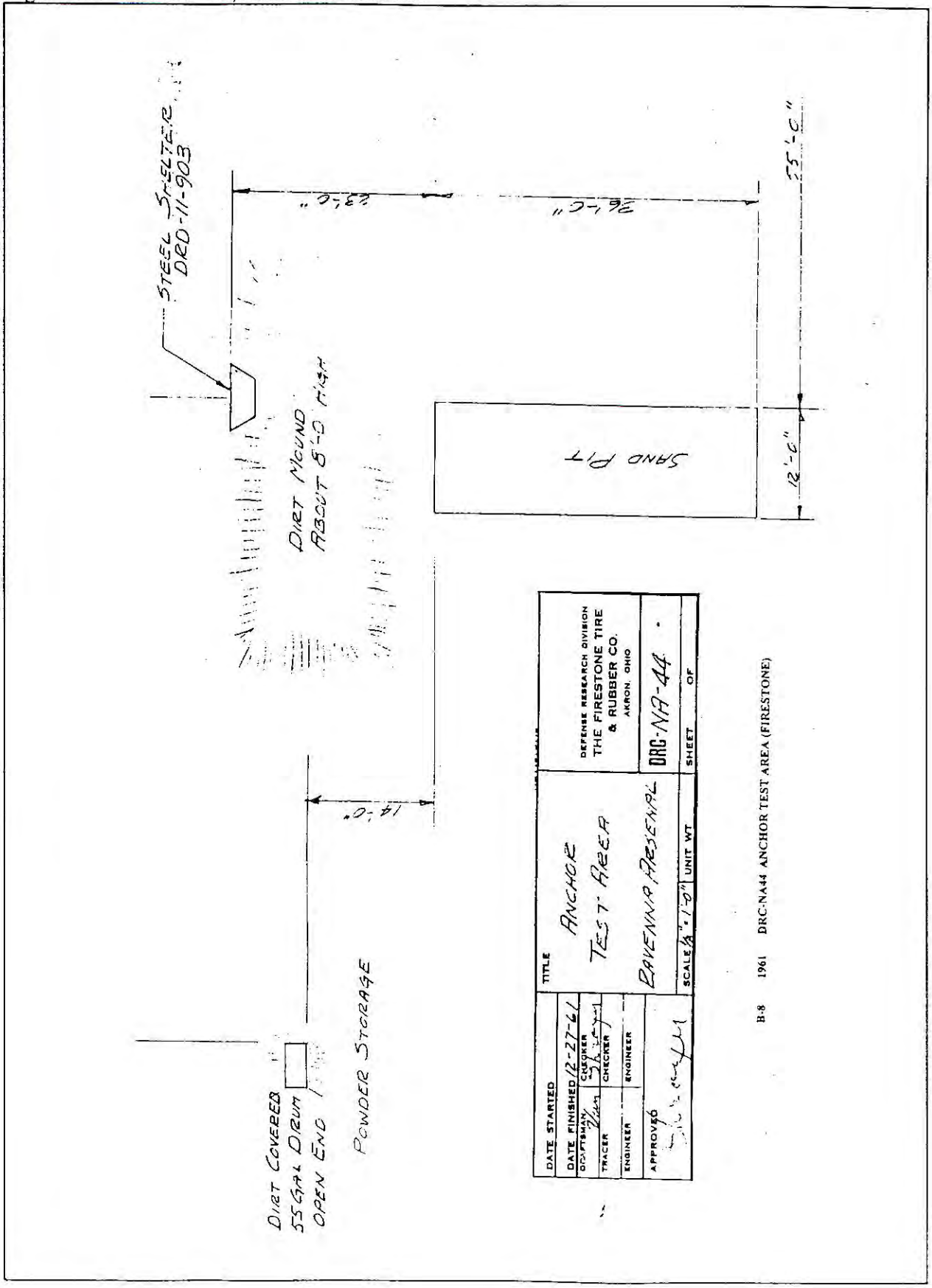


B-8 1961 DRC-NA44 ANCHOR TEST AREA (FIRESTONE)

Figure 12. RVAAP-49, Central Burn Pits.

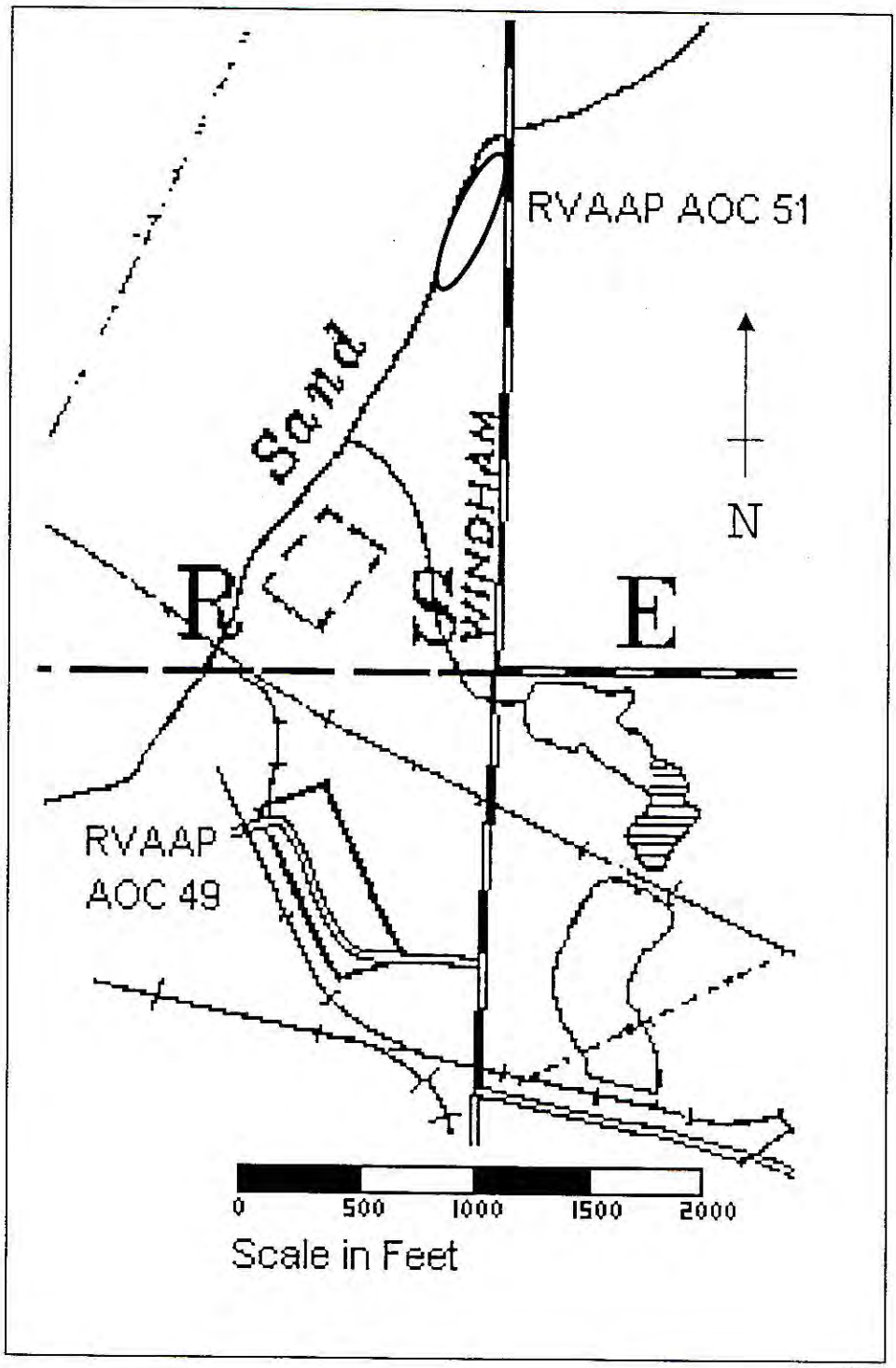


Figure 13. RVAAP-50, Atlas Scrap Yard.

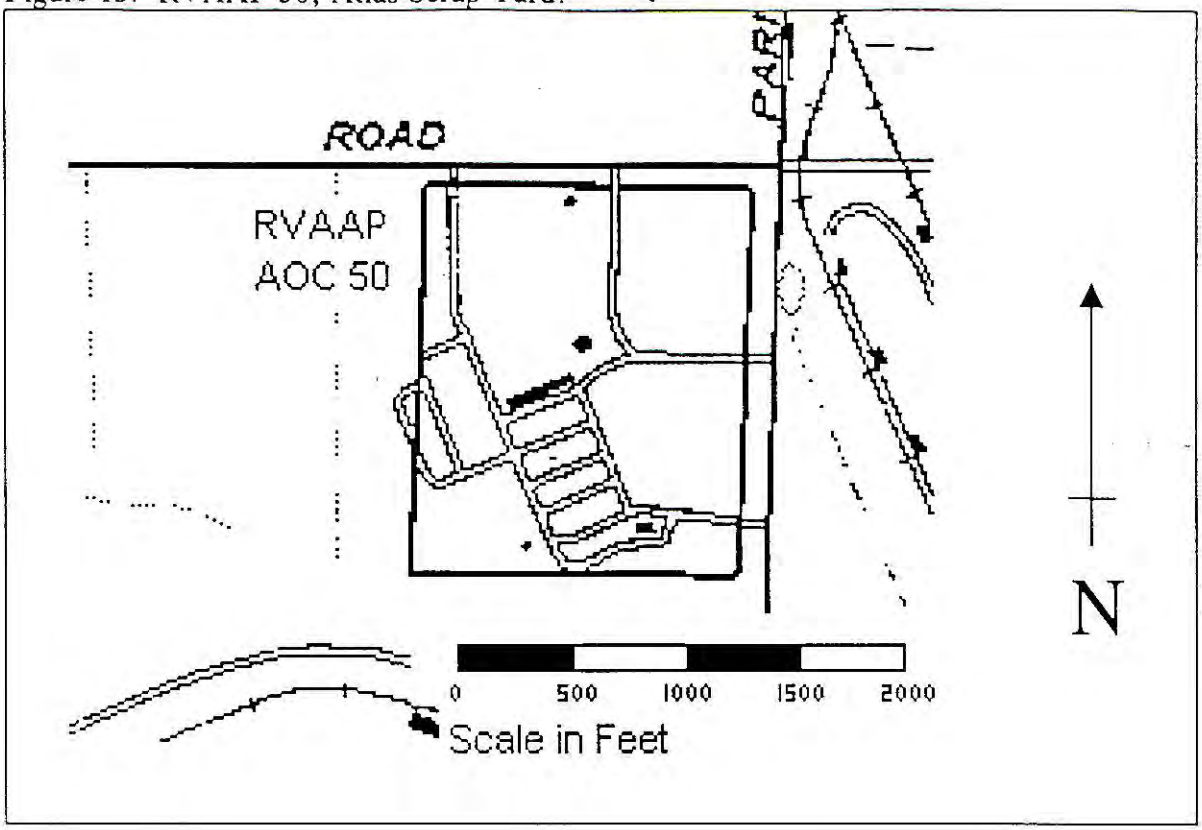
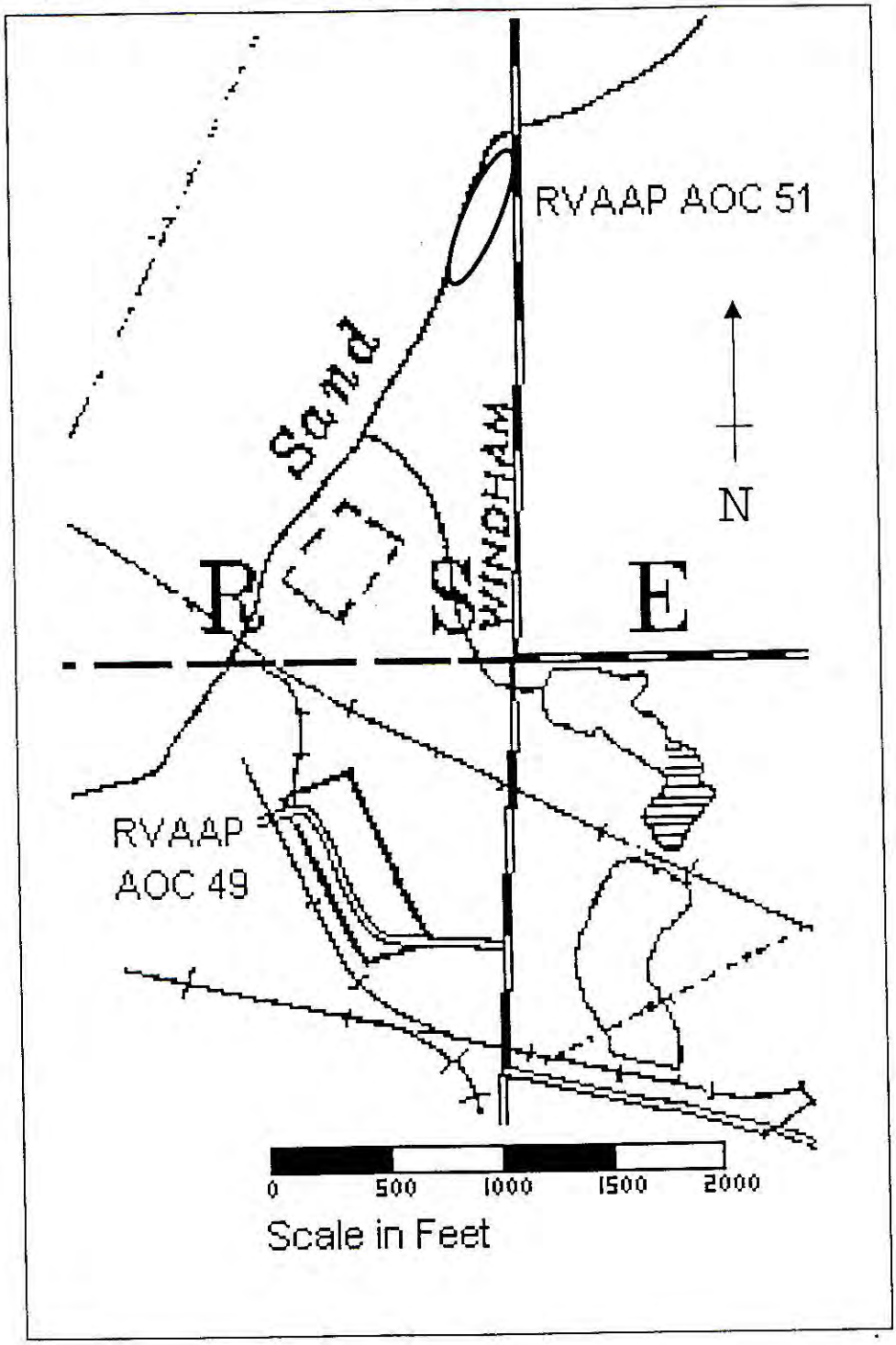


Figure 14. RVAAP-51, Dump Along Paris-Windham Road.



ATTACHMENT I

DEPARTMENT OF THE ARMY
RAVENNA ARMY AMMUNITION PLANT
8451 STATE ROUTE 5
RAVENNA, OHIO 44266-9297

REPLY TO
ATTENTION OF

October 2, 1998

SIORV-CR (200-1 a)

Trumbull County Health Department
176 Chestnut NE
Warren, Ohio 44483

Dear Sir or Madam:

This correspondence serves as notice, as required, under the Ohio Administrative Code (OAC) 3745-27-13 (authorization to engage in filling, grading, excavating, building, drilling, or mining on land where a hazardous waste facility or solid waste facility was operated) that a generic authorization is being requested from the Ohio Environmental Protection Agency (OEPA), Northeast District, to conduct investigative activities (drilling and soil sampling, monitoring well installation and groundwater sampling, trenching to collect waste material and soil samples, piezometer and well point installation, surface water and sediment sampling, and surface soil sampling) necessary to characterize Areas of Concern (AOCs) at the Ravenna Army Ammunition Plant, Ravenna, Ohio, under Comprehensive Environmental Response, Compensation, and Liability Act leading to the environmental restoration of AOCs under the U.S. Department of Defense Installation Restoration Program. The request for authorization is submitted as part of the Facility-wide Sampling and Analysis Plan for the Ravenna Army Ammunition Plant, Ravenna, Ohio, (U.S. Army Corps of Engineers, Nashville District, 1996).

The Ravenna Army Ammunition Plant is located in northeastern Ohio within portage and Tremble Counties, approximately 4.8 kilometers (3 miles) east/northeast of the town of Ravenna and approximately 1.61 kilometers (1 mile) northwest of the Town of Newton Falls. The installation consists of 21,419 acres (8668 hectares) contained in a 17.7-kilometers-long (11-mile-long), 5.63-kilometers-wide (3.5-mile-wide) tract bounded by State Route 5, the Michael J. Kirwan Reservoir, 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 land use surrounding the installation is primarily farmland with sparse private residences. The Michael J. Kirwan Reservoir is located immediately south of the facility. A map of the facility is attached to this correspondence.

The Ravenna Army Ammunition Plant is a government-owned, contractor-operated U.S. Army Industrial Operations Command facility. Currently, the Ravenna Army Ammunition Plant is an inactive facility maintained by a contracted caretaker, R&R International, Inc.

If you have questions or concerns pertaining to this request for authorization under OAC 3745-27-13, you may contact Mr. Mark Patterson at (330) 358-7311, or Ms. Eileen Mohr with Ohio EPA in Twinsburg, Ohio, at (330) 963-1221.

Sincerely,

John A. Cicero, Jr.
Commander's Representative

Enclosure

Copies Furnished:
Ms. Eileen Mohr, Ohio Environmental Protection Agency, Division of Emergency and Remedial Response, Northeast District Office, 2110 East Aurora Road, Twinsburg, Ohio 44087
Commander, U.S. Army Industrial Operations Command, ATTN: AMSIO-IBI-REST (Mr. Whelove), Rock Island, IL 61299-6000
Commander, U.S. Army Industrial Operations Command, ATTN: AMSIO-IBI-ADV (Mr. Cramond), Rock Island, IL 61299-6000
Mr. Kevin Jasper, U.S. Army Corps of Engineers, Louisville District, ATTN: CELRL-DL-B, P.O. Box 59, Louisville, KY 40201-0059
Mr. Steve Selecman, Science Applications International Corporation, P.O. Box 2502, Oak Ridge, TN 37831
Mr. Stan Levenger, R&R International Inc., Ravenna Army Ammunition Plant, 8451 State Route 5, Ravenna, OH 44266-9297
LTC Tom Tadsen, Ravenna Training and Logistics Site, 1488 Newton Falls-Portage Road, Newton Falls, OH 44444
Commander, U.S. Army Center for Health Promotion and Preventive Medicine, ATTN: MCHB-TS-EHM (Mr. Sheehy), Aberdeen Proving Ground, MD 21010-5422

ATTACHMENT II

DEPARTMENT OF THE ARMY
RAVENNA ARMY AMMUNITION PLANT
8451 STATE ROUTE 5
RAVENNA, OHIO 44266-9297

REPLY TO
ATTENTION OF

October 2, 1998

SIORV-CR (200-1 a)

Portage County Health Department
449 South Meridian Street
Ravenna, Ohio 44266

Dear Sir or Madam:

This correspondence serves as notice, as required, under the Ohio Administrative Code (OAC) 3745-27-13 (authorization to engage in filling, grading, excavating, building, drilling, or mining on land where a hazardous waste facility or solid waste facility was operated) that a generic authorization is being requested from the Ohio Environmental Protection Agency (OEPA), Northeast District, to conduct investigative activities (drilling and soil sampling, monitoring well installation and groundwater sampling, trenching to collect waste material and soil samples, piezometer and well point installation, surface water and sediment sampling, and surface soil sampling) necessary to characterize Areas of Concern (AOCs) at the Ravenna Army Ammunition Plant, Ravenna, Ohio, under Comprehensive Environmental Response, Compensation, and Liability Act leading to the environmental restoration of AOCs under the U.S. Department of Defense Installation Restoration Program. The request for authorization is submitted as part of the Facility-wide Sampling and Analysis Plan for the Ravenna Army Ammunition Plant, Ravenna, Ohio, (U.S. Army Corps of Engineers, Nashville District, 1996).

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Sincerely,

John A. Cicero, Jr.
Commander's Representative

Enclosure

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Ms. Eileen Mohr, Ohio Environmental Protection Agency, Division of Emergency and Remedial Response, Northeast District Office, 2110 East Aurora Road, Twinsburg, Ohio 44087
Commander, U.S. Army Industrial Operations Command, ATTN: AMSIO-IBI-REST (Mr. Whelove), Rock Island, IL 61299-6000
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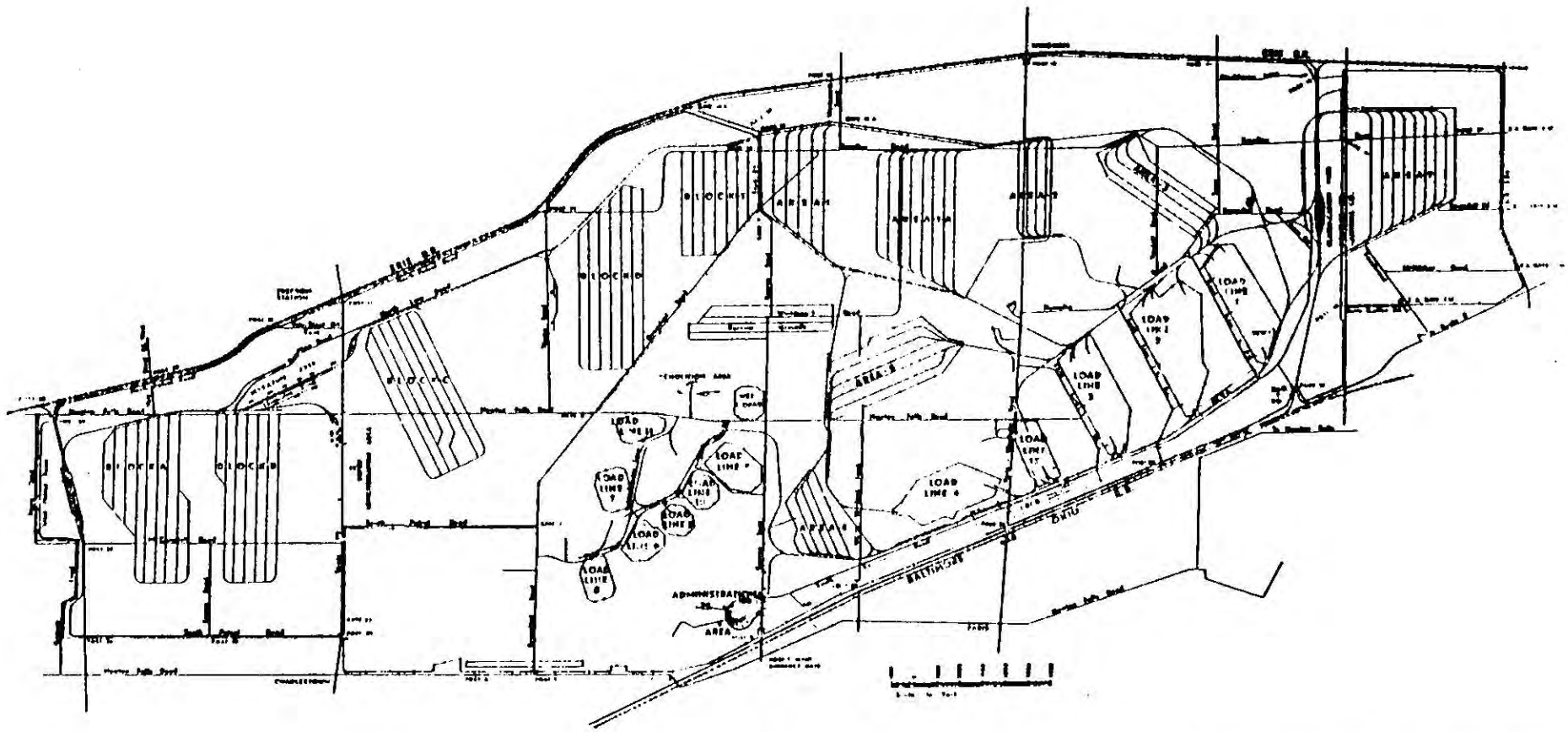
Mr. Kevin Jasper, U.S. Army Corps of Engineers, Louisville District, ATTN: CELRL-DL-B, P.O. Box 59, Louisville, KY 40201-0059
Mr. Steve Selecman, Science Applications International Corporation, P.O. Box 2502, Oak Ridge, TN 37831
Mr. Stan Levenger, R&R International Inc., Ravenna Army Ammunition Plant, 8451 State Route 5, Ravenna, OH 44266-9297
LTC Tom Tadsen, Ravenna Training and Logistics Site, 1488 Newton Falls-Portage Road, Newton Falls, OH 44444
Commander, U.S. Army Center for Health Promotion and Preventive Medicine, ATTN: MCHB-TS-EHM (Mr. Sheehy), Aberdeen Proving Ground, MD 21010-5422



N

RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO
OPERATED BY RAYMOND ENGINEERING, INC.

APPROVED	SIGNATURE	DATE

TITLE
GENERAL AREA MAP

DWG. NO. A-105

OhioEPA
State of Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149
(614) 644-3020
FAX (614) 644-2329

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.
By: Jona L Clements Date 2-12-98

George V. Voinovich
Governor

Donald R. Schregardus
Director

CLOSURE PLAN APPROVAL

CERTIFIED MAIL

February 12, 1998

RE: *CLOSURE PLANS*
REVISED CLOSURE PLAN COMMENTS
OPEN DETONATION AREA
CONTAINER MANAGEMENT AREA
OPEN BURNING GROUNDS
OH5-210-020-736

2/18/98
ENV 2/18/98

OHIO E.P.A.
FEB 12 98
ENTERED DIRECTOR'S JOURNAL

John Cicero, Jr.
Commander's Representative
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Cicero:

In October 1996, Ravenna Army Ammunition Plant (RVAAP) submitted to Ohio EPA closure plans for the open detonation area, container management unit and the open burning grounds located at 8451 State Route 5, Ravenna, Ohio. Revisions to the closure plans were received in October 1997. The closure plans were submitted pursuant to Rule(s) 3745-66-12 of the Ohio Administrative Code (OAC) in order to demonstrate that RVAAP's proposal for closure complies with the requirements of OAC Rules 3745-66-11 and 3745-66-12.

The public was given the opportunity to submit written comments regarding the closure plans of RVAAP in accordance with OAC Rule 3745-66-12. No comments were received by Ohio EPA in this matter.

Based upon review of RVAAP's submittal and subsequent revisions, I conclude that the closure plans for the hazardous waste facility at 8451 State Route 5, Ravenna, Ohio, as modified herein, meets the performance standard contained in OAC Rule 3745-66-11 and complies with the pertinent parts of OAC Rule 3745-66-12.

The closure plans submitted to Ohio EPA in December 1996 and revised on October 1997 by RVAAP are hereby approved with the following modification(s):

1. **SECTION 2.3.3 (PAGE 2-4) of the Container Storage Unit (Bldg. 1601) Closure Plan:**

   The closure plan mentions that the storage unit (i.e. walls, ceiling and floor) and equipment (brooms, squeegees and vacuum) will be triple washed and decontaminated. The plan should state what the unit will be triple washed with.

Printed on recycled paper

CF: AMSIO-ENG (Rosemount) COE, Louisville (Jasper/Kent)
AMSIO-ENE (W, ...)

2. **SECTION 1.5 (PAGE 1-15) of the Open Detonation Area Closure Plan:**

The first sentence which states that "There were no detections of explosives or metals above site-wide background values..." should be changed to neither explosives nor metals posed a threat to human health, because technically there are no site-wide background values for explosives or metals in this plan for the site.

3. **SECTION 2.4 (PAGE 2-11) of the Open Detonation Area Closure Plan:**

The plan states that equipment will be decontaminated by triple washing it. The Plan should indicate what the will be triple washed with.

4. **Ground Water Section of the Open Detonation Area Closure Plan:**

On Table 1-2, it appears that the constituent 2, 4, 5-trinitrotoluene (TNT) should actually be 2, 4, 6-trinitrotoluene (TNT). This should be checked and modified as necessary. The ground water sections of the closure plan should then be implemented as proposed.

Please be advised that approval of these closure plans does not release RVAAP from any responsibilities as required under the Hazardous and Solid Waste Amendments of 1984 regarding corrective action for all releases of hazardous waste or constituents from any solid waste management unit, regardless of the time at which waste was placed in the units.

Notwithstanding compliance with the terms of the closure plans, the Director may, on the basis of any information that there is or has been a release of hazardous waste, hazardous constituents, or hazardous substances into the environment, issue an order pursuant to Section 3734.20 et seq of the Revised Code or Chapters 3734 or 6111 of the Revised Code requiring corrective action or such other response as deemed necessary; or initiate appropriate action; or seek any appropriate legal or equitable remedies to abate pollution or contamination or to protect public health or safety or the environment.

Nothing here shall waive the right of the Director to take action beyond the terms of the closure plans pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. §9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499 ("CERCLA") or to take any other action pursuant to applicable Federal or State law, including but not limited to the right to issue a permit with terms and conditions requiring corrective action pursuant to Chapters 3734 or 6111 of the Revised Code; the right to seek injunctive relief, monetary penalties and punitive damages, to undertake any removal, remedial, and/or response action relating to the facility, and to seek recovery for any costs incurred by the Director in undertaking such actions.

Strict compliance with each and every provision of these approved closure plans, especially including the modifications specified herein, is expected. The Ohio EPA will monitor such compliance. The Director expressly reserves the right to take action, pursuant to Chapters 3734 and 6111 of the Revised Code, and other applicable law, to enforce such compliance and to seek appropriate remedies in the event of noncompliance with the provisions and modifications of these approved closure plans.

You are notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the Environmental Review Appeals Commission within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Board. An appeal may be filed with the Environmental Review Appeals Commission at the following address: Environmental Review Appeals Commission, 236 East Town Street, Room 300, Columbus, Ohio 43266-0557.

When closure is completed, the Ohio Administrative Code Rule 3745-66-15 requires the owner or operator of a facility to submit to the Director of the Ohio EPA certification by the owner or operator and an independent, registered professional engineer licensed to practice in the State of Ohio, that the facility has been closed in accordance with the approved closure plans. The certification by the owner or operator shall include the statement found in OAC 3745-50-42(D). These certifications and the modified pages should be submitted to: Ohio Environmental Protection Agency, Division of Hazardous Waste Management, Attn: Thomas Crepeau, Data Management Section, P.O. Box 1049, Columbus, Ohio 43216-1049.

Sincerely,

Donald R. Schregardus
Director

approval/CLOSURE.ao

cc: Tom Crepeau, DHWM, CO
Montee Suleiman, DHWM, CO
Harriet Croke, USEPA, Region V
Gregory Orr, DHWM, NEDO
Carolyn Princic, DHWM, NEDO
Bob Princic, DERR, NEDO
Eileen Mohr, DERR, NEDO
Dianne Kurlich, DDAGW, NEDO
Mark Navarre, Legal, CO
Katheryn Dominic, SAIC
Timothy Leet, SAIC

From Ernie Neal

REVISED CLOSURE PLAN MODIFICATIONS
RE: OEPA LETTER OF 2/12/98

1. Section 2.3.3 (Page 2-**6**) of the Container Storage Unit (Bldg. 1601) Closure Plan:

   The sentence will be changed as follows:

   (The triple rinsing process will be completed with steam/water- Location of this statement in the closure plan is necessary to make this change. There may be confusion with this comment and OEPA comment no. 3 below).

2. Section 1.5 (Page 1-15) of the Open Detonation Area Closure Plan.

   The following sentence will be inserted.

   "Neither explosives nor metals pose a threat to human health."

3. Section 2.4 (Page 2-11) of the Open Detonation Area Closure Plan.

   The sentence will be changed as follows:

   "Equipment such as large earthmoving equipment and small hand tools will be brushed free of visible debris and then triple-washed with steam."

4. Groundwater Section of the Open Detonation Area Closure Plan.

   Table 1-2 will be changed to incorporate the comment.

Medium	Potential Waste Code	Constituents
Soil	**None**	**2,4,6-trinitrotoluene (TNT)** 1,3,5-hexahydro-1,3,5-trinitrohydazine (RDX) 1,3,5,7-hexahydro-1,3,5,7-tetranitrohydrazine (HMX)

REQUEST FOR EXTENSION
FOR COMPLETING CLOSURE

The approved closure plan provided 390 days for completing closure. The estimated time of closure was the spring of 1999.

Considering the RVAAP Installation Remediation Action Plan is scheduled to be completed by 2009-10, RVAAP requests that the closure extension for the Open Detonation area be scheduled accordingly. Several factors are involved with this extension request.