

Ohio Environmental Protection Agency (OEPA)

And

Ravenna Army Ammunition Plant (RVAAP)

1990 Correspondences

EPA
Environmental Protection Agency

District Office

Aurora Road

Columbus, Ohio 44087

425-9171

90	

Cyf 1/9/90

7990

28.01

Richard F. Celeste
Governor

January 4, 1990

RE: SOLID WASTE
PORTAGE COUNTY
WINDHAM TWP.
RAVENNA ARSENAL
(RAMSDELL LANDFILL)

Ravenna Arsenal, Inc.
Ravenna Army Ammunition Plant
8451 St. Rt. 5
Ravenna, OH 44266

Attn: Thomas M. Chanda

Dear Sir,

On December 14, 1989, this writer met with Jim Mound of your staff and conducted an inspection of the closed Ramsdell Landfill (see attached inspection report). It is noted that this facility is located within the Ravenna Arsenal and at 8451 St. Rt. 5, Windham Twp., Portage County.

The inspection revealed that four (4) closure items still must be addressed and are noted on the attached facility violation notice. It should be noted that your companies closure report/plan and pending grade waiver addresses the completion of these problems. It is our understanding that the closure items (vegetative cover, final grade, surface water measures and final plat map) will be completed on or before June 1, 1990. This office has no objection to the closure completion schedule. Please keep us informed as work progresses in the Spring of 1990.

We appreciate your cooperation in these matters. If questions or comments should arise, please feel free to contact this writer.

Sincerely,

David O. Budd

David O. Budd, R.S.
Environmental Scientist
Division of Solid and Hazardous
Waste Management

DOB.ko

enclosure

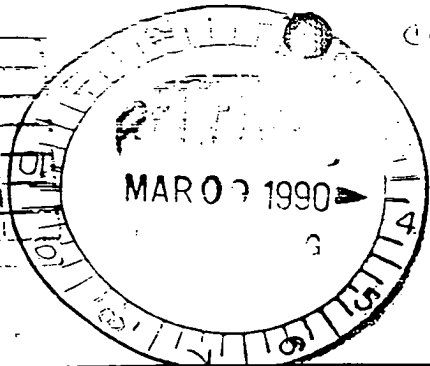
cc: Davi NEDO.
Mark SHWM, CO
Dan H. SHWM, CO
Chip E. Miller, Portage Co.
Windham Twp. Trustees

*Info from
2/19 meeting*

*S. 1 come 90
for final
closure*

Return to Landfill Closure F/O

3/9/90
GOVT ADM
EDCP ADM
CASAS
SECURITY



*cc: F. Charles
W. Carlido
File
28.01*



State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087
(216) 425-9171

Richard F. Celeste
Governor

March 6, 1990

RE: SOLID WASTE
PORTAGE COUNTY
RAVENNA ARSENAL
CLOSURE PLAN

Environmental Design Group
1533 Commerce Dr.
Stow, OH 44224

Attn: Leonard R. Rychlik, P.E.

Dear Sir,

This office is in receipt of your revised closure plan for the Ravenna Arsenal (Ramsdell) Landfill. It is noted that this closed facility is located within Windham Township and the Ravenna Army Ammunition Plant.

It is noted that this closure plan addresses how this solid waste disposal facility will be properly closed according to the requirements of Ohio Administrative Code 3745-27-10. The Ramsdell Landfill ceased operation on September 22, 1989.

On December 28, 1989, the Director of Ohio EPA issued a waiver to allow for a 33 percent grade for a slope design in the northwest portion of the facility. Otherwise all remaining closure items are addressed within the closure plan and will be implemented in accordance with OAC 3745-27-10.

Also, contained within the revised closure plan is a request for a time extension for final completion of said closure. This office does not object to the revised closure date of June 30, 1990. At this time all seeding, vegetating, grading and drainage tasks will be completed.

This office accepts the revised closure plan, date stamped in at Ohio EPA - NEDO on November 15, 1988, as complete and meeting the requirements of OAC 3745-27-10.

4-26-90 28.01

CLOSED FACILITY VIOLATION NOTICE

HEALTH DISTRICT <u>Portage County</u>	PHONE _____
FACILITY <u>Ravenna Arsenal Landfill</u>	ID # <u>N/A</u>
LOCATION <u>8451 St. Rt. 5</u>	DATE <u>9-22-89</u>
ADDRESS <u>Ravenna, Ohio 44266</u>	(closure date)
RESPONSIBLE PARTY (S) <u>Tom Chanda and Joe Mound</u>	TITLE _____
ADDRESS <u>same as facility</u>	PHONE <u>216-297-3111</u>
AFFILIATION WITH SITE <u>Env. Coordinator and Utilities Supervisor</u>	OEPA DIST. <u>NE</u>

(Items marked X indicate violation)

3745-27-10 Closure of Sanitary Landfills (Rules effective July 29, 1976)

(Requirements to be met within 60 days after closure)

- (C) (1) Final cover not less than 2 feet -----
- (2) Vegetative cover established -----
- (3) Final grade between 1% and 25% -----
- (4) Appropriate surface water diversion measures -----
- (5) Gas migration control measures -----
- (6) Vector control measures -----
- (7) Appropriate signs posted -----
- (8) Plat submitted to County Recorder ----- X
- (D) Accessible to authorized personnel -----

(Requirements to be met during 3 years after closure)

- (E) Ponding control and remedial action -----
- (F) Cracking and/or erosion control and remedial action -----
- (G) Groundwater monitoring well maintenance -----
- (H) (1) -----
 - a. On-site leachate containment and/or treatment -----
 - b. Leachate collection and off-site treatment -----
- (2) Elimination or minimization of leachate production -----
- (3) Groundwater monitoring well maintenance -----

Description of Violation and Recommendations for Corrections Inspection Date: 4-26-90
Time: 9:52 am. Weather: sunny, 80 F, Inspector: David Budd (OEPA)
Landfill Representatives: Tom Chanda, Wayne Carkido (Ravenna Arsenal Inc.) George Wagner
(Environmental Design Group)

Closure is almost complete as per accepted plan/report (3-6-90).
An excellent job has been implemented at this facility. Other than the planted seed having to
germinate, a final revised plat will need to be filed and copies submitted to all appropriate
parties.

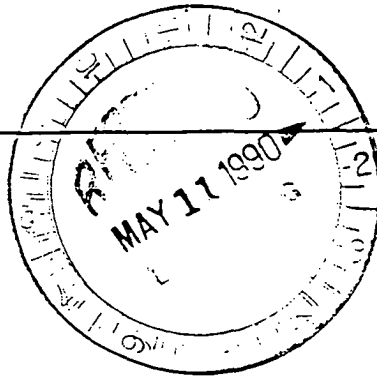
You are hereby notified of the above violations. Failure to correct these violations within
N/A days may result in legal action. If assistance in correcting these violations is
desired, contact your local health department and/or the Ohio EPA.

Inspection Made By David O. Budd, R.S. Environmental Scientist 4-26-90
Title Date



State of Ohio Environmental Protection Agency

Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(216) 425-9171
FAX (216) 487-0769



Landfill Closure File

TO	
CR-COR	
CONT	
PROP ADM	
OASAS	
SECURITY	
PAI	
RETURN FOR FILE	

*T. Chanda
W. Carkido
File*

Richard F. Celeste
Governor

May 7, 1990

RE: SOLID WASTE
PORTAGE COUNTY
WINDHAM TWP.
RAVENNA ARSENAL
(RAMSDSELL LANDFILL)

28.01

Ravenna Arsenal, Inc.
Ravenna Army Ammunition Plant
8451 St. Rt. 5
Ravenna, OH 44266

Attn: Thomas M. Chanda, Site Manager

Dear Sir,

On April 26, 1990, this writer met with you, Wayne Carkido of Ravenna Arsenal, Inc. and George Wagner of Environmental Design Group and conducted a closure progress inspection of the Ramsdell Landfill. A copy of the inspection report is enclosed with this letter.

The progress inspection revealed that an excellent job of implementing the closure plan/report has been accomplished. Application of final cover, grading, fertilizing and seeding has now been completed. It is anticipated that by early June, 1990, the vegetation will be established over the waste deposition areas.

Please note that upon completion, a final revised plat will have to be filed indicating the change of grade which occurred (3:1 back to 4:1) in the northwest portion of the facility. This office approved this slope change after your contractor found that the area effected contained stock piled cover which could be regraded to the 25% maximum slope required under OAC 3745-27-10 (C-3) of the July 29, 1976 solid waste rules.

We appreciate your cooperation in the progress of your landfill closure. If any questions should arise, please feel free to contact this writer.

Sincerely,

David O Budd

David O. Budd, R.S.
Environmental Scientist
Division of Solid and Hazardous
Waste Management

cc: Mark Metcalf, DSHWM, CO
Dave Wertz, DSHWM, NEDO
Chip Porter, Portage
County HD

RAVENNA ARSENAL, INC.

TELEPHONE CONVERSATION RECORD

November 26, 1990

TO: T.M. Chanda - RAI Environmental Engineer

PHONE: 297-3221

FROM: Mr. Dave Budd - Ohio EPA Solid Waste Division Twinsburg, OH

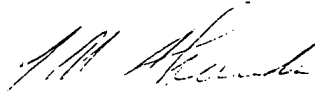
PHONE: 425-9171

SUBJECT: Surface Water Ponding at the Closed/Reclaimed Ramsdell
Quarry Site

Mr. Budd was informed of the subject site condition located in the bottom northwest corner of the quarry.

RVAAP had the contractor on-site who had originally performed the physical closure. The contractor's recommendation was to wait till spring before conducting any earth moving activities. To do anything sooner, would only increase the scope of remediation. This approach was further secured by the conditions being attributable to collection of surface water run-off rather than landfill leachate. Budd concurred with the proposed schedule. Budd also recommended that the facility inspection log/record identify the current status throughout the duration of no repair and that some analytical work be performed to assure the condition is not leachate. Analytical tests to be performed; as per Budd are Ammonia-N, Chlorides, Sulfates, BOD and Total DS. Budd is to forward to this office a standards listing that can be used as a comparative table to determine water quality status of the samples.

Budd will perform a site inspection and discuss the matter further when he performs his quarterly inspection upon the Ramsdell site sometime in December 1990.



T.M. Chanda

TMC/ade

cc: RVAAP COR
N. Wulff
H. Cooper
W. Carkido
B. Jenkins
J. McGee/J. Mound (Analytical and Inspection Log Action)
File

NOTE:

STANDARDS LISTING IS ATTACHED TO THIS TELECOM



State of Ohio Environmental Protection Agency

Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(216) 425-9171
FAX (216) 487-0769

RECEIVED
JAN 09 1991
N. WULFF

TO	
ICR-CON	
ICONT ADM	
PROP ADM	
IOASST	
ISECURITY	
AVRAI	
RETURN FOR FILE	

Chanda
Portage
file
Richard F. Celeste
Governor

December 28, 1990

RE: SOLID WASTE
PORTAGE COUNTY
RAVENNA ARSENAL
(RAMSDELL LANDFILL)

Landfill
closure file

Ravenna Arsenal, Inc.
Ravenna Army Ammunition Plant
8451 St. Rt. 5
Ravenna, OH 44266

General Manager Ravenna Arsenal, Inc. FWD FOR
<input type="checkbox"/> Information
<input type="checkbox"/> Compliance as applicable
<input type="checkbox"/> Reply NLT

Attn: Thomas M. Chanda, Site Manager

Dear Sir:

On December 28, 1990, this writer met with Joe Mound, an Arsenal representative, and conducted a closure inspection of the Ramsdell Landfill. It is noted that this closed facility is located at 8451 St. Rt. 5, Windham Twp., Portage County. This landfill closed on September 22, 1989 under the Ohio Administrative Code 3745-27-10 rules which were effective on July 29, 1976. No solid waste rule violations were observed during our inspection on this date (see attached report). The two (2) recommendations noted during our August 22, 1990 inspection (labeling the groundwater monitoring wells and the addition of more gravel on the access roadway turn-a-round) were found to have been implemented at your facility.

This office appreciates the excellent closure work which was completed in 1990 and the cooperation extended towards the implementation of our recommendations. If any questions should arise, please feel free to contact this writer.

Sincerely,

David O. Budd

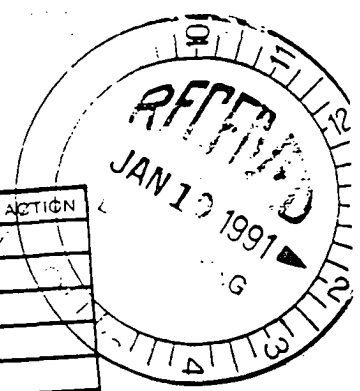
David O. Budd, R.S.
Environmental Scientist
Division of Solid and Hazardous Waste
Management

DOB.ko

enclosure

cc: John Watkins, DSHWM, NEDO w/enc
Mark Metcalf, DSHWM, CO w/enc
Chip Porter, Portage Co. HD w/enc
Windham Twp. Trustees w/enc

TO	OFFICE	ACTION
	GM	
	CO-COR	
	ACCTG	
	SEC	
	ENGR	
	IR	
	S & T & O	
	P & C A	
	SAF	
	DPM	
	RETURN	



CLOSED FACILITY VIOLATION NOTICE

HEALTH DISTRICT Portage County PHONE
FACILITY Ravenna Arsenal (Ramsdell Landfill) ID #
LOCATION 8451 St. Rt. 5 DATE closed 9-22-89
ADDRESS Ravenna, Ohio 44266
RESPONSIBLE PARTY(S) Tom Chanda and Joe Mound TITLE
ADDRESS same as above PHONE (216) 297-3111
AFFILIATION WITH SITE Env. Coordinator and Utilities Supervisor OEPA DIST. NEDO

(Items marked X indicate violation)

3745-27-10 Closure of Sanitary Landfills

(Requirements to be met within 60 days after closure)

- (C) (1) Final cover not less than 2 feet
(2) Vegetative cover established
(3) Final grade between 1% and 25%
(4) Appropriate surface water diversion measures
(5) Gas migration control measures
(6) Vector control measures
(7) Appropriate signs posted
(8) Plat submitted to County Recorder

(D) Accessible to authorized personnel

(Requirements to be met during 3 years after closure)

- (E) Ponding control and remedial action
(F) Cracking and/or erosion control and remedial action
(G) Groundwater monitoring well maintenance
(H) (1) a. On-site leachate containment and/or treatment
b. Leachate collection and off-site treatment
(2) Elimination or minimization of leachate production
(3) Groundwater monitoring well maintenance

Description of Violation and Recommendations for Corrections: Date: December 28, 1990 Time: 2:30 pm Weather: Cloudy, 40° F

Inspector: D. Budd (OEPA) Facility Representative: Joe Mound

Previous recommendations: Labeling the groundwater monitoring wells and adding to gravel base of access road have both been implemented.

You are hereby notified of the above violations. Failure to correct these violations within days may result in legal action. If assistance in correcting these violations is desired, contact your local health department and/or the Ohio EPA.

Inspection Made By David O. Budd Environmental Scientist Title Date 12-28-90



State of Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149

General Manager
 Revenna Arsenal, Inc.
 FWD FOR
 Information
 Compliance as applicable
 Reply NLT

original draft



Richard F. Celeste
Governor

March 27, 1990

Cooper

Tom Chanda
Environmental Engineer
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, Ohio 44266-9297

CERTIFIED MAIL

RE: EXEMPTION ORDER

Dear Mr. Chanda:

The Division of Solid and Hazardous Waste Management staff have recommended that an Exemption Order be issued by me in the matter of Ravenna Army Ammunition Plant. A copy of the Exemption Order is enclosed for your review. This document is intended to exempt the facility from Ohio's hazardous waste permitting requirements subject to adherence to the conditions imposed by the Order.

If you have any questions concerning the Order, please contact Elizabeth Bohanon of my legal staff at (614) 644-3037. The facility's willingness to accept the exemption Order as written should be signified by signature of an authorized person at the "Waiver" section of the Order. In the event that the facility desires its own copy of this exemption Order signed in the original, two copies of the document are enclosed. Please transmit the signed document to Ms. Bohanon who will bring this matter to my attention.

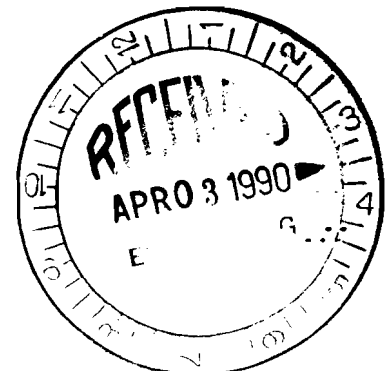
Sincerely,

Richard L. Shank, Ph.D.
Director

RLS/ESB/dms

Enclosures

cc: Linda Welch, DSHWM
Ed Kitchen/Ed Lim/Alan Harness, DSHWM
Bill Skowronski, NEDO
Dave Wertz/Debbie Berg/Kevin Bonzo, NEDO



Issuance Date _____
Effective Date _____

**BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY**

In the Matter of :
:
Ravenna Army Ammunition Plant : **Director's Final**
8451 State Route 5 : **Findings and Orders**
Ravenna, Ohio 44266 :

Pursuant to Chapter 3734 of the Revised Code, the Director of Environmental Protection makes the following Findings and issues the following Orders:

FINDINGS

1. Ravenna Army Ammunition Plant (RVAAP) operates a facility engaged in the storage and treatment of munitions and munition derivatives.
2. On March 31, 1981, RVAAP submitted a RCRA Part A application to Ohio EPA. The application was a copy of the application filed with U.S. EPA. RVAAP has obtained interim status from U.S. EPA for storage and thermal treatment (U.S. EPA I.D. No. OH5210020736).
3. In October, 1981, the Ohio Hazardous Waste Facility Board (HWFB) issued permits to all facilities that were "in operation" immediately prior to October 9, 1980. RVAAP was not "in operation" at that time in the sense that it was not engaged in the production of munitions. RVAAP was, however, engaged in other activities, including storage, inspection and demilitarization, involving periodic thermal treatment by open burning and detonation.
4. Due to uncertainty on the part of both RVAAP and Ohio EPA as to RVAAP's regulatory status, HWFB did not issue a permit to RVAAP.
5. RVAAP has operated its facility in compliance with interim status standards since 1980. RVAAP has lawfully conducted thermal treatment activities pursuant to Ohio law through exemptions, granted on October 1, 1985 and May 19, 1986, and through emergency permits. Seven emergency permits have been issued to RVAAP since September 1987. The most recent permit was issued on February 12, 1990, effective until May 12, 1990.

6. RVAAP filed a RCRA Part B permit application with Ohio EPA on November 8, 1988.
7. Pursuant to ORC Section 3734.02 (G), the Director of Environmental Protection (the "Director") may by order exempt any person generating, storing, treating, or disposing of hazardous wastes in such quantities or under such circumstances that, in the determination of the Director, it is unlikely that the public health or safety, or the environment will be adversely affected thereby, from any requirement to obtain a permit or license, or comply with the manifest system or other requirements of Chapter 3734, Ohio Revised Code.
8. It is environmentally beneficial for the State of Ohio to allow RVAAP to continue to store and treat munitions and munition derivatives in a manner that is safe to the public, the environment, and personnel at RVAAP. If RVAAP conducts its treatment activities in accordance with the Orders included herein, it is unlikely that the public health or safety, or the environment will be adversely affected.
9. This action is consistent with, and equivalent to, the regulations promulgated by the Administrator of the United States Environmental Protection Agency under the "Resource Conservation and Recovery Act of 1976," 90 Stat. 2806, 42 U.S.C. 6921, as amended.

ORDERS

1. An exemption is hereby granted to RVAAP to store and treat munitions and munition derivatives, as required by continuing facility operations, provided the following conditions are met:
 - a. The exemption applies only to thermal treatment by open burning, by open detonation, or by detonation in the deactivation furnace, and to the storage of all materials to be so treated before such treatment.
 - b. At least fourteen (14) days before any thermal treatment is conducted, RVAAP must submit to Ohio EPA's Northeast District Office a treatment plan which identifies the type and quantity of each material to be treated by open burning, by open detonation, and/or by detonation in the deactivation furnace. The plan shall also describe the chemical or explosive composition and weight of each material, provide notification of the date(s) upon which

Director's Final Findings and Orders
Ravenna Army Ammunition Plant
PAGE THREE

treatment will be conducted, and identify the location of each treatment area.

- c. After receiving the treatment plan identified in subparagraph b. above, Ohio EPA shall be afforded an opportunity to inspect the treatment site(s) before treatment begins.
- d. RVAAP shall conduct all treatment activities in compliance with Ohio Administrative Code Rule 3745-68-82: "Open burning; waste explosives" and all applicable air pollution requirements.
- e. RVAAP shall comply with OAC Rule 3745-50-58: "Conditions applicable to all permits," which conditions are incorporated herein by reference.
- f. RVAAP 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

Director's Final Findings and Orders
Ravenna Army Ammunition Plant
PAGE FOUR

- g. All treatment activities shall be conducted in areas specifically selected to minimize any deleterious effects on the public and the environment. Selection of each treatment area shall be made on the basis of topography, wind direction, proximity to utility lines and/or other man-made constructions, and other relevant factors. RVAAP shall also take all appropriate measures to minimize noise occasioned by treatment activities.
- h. RVAAP shall provide adequate security for all treatment activities, to prevent the entry of unauthorized persons into dangerous areas. Adequate fire-fighting and first aid equipment shall be made available by RVAAP and/or by the local fire department.
- i. Handling and transportation of waste to the treatment area(s) shall be accomplished by persons with experience and/or training in the handling of reactive, explosive and ignitable materials. All wastes shall be properly packed and stabilized prior to transportation.
- j. All open burning and detonation shall take place under the direct supervision of Mr. Thomas Chanda, ^{1st} Ravenna Arsenal, Inc., or his authorized designee.
Environmental Coordinator
- k. RVAAP shall inspect the treatment area after each open burning or detonation for untreated waste and shall determine whether any residues are hazardous wastes pursuant to 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 OAC Chapters 3745-50 et seq.
- 1. RVAAP shall conduct each and every treatment activity in accordance with the treatment plan previously filed with Ohio EPA. Within seven (7) days after each treatment activity is completed, RVAAP shall notify Ohio EPA's Northeast District Office, in writing, that treatment is complete. Such notification shall also include information concerning the disposition of any hazardous wastes generated as a result of treatment activities. In no event shall any hazardous waste treatment residues remain on-site for greater than 90 days.
- 2. RVAAP by its acceptance of this exemption agrees to comply with all conditions of the exemption and acknowledges that RVAAP's failure to so comply may result in immediate revocation of this

Director's Final Findings and Orders
Ravenna Army Ammunition Plant
PAGE FIVE

exemption and, if appropriate, further legal action by OEPA.

3. This exemption shall be effective until the HWFB has made a final determination on RVAAP's Part B permit application.

IT IS SO ORDERED:

Richard L. Shank, Ph.D., Director
Ohio Environmental Protection Agency

Date

Director's Final Findings and Orders
Ravenna Army Ammunition Plant
PAGE SIX

WAIVER

Ravenna Army Ammunition Plant hereby waives the right to appeal the issuance, terms and service of these orders, and it hereby waives any and all rights it might have to seek judicial review of said Final Findings and Orders, either at law or in equity. In the event that said Final Findings and Orders are appealed by any other party to the Environmental Board of Review or any court, nothing in said Final Findings and Orders shall preclude Ravenna Army Ammunition Plant's intervene in such appeal.

IT IS SO AGREED:

RAVENNA ARMY AMMUNITION PLANT

By: _____

Thomas Chanda

_____ Date

FAO Exemption

Tom Wisely Comments

- ① Agrees with lowering 30 day advance submission to 14 days.
- ② possibility of annual plan for the PI (L6&7)
- ③ May want to submit a longer plan for several activities

RAVENNA ARSENAL, INC.
OLIN ORDNANCE DIVISION

INTEROFFICE MEMO

April 4, 1990

TO: CAROL ROSLUND
GEORGE PAIN

FROM: N. WULFF *N. Wulff*

SUBJ: EXEMPTION ORDER FOR RVAAP

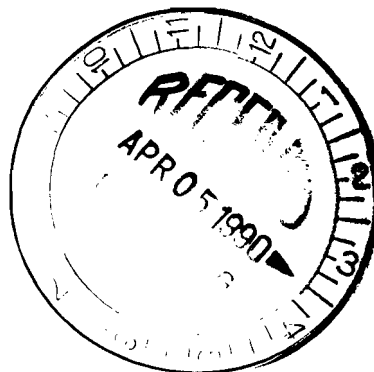
Attached for your information is a copy of an Exemption Order recently received from the Ohio EPA.

It is our understanding that this Order will be routed through Command channels and executed by the Government

By copy of this memo, George Pain is requested to forward a copy to Tom Wisely.

:sh
attachments

cc: H. Cooper
T. Chanda



TO G. H. Pain

AT

DATE April 9, 1990

FROM G. T. Wisely

AT

COPIES TO

SUBJECT Ravenna Exemption Order

4/10/90
RW

The following are my comments to the draft Exemption Order from Ohio EPA for open burning of explosives at the Ravenna Arsenal.

No change

1) It is not clear if the Order would be issued to the U.S. Army or RAI. - It should be the Army

2) In item 4, there seems to be some confusion on the part of Ohio EPA about issuing a permit. The USEPA and the Ohio EPA has until 1992 and possibly longer to issue a RCRA Subpart X permit for OB/OD. The Army submitted this application in November 1988 as shown in item 6. - I agree that this could be clarified

No change
4-11-90

3) In item 7, does the "Director" have the authority to grant an exemption when the Federal regulations don't allow an exemption to my knowledge. - The exemption is valid only for the state permit (two)

Mr. Tolson	
Mr. DeLoach	
Mr. Mohr	
Mr. Bishop	
Mr. Casper	
Mr. Callahan	
Mr. Conrad	
Mr. Felt	
Mr. Gale	
Mr. Rosen	
Mr. Sullivan	
Mr. Tavel	
Mr. Trotter	
Tele. Room	
Miss Holmes	
Miss Gandy	
RETURN	

4) The questions seem to be:

- Is this a better option than a permit?

→ No.

- Does the permittee lose any rights for future OB/OD permitting? - probably not

5) Under (b) of the Order, can the Ohio EPA refuse to let us burn? This has happened at Ravenna in the past.

6) Under (j) of the Order, if T. Chanda is no longer available, can the Order be used. I would suggest a title rather than a persons name. - agree

7) Under (l) of the Order, can the satellite rule be used to allow up to 55 gallons to be collected for small amounts of ash accumulation. - I agree that this could be clarified.

8) I don't feel Thomas Chanda should sign this Order. I'm not sure Olin should sign the Order. - agree

N. Wulff
via Fax

- 9) Does this Order cover LL 6/7 explosive waste? } If this is essential, it should be clarified
- 10) Is there a time limit for collecting explosive waste before burning it? Under (a) of the Order, it seems there is no storage limit. - ? probably the same limits apply.

G.T. Wisely
G. T. Wisely

ek:10/0409903

My understanding is that the gov't (not Chanda) will sign.

INTEROFFICE MEMORANDUM

April 10, 1990

TO: H.R. COOPER
FROM: SUSAN MCCAUSLIN
SUBJECT: EXEMPTION ORDER FOR OB/OD OPERATIONS REF: OEPA LETTER
DATED 3/27/90

The above referenced draft exemption order has been reviewed by T. Chanda and myself. We have noted the following three areas within the order that need to be changed:

1. On page three of the Director's Final Findings Orders; paragraph 1f: The last two rule citations, 3745-55-47 and 3745-55-48, concern financial liability and are not applicable to a Federal Government Facility. These two citations should be stricken from the orders.
2. On page four, paragraph 1: the final sentence in this paragraph states that "In no event shall any hazardous waste treatment residues remain on-site for greater than 90 days." As you know, RVAAP currently has interim status from U.S. EPA for storage of ash residue from OB/OD operations in Bldg. 1601. In view of that, we feel that this statement should be stricken from the orders, and request that allowance for ash residue storage in Bldg. 1601 be included under these orders.
3. On page six, the final signature agreeing to the findings and orders must be that of Robert Kasper, Commander's Representative.



Susan McCauslin

SM/ade

cc: File



RAVENNA ARSENAL, IN
8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297
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July 5, 1990

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

TO: State of Ohio Environmental Protection Agency
P.O. Box 1049
ATTN: Dr. Richard Shank, Director
1800 Watermark Drive
Columbus, Ohio 43266-0149

Subject: Draft Exemption Order for Storage and Thermal Treatment
of Munitions at RVAAP

Dear Dr. Shank:

The subject draft Exemption Order has been reviewed by both the Army and Olin Corporation. Based on this review, we request that the following changes be incorporated into the final document:

1. Paragraph 1a of the orders be changed to read "... to the storage, of all materials to be so treated before and after such treatment."
2. The financial liability requirements cited in paragraph 1f of the orders be deleted, as such requirements do not apply to a federal facility.
3. The reference in paragraph 1j of the orders to Mr. Thomas Chanda be changed to read "the Environmental Engineer."
4. The final sentence in paragraph 1l of the orders be deleted. RVAAP is currently permitted under interim status to store hazardous waste treatment residues on site for greater than 90 days.
5. The order must be signed on behalf of RVAAP by the Commander's Representative, Robert J. Kasper instead of Thomas Chanda.
6. The following language be incorporated into the Exemption Order:

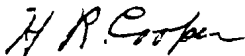
FUNDING

"It is the expectation of RVAAP that all obligations arising under this order will be fully funded. RVAAP agrees to seek sufficient funding through the Army budgetary process to fulfill its obligations under this order. Notwithstanding, any requirement for the payment or obligation of funds established by the terms of this order shall be subject to the availability of appropriate funds, and no provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. 51341."

This installation's point of contact for this subject is Thomas M. Chanda, (216) 297-3221.

Sincerely,

RAVENNA ARSENAL, INC.



H.R. COOPER
Plant Engineer

HRC/SMM/ade/SM90001

cc: COR
N. Wulff
T. Chanda
File

cf: AMSMC-GSR
ATTN: John Rock

09/17/90
WASPE2OHIO ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF SOLID AND HAZARDOUS WASTE MANAGEMENT

PAGE 1

OHIO HAZARDOUS WASTE INSTALLATION & OPERATION PERMIT
NOTICE OF ANNUAL FEE DUEFACILITY NAME: PHYSICS INTERNATIONAL COMPANY
ATTN: G.M. DEMAREST, SECTION MGRMAILING ADDRESS: P.O. BOX 1004
WADSWORTH, OH 44281EPA I.D. NO.: OH4210090003
OHIO PERMIT NO.: 02-67-0550FACILITY LOCATION: RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OH 44266PERMIT ISSUE DATE: 09/24/81
FEE TYPE: (NON-SITE)

PART A PROCESS CODE(S):	FEE AMOUNT
104 OTHER	\$ 1,000
TOTAL FEE DUE	\$ 1,000

MAKE CHECK PAYABLE TO: TREASURER, STATE OF OHIO

RETURN THIS NOTICE TOGETHER WITH PAYMENT TO:

OHIO ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF SOLID & HAZARDOUS WASTE MANAGEMENT
ATTN: FISCAL ADMINISTRATION
P.O. BOX 1049, 1800 WATERMARK DRIVE
COLUMBUS, OHIO 43266-0149

**CLOSURE PLAN FOR
DEACTIVATION FURNACE
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO**

Prepared by:

BAT ASSOCIATES, INC.
27801 EUCLID AVENUE, SUITE 450
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Prepared for:

Ravenna Arsenal, Inc.
8451 State Route 5
Ravenna, Ohio 44266

JANUARY 1990

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**CLOSURE PLAN FOR
DEACTIVATION FURNACE
RAVENNA ARMY AMMUNITION PLANT**

1.0 CLOSURE PLAN

1.1 INTRODUCTION

The Ravenna Army Ammunition Plant (RVAAP) is an ammunition production and storage facility owned by the U.S. Department of Army and operated by Ravenna Arsenal, Inc. (RAI) under a prime contract DAAA09-88-Z-0001. The plant is located at 8451 State Route 5, Ravenna, Portage County, Ohio. Figure 1 is a vicinity map which shows the general location of the plant. The RVAAP has been in operation since early 1940's.

The RVAAP operates a deactivation furnace located in the Burning Ground approximately at the center of the facility (see Figures 2 and 3). The furnace is used intermittently for treatment of small munitions and other reactive items from RVAAP that have exceeded shelf life or are otherwise defective. The furnace was operated as a treatment facility with a RCRA identification number of OH 5210020736 (Line No. 1 on the RCRA Part A Permit Application).

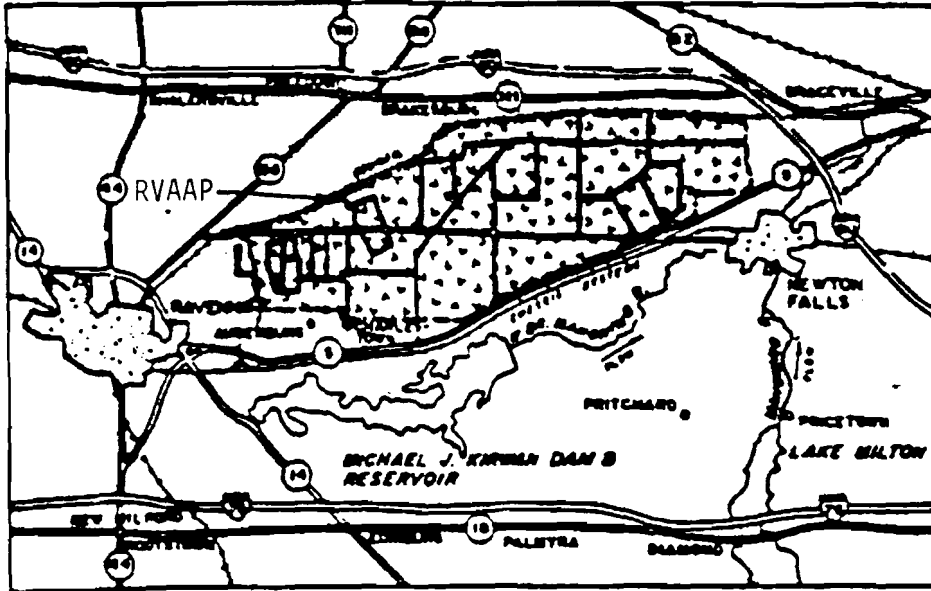
The Deactivation Furnace is a #2 fuel oil fired rotary steel furnace drum (1-1/4" thick) which receives explosive filled components from a feed conveyor on one end in an enclosed control room. The drum contains flutes which move the components at a slow speed toward the burner end. The components reach an elevated temperature and the explosive burns or detonates. The ash residues including metal parts are discharged into a collection conveyor to a container for disposal. The furnace is located out of doors and is surrounded by earth-filled timber walls to protect operating personnel (See Figure 4).

Explosive wastes (D003) which were or could have been treated in the furnace included: fuze and booster assemblies, ammunition primers, small arms ammunition, and small packets (no greater than 400 grains) of explosives and/or propellants that resulted in ash residues containing EP toxic metals, aluminum, tin, iron, magnesium, calcium silicates, chlorides, potassium, copper, strontium, antimony, and various thermally degraded organic compounds containing oxygen, nitrogen, sulphur, carbon, and hydrogen.

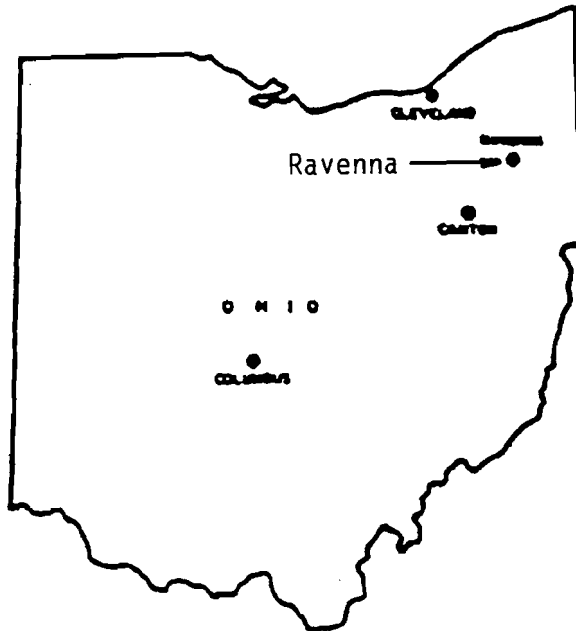
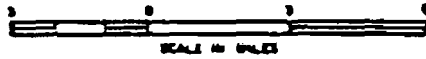
This closure plan is prepared for closure of the Deactivation Furnace because the furnace is a RCRA treatment facility and can not be upgraded to meet incinerator standards as required for Class A and Class B explosives. After closure as a RCRA facility the furnace will be operated as a non-hazardous waste treatment facility for Class C explosive components. A copy of this closure plan along with all revisions to the plan will be maintained by RVAAP at the facility until the Certificate of Closure completeness has been submitted to and approved by the Director of Ohio EPA. Upon completion of closure of the Deactivation Furnace, RVAAP will submit to the Director of Ohio EPA a certification by both RVAAP and an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

FIGURE 1

GENERAL LOCATION AND ORIENTATION OF RVAAP



LOCATION MAP



Burning Ground. See Figure 3 for Details

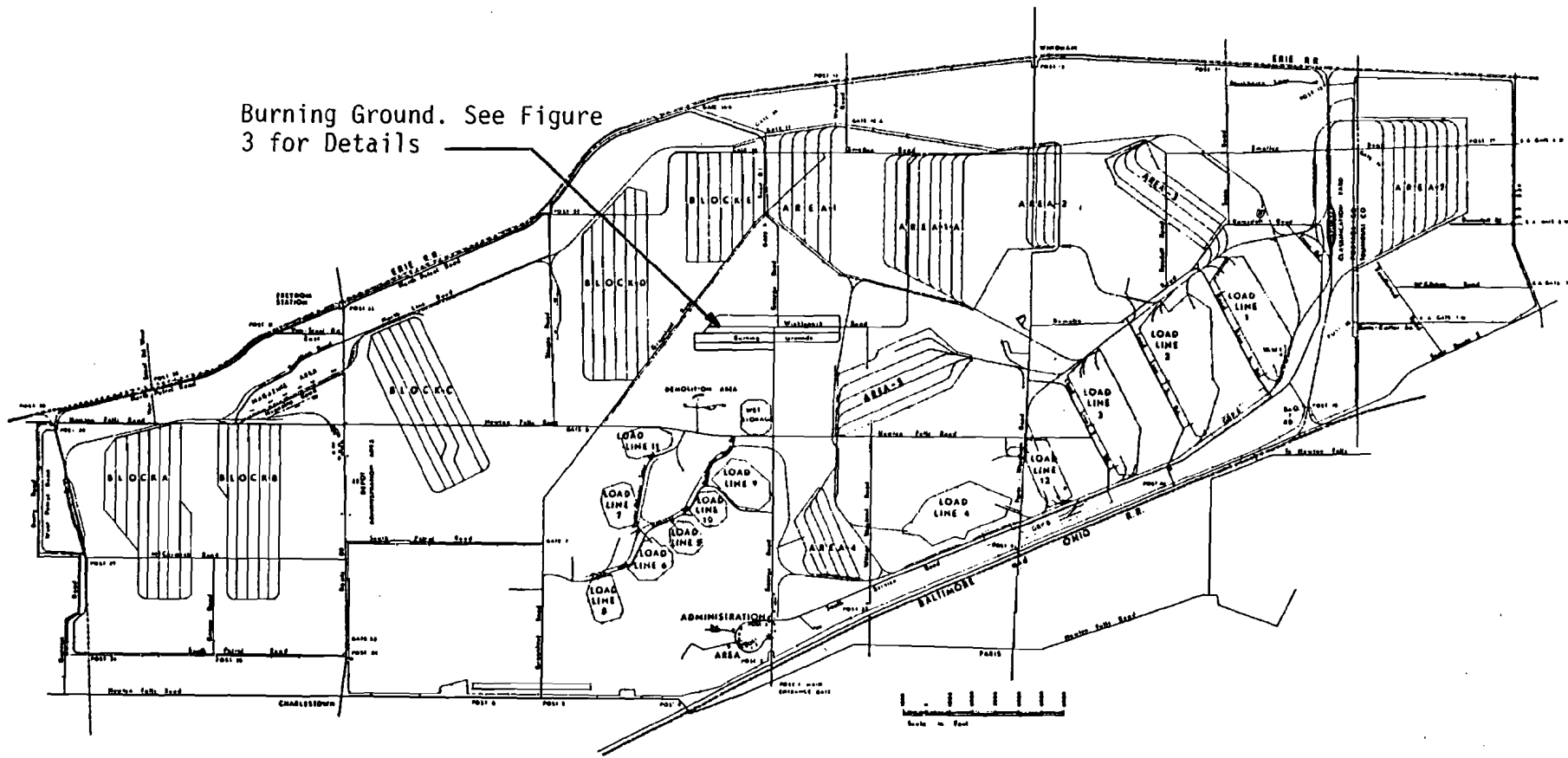


FIGURE 2 - GENERAL MAP OF RVAAP

RAVENNA ARMY AMMUNITION PLANT			
RAVENNA, OHIO			
OPERATED BY RAVENNA ARSENAL, INC.			
APPROVED	SIGNATURE	DATE	TITLE
SAFETY			GENERAL AREA MAP
TECHNICAL			
PRODUCTION			
ENGINEERING			
GENERAL MANAGER			
CONTRACTOR			
DESIGN			
REF. DWG. NO.			
DRWN. No. 81000	CHRD.		
DATE 4-8-50			
SCALE As Shown			A-109



Deactivation Furnace

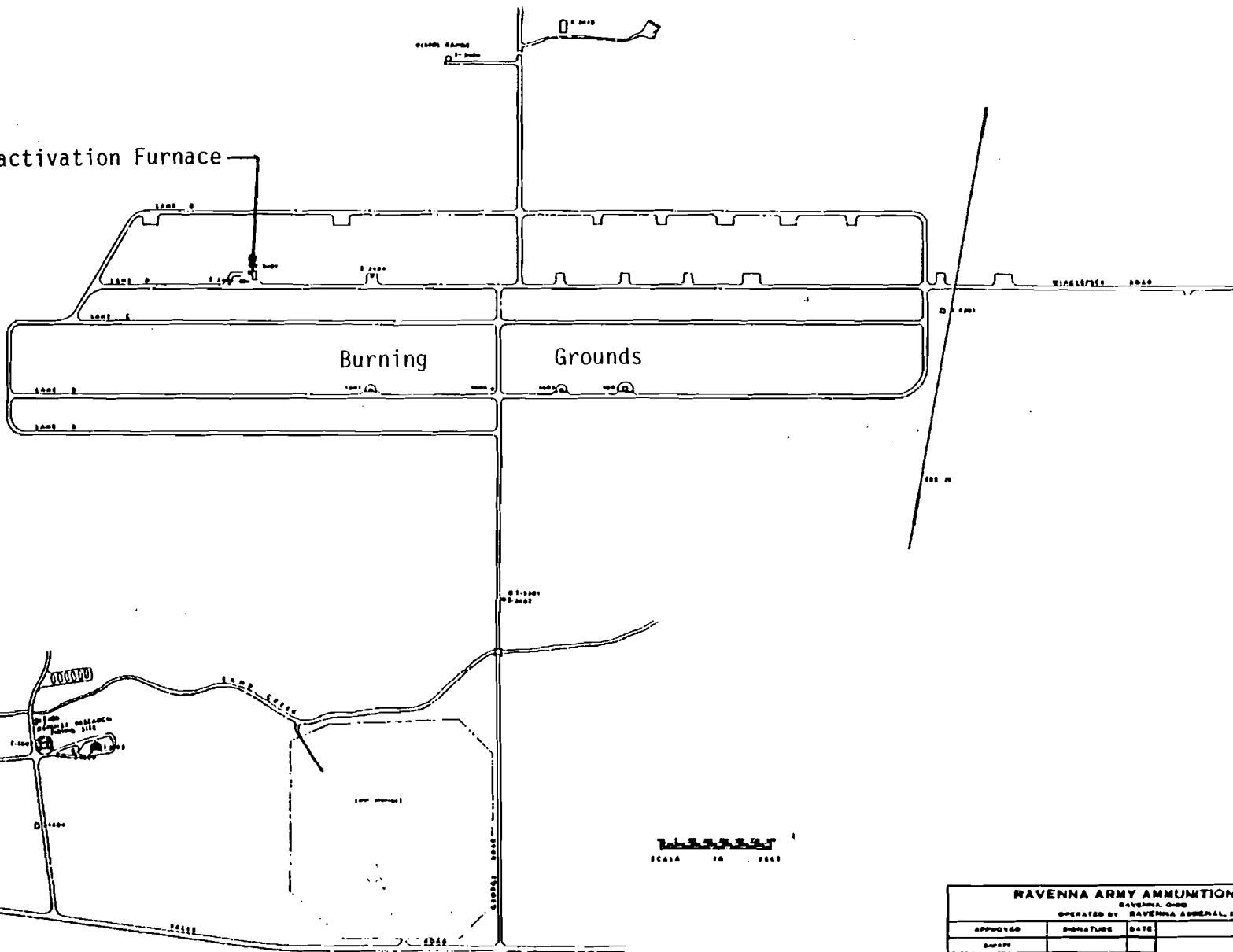


FIGURE 3 - LOCATION OF DEACTIVATION FURNACE

RAVENNA ARMY AMMUNITION PLANT OPERATED BY RAVENNA AERIAL INC.			
APPROVED	SIGNATURE	DATE	TITLE
SAFETY			
OPERATIONS			
ENGINEERING			
GENERAL SUPERVISOR			
SAFETY SUPERVISOR			
OPERATIONS SUPERVISOR			
DRAWN BY: [Blank]			PLAT PLAN BURNING GROUND & DEMOLITION AREA
DATE: [Blank]			
SCALE: 1" = 200'			1500.28

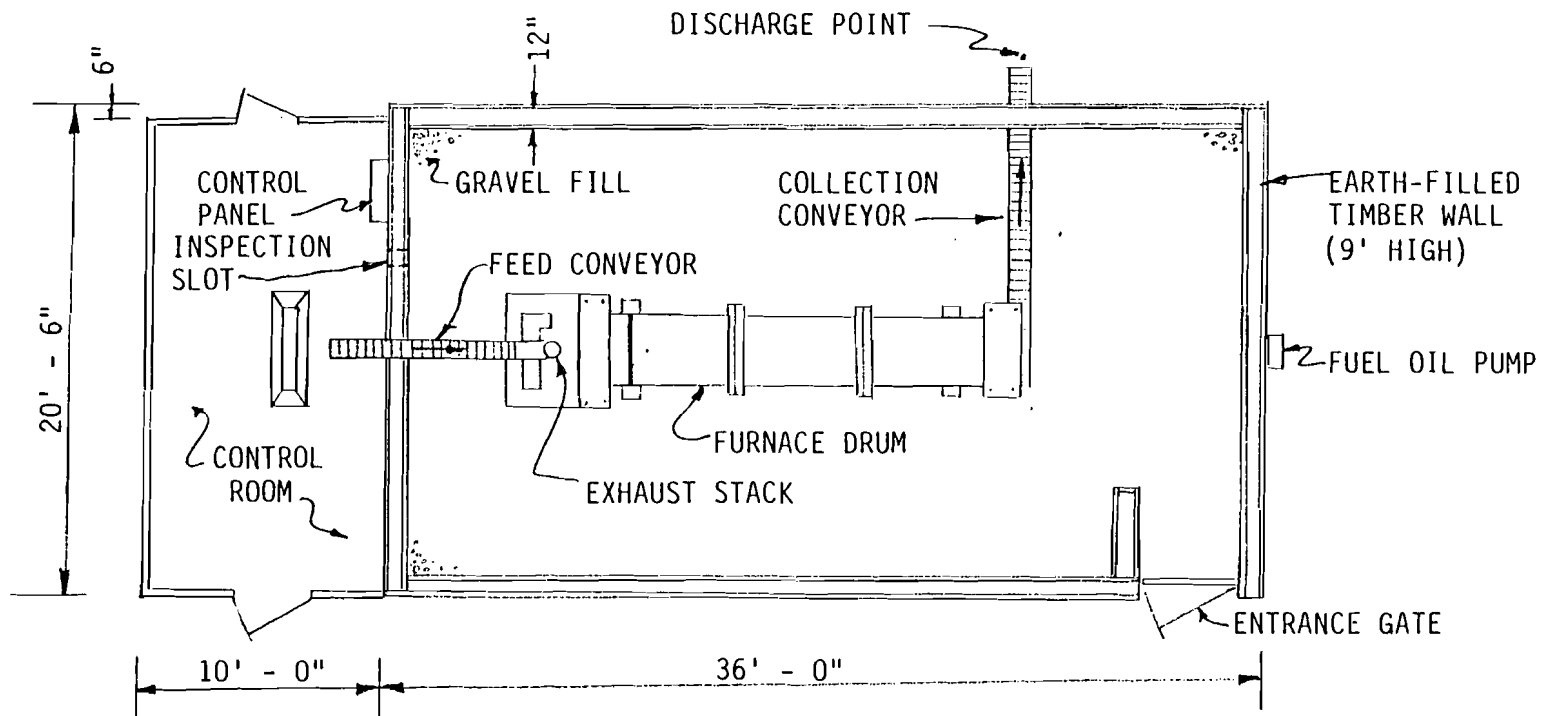


FIGURE 4 - PLAN OF DEACTIVATION FURNACE FACILITY
 SCALE : 1/8" = 1' - 0"

1.2 CLOSURE PERFORMANCE STANDARD

The closure of the Deactivation Furnace will be completed in accordance with performance standards as stated in OAC 3745-55-11 (40 CFR 265.111). These standards include:

- Minimizing the need for further maintenance by decontaminating the Deactivation Furnace and associated appurtenances. Any equipment that cannot be cleaned to below allowable limits will be removed and disposed of at a permitted TSD facility.
- Controlling, minimizing, or eliminating, to the extent necessary to protect human health and environment, the release of hazardous wastes, hazardous constituents, contaminated run-off, hazardous or waste composition products to soil, groundwater, surface water, or air.

If there is evidence of any spills or releases at the time of closure, samples will be taken and analyzed to determine the nature and extent of contamination in the soil at and/or around the Deactivation Furnace. Any contaminated soil will be excavated, removed, and disposed of at a permitted TSD facility. The entire site will be regraded subsequent to any excavating and backfill in order to prevent erosion. Furthermore, if the groundwater is determined to be contaminated due to improper management of hazardous wastes at this RCRA facility, a corrective action plan and post-closure care plan will be prepared and submitted to the Ohio EPA for approval.

It is the intent of RVAAP that the capability to operate the furnace for Class C explosives be maintained after closure.

1.3 FINAL CLOSURE ACTIVITIES

Final closure for the Deactivation Furnace will consist of the following activities:

- Removing ash residues present in the Deactivation Furnace and associated appurtenances including exhaust stack, furnace drum, and conveyor.
- Decontaminating the Deactivation Furnace and associated equipment and structures.
- Excavating and removing any contaminated soil at and/or around the Deactivation Furnace.

Final closure activities will be initiated immediately upon approval of this plan by the Director of Ohio EPA and provision of funding from the U.S. Army.

1.4 MAXIMUM WASTE INVENTORY

Explosive wastes generated at RVAAP are brought to the Deactivation Furnace for immediate treatment on a needed basis. There is no storage at the Deactivation Furnace area for these explosive wastes prior to treatment.

Ash residues including metal parts generated from burning or detonation of explosive wastes in the Deactivation Furnace are collected in containers. Metal parts are recovered for scrap and salvaged where feasible. Remaining residues are collected and destined for disposal according to results of their sample analysis. There are no hazardous wastes except some ash residues left in inventory in the Deactivation Furnace unit.

The maximum quantity of wastes having ever been treated at one time at this treatment facility was less than 500 pounds as explosive weight.

1.5 REMOVAL OF ASH RESIDUES

Any visible particles of ash residues present in the furnace drum, exhaust stack, and collection conveyor will be removed by the methods of sweeping, vacuuming, and wiping. Whenever necessary, equipment will be disassembled for removal of ash residues in inaccessible areas. All ash residues removed will be drummed for storage and disposal (the total quantity of ash residues is expected to be less than 55 gallons). Prior to disposal, a representative sample will be taken from the ash residues using a thief as specified in EPA's Publication SW-846, to determine whether they meet the definition of hazardous waste. The sample will be analyzed for EP toxicity using methods in USEPA's Publication SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", and reactivity using the Bureau of Mines gap test and detonation deflagration transition test. If the ash residues are determined to be hazardous wastes due to EP toxicity and/or reactivity, the container will be stored in an on-site RCRA storage area and transported off-site for disposal. Otherwise, the container will be disposed of as non-hazardous waste.

All ash residue samples will be handled in accordance with the procedures described in section 1.7.2.2 of this closure plan.

1.6 DECONTAMINATION OR DISMANTLING OF EQUIPMENT

1.6.1 Equipment To Be Decontaminated

The Deactivation Furnace unit consists of the following pieces of equipment:

- A feed conveyor.
- A furnace drum (burn chamber).
- A collection conveyor.
- An exhaust stack.

- Master control panel.
- A fuel oil pump with associated piping.

The entire Deactivation Furnace unit except the master control panel, fuel oil pump, and part of the feed conveyor is surrounded with a 9-foot timber wall filled with earth (see Figure 4). The master control panel is located in a 10' x 20' prefabricated corrugated steel building adjacent to the Deactivation Furnace barricade with an isolation timber wall in between. The master control panel controls the operation of the Deactivation Furnace unit including the fuel oil pump which is located immediately outside the northern timber wall of the barricade.

The Deactivation Furnace unit is supported by horizontal steel beams laid on the ground and by steel pipes erected from the ground. There are no concrete pads underneath or around the furnace unit.

Based on operation and construction of the Deactivation Furnace unit, the following equipment has potential of being contaminated and will be decontaminated under this closure plan:

- The furnace drum.
- The collection conveyor.
- The exhaust stack.
- All associated piping.

As mentioned earlier in this plan, waste munitions are fed into the rotating furnace drum through the feed conveyor from the control room. The waste munitions are then burned or detonated inside the drum by fuel oil ignited by a propane pilot which also serves as a safety and protection device. Since all explosive materials in waste munitions are contained within metallic shells before entering the furnace, there is no contamination of hazardous constituents inside the control room including the master control panel. Furthermore, since there is a big air gap (i.e. no physical contact or connection) between the feed conveyor and the hopper at the head end of the furnace drum, the potential for the feed conveyor to be contaminated by hazardous constituents is virtually none. For these reasons, the feed conveyor and the master control room including the control panel will not be decontaminated under this closure plan.

The fuel oil pump located immediately outside the northern timber wall has no potential of contamination by hazardous constituents from operations of the Deactivation Furnace. The pump itself will not be decontaminated under this plan. However, the associated pump piping inside the barricade either aboveground or underground if the surrounding soil is determined to be contaminated, will be decontaminated.

1.6.2 Decontamination Procedures

1.6.2 Decontamination Procedures

After all ash residues and visible contaminants are removed from the furnace drum, exhaust stack, and collection conveyor; the interior of each of the above equipment will be flushed with a pressure clean water rinse which will be collected in 55-gallon drums. For equipment such as the collection conveyor where splash may occur during flushing, polyethylene plastic sheets will be used to encapsulate the equipment and to collect the rinseate into the drums. Whenever necessary, the equipment will be disassembled for flushing of inaccessible areas.

At the end of flushing of all equipment a sample will be drawn from the final rinseate using ColiWasa and analyzed for EP toxicity metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), TNT, 2,4-DNT, 2,6-DNT, and RDX. The equipment is considered clean if the concentrations of metals and TNT, DNT, and RDX are below the following limits:

(1) For EP toxicity metals:

- o Public drinking water maximum contaminant level (MCL) for hazardous waste constituents as promulgated in 40 CFR 141.11 and OAC 3745-81-11 for inorganics.
- o If an MCL is not available, then the maximum contaminant level goal (MCLG) as promulgated in 40 CFR 141.50 shall be used.
- o If neither an MCL nor an MCLG is available, 1 mg/l shall be used.
- o If the MCL or MCLG is less than the contaminant's analytical detection limit using methods found in USEPA Publication SW-846, the SW-846 analytical detection limit shall be used as the clean standard.

(2) For TNT, DNT, and RDX: The explosive limit as determined by the Bureau of Mines gap test.

If the concentration of any of metals, TNT, DNT or RDX exceeds the above limits, the equipment is considered not clean and further cleaning effort will be required.

Other drums of rinseate will also be sampled and analyzed in the same manner as the final rinseate.

If the concentration of any EP toxicity metals exceeds the maximum limits specified in OAC 3745-51-24 (40 CFR 261.24) or any of TNT, 2,4-DNT, 2,6-DNT, or RDX exceeds its explosive limit, the rinseate and encapsulating plastic sheets will be managed as hazardous waste. Otherwise, the rinseate and encapsulating plastic sheets will be managed as non-hazardous waste.

If the rinseate and encapsulating plastic sheets are determined to be hazardous waste, they will be stored at an on-site RCRA storage area and transported off-site for disposal. If the rinseate and encapsulating plastic sheets are

determined to be non-hazardous, they will be disposed of in the RVAAP wastewater treatment plant or garbage dumpsters. Once the equipment is established as clean, it will remain in place for use as a non-hazardous waste treatment facility.

The equipment will be decontaminated by flushing with clean water a maximum of three times. If after the third attempt at decontamination, the rinseate shows that the equipment is still contaminated, the equipment will be then decontaminated by sand blasting followed by pressure water rinsing until it is established as clean. The sand blasting residues and rinseate will be collected and analyzed for classification of the waste (as hazardous or non-hazardous) per procedures as described above. The final rinseate will also be analyzed to determine the clean level of the equipment based on procedures and criteria as described above.

All samples will be handled in accordance with the procedures described in section 1.7.2.2 of this closure plan.

1.7 DISPOSAL OR DECONTAMINATION OF STRUCTURES AND SOILS

1.7.1 Disposal or Decontamination of Timber Walls

The interior timber walls of the furnace barricade may be potentially contaminated. Samples will be taken from the interior walls and earth fills between the interior and exterior walls as follows:

1. A core/plug sample (1/4 inch deep) at the intersection point of two diagonal lines of each interior wall. This will yield a total of four samples.
2. A composite core sample through the entire earth fill depth (approximately 9 inches) at the mid-point of each wall. This will yield a total of four composite samples.

Each sample collected will be analyzed for EP toxic metals using EPA's SW-846 methods and TNT, 2,4-DNT, 2,6-DNT, and RDX using U.S. Army THAMA 7W or 8H methods. If any metal concentration exceeds the mean of 16 background soil samples plus two standard deviation; or any of TNT, 2,4-DNT, 2,6-DNT, or RDX exceeds its 1,000 mg/l, the timber wall and/or earth fill where the sample is taken from will be removed. Otherwise, it will remain in place for continued use.

The removed timber wall and/or earth fill will be managed as hazardous waste if any of TNT, 2,4-DNT, 2,6-DNT, or RDX of its sample exceeds the 1,000 mg/l. If all above explosive contaminants are less than 1,000 mg/l, the sample of the removed timber wall and/or earth fill will be further analyzed for EP toxicity. If any of the analyses exceeds the maximum concentrations as specified in OAC 3745-51-24 (40 CFR 261.24), the wall and/or fill will be managed as hazardous waste. Otherwise, it will be managed as non-hazardous waste.

All samples will be handled in accordance with the procedures described in section 1.7.2.2 of this closure.

After decontamination or dismantling of equipment, the soil underneath or around the Deactivation Furnace will be sampled and analyzed for residual contamination.

1.7.2.1 Preliminary Sampling and Analysis Data.

In order to determine the presence or absence of soil contamination at and around the Deactivation Furnace unit, eighteen composite soil samples were taken on December 15, 1989 from six sampling sites and analyzed for total metals, TNT, 2,4-DNT, 2,6-DNT, and RDX. The sampling and analysis plan and results of analyses are included in Appendix A.

A review of Appendix A indicates:

- Soils within the furnace barricade (timber walls) and at the collection conveyor discharge area appear to be contaminated with arsenic, beryllium, cadmium, chromium, copper, nickel, lead, zinc, barium, antimony, and tin.
- Soils at or around the Deactivation Furnace unit are not contaminated with TNT, 2,4-DNT, 2,6-DNT, and RDX.
- The soil contamination appears to be limited on the top 1 - 3 feet and the concentration of contaminants in general, decreases with the depth.

1.7.2.2 Procedures for Disposal or Decontamination of soils.

Based on results of the preliminary sampling and analysis as discussed above, it appears that soils within the timber walls and at the discharge area of the collection conveyor outside the western timber wall are contaminated with arsenic, beryllium, cadmium, chromium, copper, nickel, lead, zinc, barium, antimony, and tin. For purposes of sampling, the area within the timber walls (approximately 34 ft by 18.5 ft) will be divided into four 17 ft by 9.25 ft grids. A 17 ft by 9.25 ft grid immediately outside the western timber wall around the collection conveyor discharge area will also be designated (See Figure 5). The location of each grid will be recorded by field stakes and/or sketches such that each grid may be identified subsequent to sampling. From each grid, a sample will be collected by compositing five soil samples taken from the top one foot of soil at the center and vicinity of each corner of the grid (See Figure 5). Two similar composite samples will also be collected at each grid from the top 1-2 foot and 2-3 foot. This sampling procedure will yield a total of fifteen composite soil samples. The 0-1 foot samples will be first analyzed for arsenic, beryllium, cadmium, chromium, copper, nickel, lead, zinc, barium, antimony, and zinc using methods in USEPA's Publication SW-846. If any metal concentration exceeds the mean of the sixteen background soil samples plus two standard deviation, the sample is considered to be contaminated. If a 0-1 foot sample is determined to be contaminated, the above soil analysis and waste classification procedures will be repeated on the 1-2 foot sample of the same grid. This same procedure will be continued on the 2-3 foot sample, and if necessary, on additional composite samples taken at one-foot vertical intervals to determine the vertical extent of any contamination.

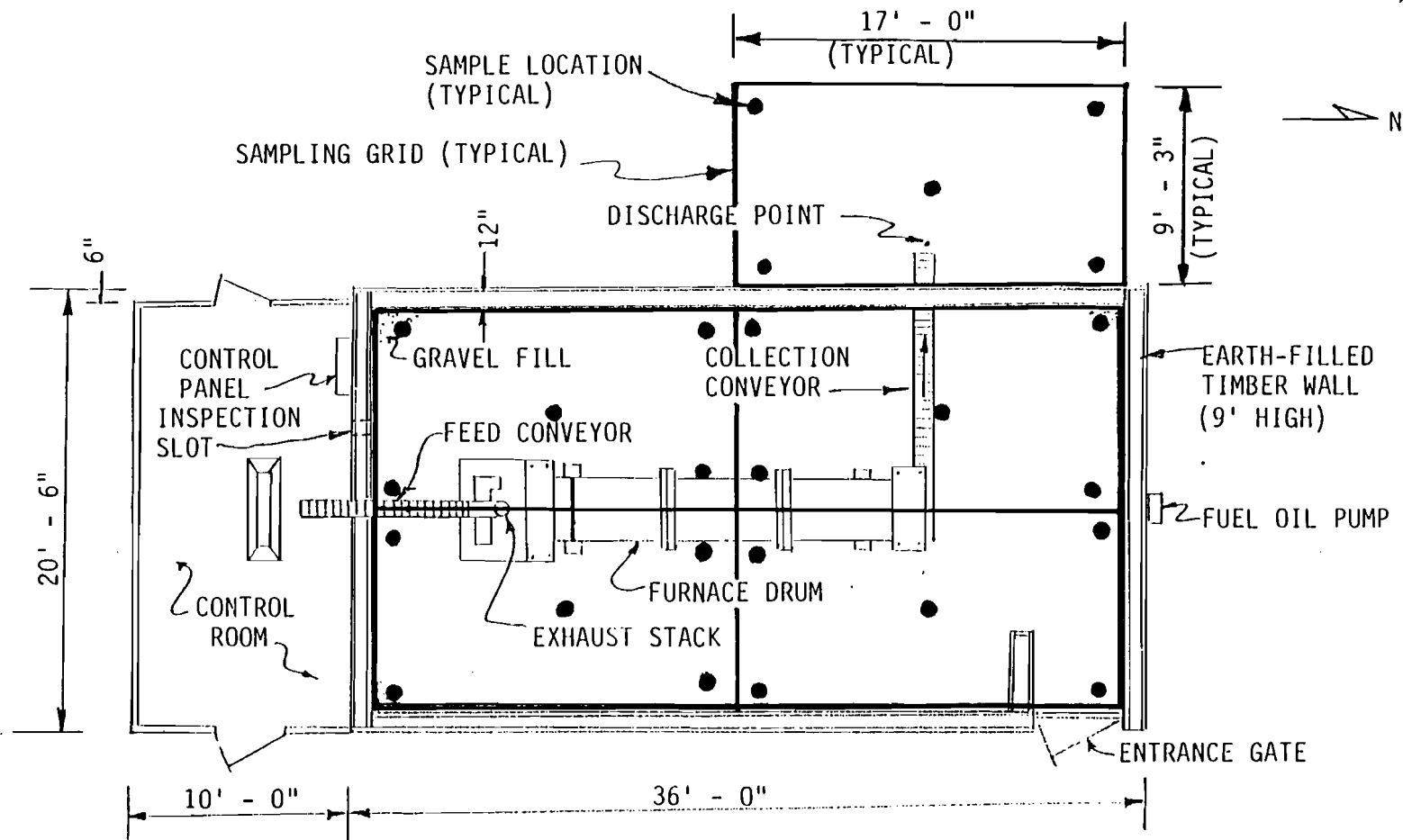


FIGURE 5 - SAMPLING GRIDS AND LOCATION OF SAMPLES

SCALE : 1/8" = 1' - 0"

Should one or more composite samples from the 17 ft x 9.25 ft grids be determined to be contaminated, the grid will be expanded beyond the timber walls and the control building (no soil sample will be taken underneath the control building), and additional soil composite samples will be collected as necessary to define the horizontal and vertical extents of contamination. Each sample taken will be analyzed and waste will be classified using the same procedures as described above.

All sampling holes will be filled with bentonite immediately after completion of soil sampling.

After the horizontal and vertical extents of soil contamination are determined, the contaminated soil plus 12" of buffer soil past the contamination zone will be excavated and temporarily stored at an area near the job site. The storage area will be paved and covered with plastic sheets. After completion of excavation, a composite core sample will be taken from the stored soil and analyzed for EP toxicity to determine if it is a hazardous or non-hazardous waste. If found to be hazardous, the soil will be labelled and transferred to a permitted TSD facility for disposal. If found to be non-hazardous, it will be sent off site for disposal at a licensed solid waste disposal facility.

Concrete pads of sufficient strengths will be installed after soil removal and backfill. The pads will cover the area inside the timber walls (or barricade) and a area of 10 ft x 10 ft around the collection conveyor immediately outside the timber wall. The concrete pads will be coated with a sealant.

After completion of soil decontamination, a grab surface soil sample will be taken at the center of each grid pit and analyzed for the metal contaminants as described above to assure the effectiveness of decontamination.

If necessary, the deactivation furnace unit will be disassembled and temporarily stored at a clean area during soil decontamination, and reassembled after completion of soil decontamination.

A field logbook will be maintained to record all sampling activities. The logbook will be bound with consecutively numbered pages that are 8 1/2 inches by 11 inches. The minimum entries in the logbook will include:

- Location of sampling point
- Name and address of field contact
- Producer of waste and address
- Type of process producing waste
- Type of waste
- Suspected waste composition, including concentrations
- Number and volume of sample taken

- Purpose of sampling (e.g., closure)
- Description of sampling point and sampling methodology
- Date and time of sample collection
- Collector's sample identification numbers
- Sample description and how transported (e.g., name of laboratory, UPS, Federal Express).
- References, such as maps or photographs of the sampling site
- Field observations
- Any field measurements made (e.g., pH, flammability)
- Signatures of personnel responsible for observations of which a registered professional engineer (P.E.) overseeing and/or inspecting closure activities will be one of the signatories.
- Name of sampling personnel.

Appropriate safety precaution will be taken while sampling. Personnel will use protective equipment as deemed necessary including coveralls, safety boots, nitrile gloves, safety glasses, boot covers. Additional equipment to be used in sampling operations includes: hand- or power-operated bucket augers for soil sampling, quart glass dishes for sample mixing, 500 ml plastic bottles for containing samples, stainless steel spoons or spatulas for mixing and transferring samples. The bottles to contain samples will be cleaned by washing in non-phosphate detergent and rinsing with de-ionized water. Prior to starting to sample, and between each sample, the auger, glass dish, stainless steel spoon or spatula will be decontaminated by:

1. Brushing dirt off the equipment.
2. Wash with tap water and laboratory (non-phosphate detergent).
3. Rinse thoroughly with tap water.
4. Rinse thoroughly with deionized water.
5. Rinse with isopropanol.
6. Rinse with deionized water.
7. Air dry and wrap with aluminum foil.

The other alternative will be to use pre-decontaminated dedicated equipment to avoid field decontamination or to use acceptable clean disposable equipment.

All rinseate and wastewater generated from equipment decontamination will be collected and treated at an on-site wastewater treatment plant.

Collected samples will be placed in plastic sample bottles and sealed. Each sample will be labelled with a site identification number, a sample number, date and time of sample collection, names of sample collectors, and the analyses to be performed. Samples will be delivered to an approved testing facility within 24 hours of collection. In addition, if required, a random number of split samples will be collected and delivered to a representative of Ohio EPA for testing.

Custody of the samples obtained during closure of the Deactivation Furnace unit will be recorded on a Chain-of-Custody form. Similar forms will be used at the testing laboratory. The form will include the number of samples, the type of sample and location, the sample identification numbers, date and time of sample collection, names of sample collectors, and analyses to be performed. The analytical laboratory will confirm receipt of the samples by matching the shipment with listing on the form.

In order to ship the samples to the designated laboratory for analysis, they will be packaged as follows:

1. Sample containers will be placed in plastic bags which will then be closed with electrical tape, zipped or tied.
2. Chain-of-custody form will be placed into a separate plastic bag, closed, and taped into the cooler top.
3. Coolers will be taped, closed with strapping tape and evidence tape and shipped on an overnight carrier to the laboratory. The cooler containing high concentration waste will be identified with DOT labels and shipped as hazardous materials in accordance with DOT shipping requirement.

All equipment which came or has been on contact during closure with hazardous waste and/or hazardous materials will be decontaminated at closure, or shipped off-site to a permitted TSD facility for disposal. Equipment, where applicable, will be washed to decontaminate and the wash water tested for arsenic, beryllium, cadmium, chromium, copper, nickel, lead, barium, antimony, and zinc using methods in U.S. EPA's Publication SW-886.

The analytical laboratory that is contracted to do the sampling and analysis of hazardous waste will submit a statement of qualification as to laboratory QA/QC procedures of instruments, personnel, and sampling technique.

1.7.2.2 Background Samples

Sixteen background soil samples will be performed from sixteen different relatively undisturbed locations at the facility. Each soil sampling will consist of a composite soil sample taken at a depth of 1 foot, 2 feet and 3 feet, at each of the sixteen locations. Decontamination of sampling equipment, soil sampling techniques, and laboratory analysis will follow the guidelines specified above.

Background samples (in compliance with the Ohio EPA "Closure Plan Review Guidance") will be used to compare statistically the natural condition to the potentially contaminated area. Soils containing naturally occurring elements or compounds in the area of the furnace unit such as metals will be considered to be contaminated if concentrations in the soils exceed the mean of the background samples plus two standard deviations. Background soil samples shall be the same type of soil horizon materials as the comparison sample. Background samples will be taken in area(s) minimally affected by industrial or other pollution.

All background soil sampling holes will be immediately filled with bentonite after completion of sampling.

1.8 SCHEDULE FOR CLOSURE

1.8.1 Time Allowed for Closure

Final closure activities will be initiated immediately upon approval of this plan by the Director of Ohio EPA and provision of funding by the U.S. Army. The proposed schedule for final closure of the Deactivation Furnace Unit is shown in Figure 6.

1.8.2 Extension for Closure Time

No extension for closure time is anticipated. If, however, an extension would be necessary to properly close the Deactivation Furnace Unit, a petition will be made to the Ohio EPA amending the closure schedule listed. The petition will demonstrate the reasons and/or need for more than 180 days to close the facility.

1.9 PERSONNEL SAFETY, SECURITY, AND HEALTH

All personnel performing work under this closure plan shall be familiar with and shall comply with the Ravenna Arsenal, Inc. pamphlet, "Safety and Security Rules". In addition, all personnel shall perform work under this plan in accordance with all local, State and Federal Safety and Health Regulations, including OSHA Standards contained in 29 CFR 1910.

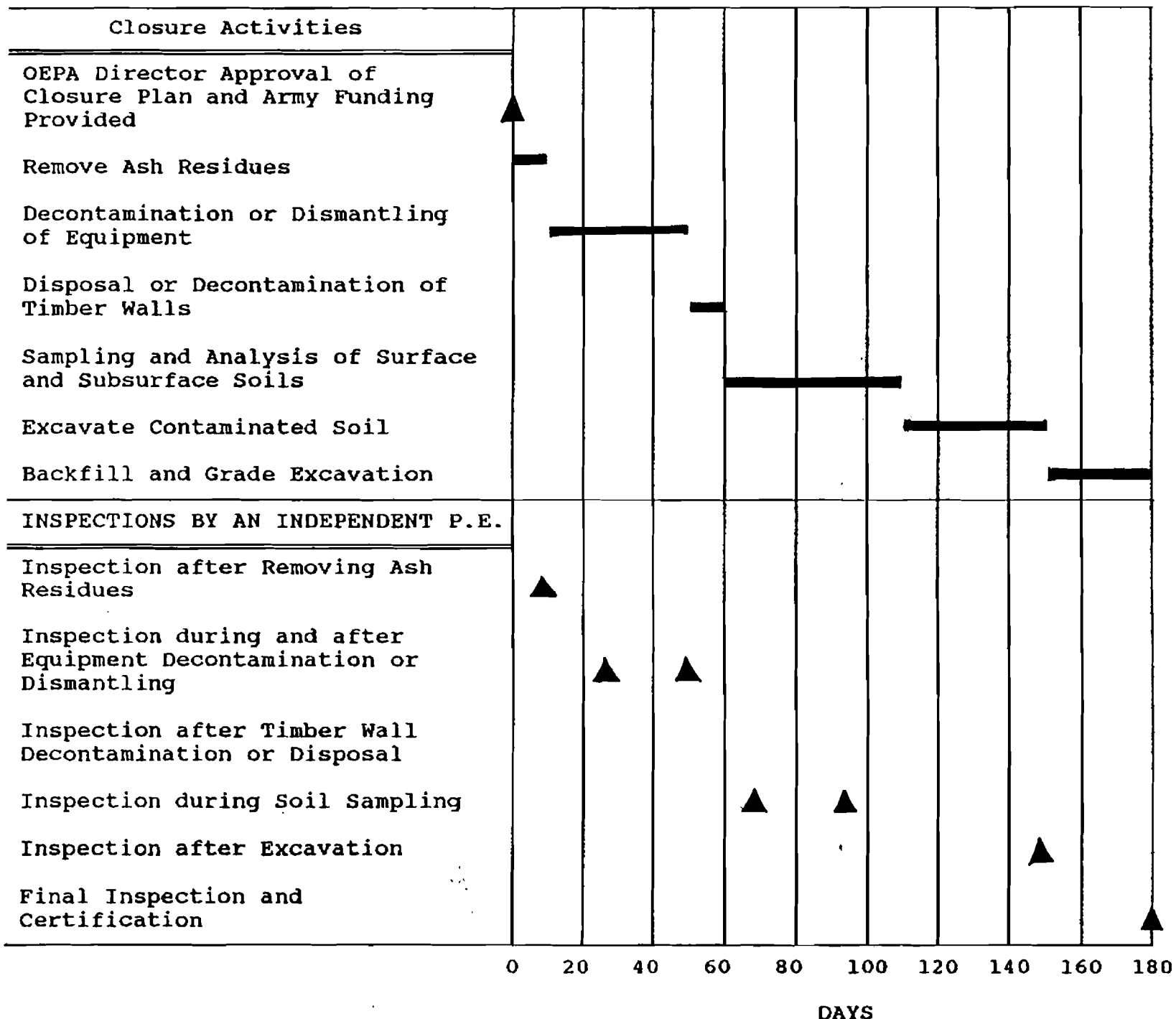


FIGURE 6 - CLOSURE SCHEDULE FOR DEACTIVATION FURNACE

2.0 CLOSURE COST ESTIMATE

This requirement is not applicable to this closure plan. The RVAAP is a federally owned facility. According to OAC 3745.55.40 (c), (40 CFR 265.140 (c)), the Federal Government is exempt from financial requirements which includes submittal of a cost estimate for closure.

3.0 FINANCIAL ASSURANCE FOR CLOSURE

This requirement is not applicable to this closure plan. The RVAAP is a federally owned facility. According to OAC 3745-55-40(c) (40 CFR 265.140 (c)), the Federal Government is exempt from financial requirements which includes submittal of a financial assurance mechanism.

4.0 LIABILITY INSURANCE

This requirement is not applicable to this closure plan. The RVAAP is a federally owned facility. According to OAC 3745.55-40(c) (40 CFR 265.140 (c)), the Federal Government is exempt from financial requirements which includes submitting proof of liability insurance in the event of accident.

APPENDIX A
PRELIMINARY SAMPLING
AND ANALYSIS DATA

**SAMPLING AND ANALYSIS PLAN
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO**

1.0 INTRODUCTION

This sampling and analysis plan will be used for preliminary soil sampling and analysis at and around the Deactivation Furnace at Ravenna Army Ammunition Plant in Ravenna, Ohio. The purpose of this sampling and analysis is to determine the presence or absence of contamination at or around the above hazardous waste treatment facility. Included in this sampling and analysis plan are sampling locations, sampling equipment and procedures, and sample handling and analysis.

2.0 SAMPLING LOCATIONS

Eighteen composite soil samples will be taken from six sampling sites as shown in the attached Figure 1. The six sampling sites along with sampling points at each site are tabulated as follows:

<u>Sampling Sites</u>	<u>Sampling Points</u>			
	<u>0-12"</u>	<u>12"-24"</u>	<u>24"-36"</u>	<u>36"-48"</u>
No.1 - Furnace Drum Discharge Area	X	X	X	X
No.2 - Collection Conveyor Discharge Area	X	X	X	X
No.3 - Site Surface Runoff Confluence Point	X	X	X	X
No.4 - Background 100' SSE from Deactivation Furnace	X	X	X	X
No.5 - 20' NE from Entrance of Barricade	X			
No.6 - 20' NNE from Entrance of Barricade	X			

3.0 SAMPLING EQUIPMENT AND PROCEDURES

Eighteen composite soil samples will be collected from six sampling sites as shown in Figure 1 and listed in Section 2.0 above. Each soil sample will be collected with a stainless steel bucket auger, homogenized in a clean (decontaminated) glass dish with a clean (decontaminated) stainless steel spoon jar for total metals analyses and one glass jar for TNT, DNT, and RDX analyses. Fifteen bucket augers and eighteen each dishes and spoons, all pre-decontaminated

and dedicated, will be used in this sampling event. Three of the fifteen bucket augers will be decontaminated in the field after use and reused for one more sampling.

Soil samples will be taken from each of one-foot depth intervals by a clean dedicated bucket auger. After each sampling, the sampling hole will be cleaned with the same auger taking the sample to insure that no old soil sample remains in the hole. A clean bucket auger will then be used for taking the next one-foot interval of sample. This sampling procedures will prevent cross-contamination between soils at different depth intervals. To further eliminate potential of such cross-contamination, the top 2 inches of soil sample lint eh bucket auger in each sampling (except the 0-12" interval) will be discarded.

All samples will be labeled with the collector's name, collector's sample number, place of collection, analysis required, and sampling date and time. A chain-of-custody form containing at least the same information will be prepared to accompany samples and maintain the chain-of-custody from time of sample collection through analysis.

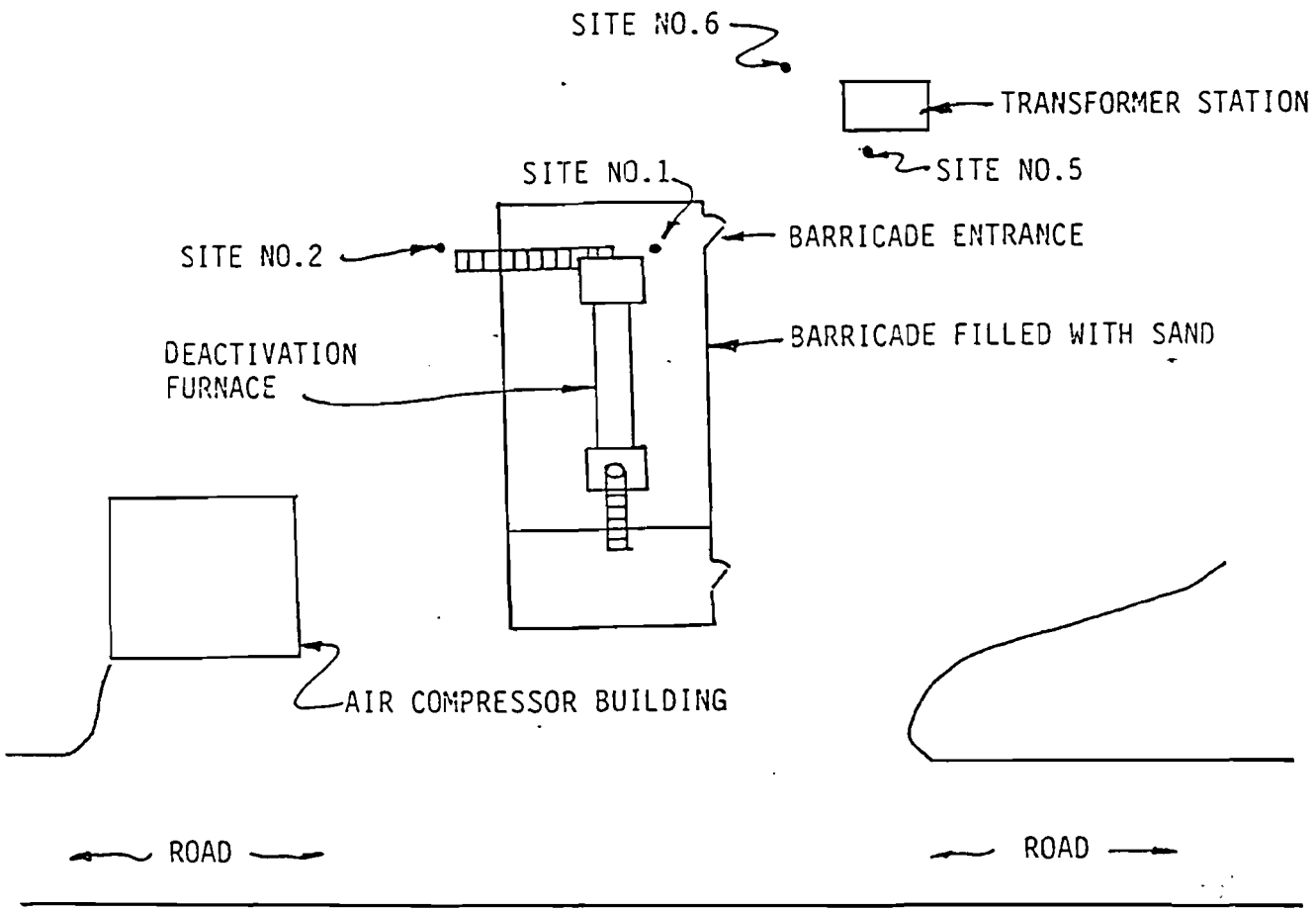
1. Sample containers will be placed in plastic bags which will then be closed with electrical tapes, zipped or tied.
2. Chain-of-custody form will be placed into a separate plastic bag, closed, and taped into the cooler tops.
3. Coolers will be taped, closed with strapping tape and evidence tape and shipped on an overnight carrier to the laboratory. The cooler containing high concentration waste will be identified with

All sampling equipment will be decontaminated prior to use. The decontamination procedures for stainless steel equipment (auger and spoon) are as follows:

1. Brush dirt off the equipment.
2. Wash with tap water and laboratory (non-phosphate) detergent.
3. Rinse thoroughly with tap water.
4. Rinse thoroughly with deionized water.
5. Rinse with isopropanol.
6. Rinse with organic free water.
7. Air dry and wrap with aluminum foil.

All sampling holes will be filled with bentonite after completion of sampling.

N



SITE NO.4

FIGURE 1 - SAMPLING LOCATIONS

4.0 SAMPLE HANDLING AND ANALYSIS

A clean pair of new disposable gloves will be worn each time a different location is sampled. Sample containers for samples suspected of containing high concentrations of contaminants will be placed in separate plastic bags immediately after tagging. All sampling equipment will be constructed of stainless steel, Teflon, or glass, and will be properly decontaminated prior to use at each sampling location.

After collection, all samples will be handled as few times as possible. Laboratory personnel will use extreme care to ensure that samples are not contaminated. When samples are placed in ice chests, personnel will ensure that melted ice will not cause sample cross contamination. All samples will be cooled at 4°C using blue ice in ice chests upon collection and during shipment.

All eighteen samples to be collected will be analyzed for total metals, TNT, 2,4-DNT, 2,6-DNT, and RDX. Total metals will be analyzed by ICP using EPA SW-846-6010 or 6000 Method. TNT, 2,4-DNT, 2,6-DNT, and RDX will be analyzed using U.S. Army THAMA 7W or 8H Method.

TABLE 1A - SOIL ANALYSIS DATA
(0-1' DEPTH)

Concentration (PPM)

Compound	Site No.4	Site No.1	Site No.2	Site No.3	Site No.5	Site No.6
Arsenic(As)	16	69	10(U)	25	14	14
Beryllium(Be)	0.5(U)*	1.8	2.9	0.5(U)	0.5(U)	0.5(U)
Cadmium(Cd)	0.2(U)	180	35	2.2	1.2	0.25
Chromium(Cr)	12	34	9.3	17	15	24
Copper(Cu)	13	7200	86	85	28	25
Mercury(Hg)	0.03	0.02(U)	0.02(U)	0.035	0.021	0.037
Nickel(Ni)	11	21	5.7	15	12	0.75
Lead(Pb)	31	750	47	100	53	35
Selenium(Se)	5(U)	5(U)	5(U)	5(U)	5(U)	5(U)
Silver(Ag)	0.5(U)	0.5(U)	0.5(U)	0.5(U)	0.5(U)	0.5(U)
Thallium(Tl)	10(U)	10(U)	10(U)	10(U)	10(U)	10(U)
Zinc(Zn)	59	4200	170	320	130	85
Barium(Ba)	54	200	200	69	48	47
Antimony(Sb)	1(U)	27	1.7	1(U)	1.8	1(U)
Cobalt(Co)	10	5	4	10	6	8
Tin(Sn)	8.7	57	1(U)	13	13	19
Vanadium(V)	26	10(U)	10	26	32	38
TNT	1.47(U)	1.47(U)	1.47(U)	1.47(U)	1.47(U)	1.47(U)
2,4-DNT	0.329(U)	0.329(U)	0.329(U)	0.329(U)	0.329(U)	0.329(U)
2,6-DNT	1.44(U)	1.44(U)	1.44(U)	1.44(U)	1.44(U)	1.44(U)
RDX	3.25(U)	3.25(U)	3.25(U)	3.25(U)	3.25(U)	3.25(U)

*U-Analyzed for but not detected

TABLE 1B - SOIL ANALYSIS DATA
(1'-2' DEPTH)

Compound	Concentration (PPM)					
	Site No.4	Site No.1	Site No.2	Site No.3	Site No.5	Site No.6
Arsenic(As)	22	18	17	12	-----	-----
Beryllium(Be)	0.5(U)*	2.4	1.2	0.8	-----	-----
Cadmium(Cd)	0.2(U)	6.4	2.8	0.22	-----	-----
Chromium(Cr)	16	20	13	18	-----	-----
Copper(Cu)	14	340	89	21	-----	-----
Mercury(Hg)	0.032	0.02(U)	0.02(U)	0.02(U)	-----	-----
Nickel(Ni)	17	29	16	25	-----	-----
Lead(Pb)	35	70	43	38	-----	-----
Selenium(Se)	5(U)	5(U)	5(U)	5(U)	-----	-----
Silver(Ag)	0.5(U)	0.5(U)	0.5(U)	0.5(U)	-----	-----
Thallium(Tl)	10(U)	10(U)	10(U)	10(U)	-----	-----
Zinc(Zn)	58	440	140	80	-----	-----
Barium(Ba)	45	96	89	68	-----	-----
Antimony(Sb)	1(U)	1.1	1.3	1(U)	-----	-----
Cobalt(Co)	7	13	9	15	-----	-----
Tin(Sn)	15	21	12	14	-----	-----
Vanadium(V)	44	24	14	30	-----	-----
TNT	1.47(U)	1.47(U)	1.47(U)	1.47(U)	-----	-----
2,4-DNT	0.329(U)	0.329(U)	0.329(U)	0.329(U)	-----	-----
2,6-DNT	1.44(U)	1.44(U)	1.44(U)	1.44(U)	-----	-----
RDX	3.25(U)	3.25(U)	3.25(U)	3.25(U)	-----	-----

*U-Analyzed for but not detected

TABLE 1C - SOIL ANALYSIS DATA
(2'-3' DEPTH)

Compound	Concentration (PPM)					
	Site No.4	Site No.1	Site No.2	Site No.3	Site No.5	Site No.6
Arsenic(As)	13	15	16	36	-----	-----
Beryllium(Be)	0.8	0.6	0.6	0.6	-----	-----
Cadmium(Cd)	0.2(U)*	0.78	0.2(U)	0.2(U)	-----	-----
Chromium(Cr)	22	10	16	19	-----	-----
Copper(Cu)	19	26	16	19	-----	-----
Mercury(Hg)	0.02(U)	0.02(U)	0.02(U)	0.02(U)	-----	-----
Nickel(Ni)	32	24	24	29	-----	-----
Lead(Pb)	31	42	35	27	-----	-----
Selenium(Se)	5(U)	5(U)	5(U)	5(U)	-----	-----
Silver(Ag)	0.5(U)	0.5(U)	0.5(U)	0.5(U)	-----	-----
Thallium(Tl)	10(U)	10(U)	10(U)	10(U)	-----	-----
Zinc(Zn)	79	73	62	68	-----	-----
Barium(Ba)	106	69	49	82	-----	-----
Antimony(Sb)	1(U)	1(U)	1(U)	1(U)	-----	-----
Cobalt(Co)	20	11	11	15	-----	-----
Tin(Sn)	19	13	14	14	-----	-----
Vanadium(V)	30	34	30	30	-----	-----
TNT	1.47(U)	1.47(U)	1.47(U)	1.47(U)	-----	-----
2,4-DNT	0.329(U)	0.329(U)	0.329(U)	0.329(U)	-----	-----
2,6-DNT	1.44(U)	1.44(U)	1.44(U)	1.44(U)	-----	-----
RDX	3.25(U)	3.25(U)	3.25(U)	3.25(U)	-----	-----

*U-Analyzed for but not detected

TABLE 1D - SOIL ANALYSIS DATA
(3' - 4' DEPTH)

Concentration (PPM)

Compound	Site No.4	Site No.1	Site No.2	Site No.3	Site No.5	Site No.6
Arsenic(As)	36	12	21	17	-----	-----
Beryllium(Be)	0.7	0.5(U)*	0.6	0.7	-----	-----
Cadmium(Cd)	0.2(U)*	0.2(U)	0.2(U)	0.2(U)	-----	-----
Chromium(Cr)	22	13	18	18	-----	-----
Copper(Cu)	16	23	16	18	-----	-----
Mercury(Hg)	0.02(U)	0.02(U)	0.02(U)	0.02(U)	-----	-----
Nickel(Ni)	28	21	24	25	-----	-----
Lead(Pb)	38	28	31	36	-----	-----
Selenium(Se)	5(U)	5(U)	5(U)	5(U)	-----	-----
Silver(Ag)	0.5(U)	0.5(U)	0.5(U)	0.5(U)	-----	-----
Thallium(Tl)	10(U)	10(U)	10(U)	10(U)	-----	-----
Zinc(Zn)	72	59	66	63	-----	-----
Barium(Ba)	81	45	55	66	-----	-----
Antimony(Sb)	1(U)	1(U)	1(U)	1(U)	-----	-----
Cobalt(Co)	15	10	10	12	-----	-----
Tin(Sn)	15	11	21	12	-----	-----
Vanadium(V)	36	30	30	34	-----	-----
TNT	1.47(U)	1.47(U)	1.47(U)	1.47(U)	-----	-----
2,4-DNT	0.329(U)	0.329(U)	0.329(U)	0.329(U)	-----	-----
2,6-DNT	1.44(U)	1.44(U)	1.44(U)	1.44(U)	-----	-----
RDX	3.25(U)	3.25(U)	3.25(U)	3.25(U)	-----	-----

*U-Analyzed for but not detected

Handwritten notes:
2/25/90
overall estimate

COST ESTIMATE
FOR DEACTIVATION FURNACE CLOSURE
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

Prepared for:

Ravenna Arsenal, Inc.
8451 State Route 5
Ravenna, Ohio 44266

Prepared by:

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27801 Euclid Avenue, Suite 450
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February 1990

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COST ESTIMATE SUMMARY
 DEACTIVATION FURNACE CLOSURE
 RAVENNA ARMY AMMUNITION PLANT

<u>DESCRIPTION</u>	<u>COST (\$)</u>
I. REMOVAL OF ASH RESIDUES	
Removal of Ash Residues	960
Sampling and Analysis	<u>710</u>
Subtotal	1,670
II. DECONTAMINATION OR DISMANTLING OF EQUIPMENT	
Pressure Water Rinsing	4,400
Sandblasting and Pressure Water Rinsing	2,680
Sample Analysis	<u>3,000</u>
Subtotal	10,080
III. REMOVAL OF TIMBER WALLS	
Sampling and Analysis	4,490
Removal of Timber Walls and Earth Fills	1,190
Installation of New Timber Walls and Earth Fills	<u>4,700</u>
Subtotal	10,380
IV. SOIL DECONTAMINATION	
Soil Excavation	3,332 2,170
Backfilling, Grading, and Seeding	4,893 3,150
Sampling and Analysis	<u>7,882</u> 4,670
Subtotal	16,107 9,990
V. CONSTRUCTION OF CONCRETE SLABS AND REINSTALLATION OF DEACTIVATION FURNACE	
Subtotal	7,460
VI. DISPOSAL OF WASTES	
Disposal of Ash Residues, Timber Walls, and Contaminated Soil	109,378 83,600
Disposal of Rinseate	<u>1,000</u> 1,000
Subtotal	110,378 84,600
VII. BACKGROUND AND CONFIRMATORY SOIL SAMPLING AND ANALYSIS	

Subtotal

9,084 ~~5,960~~

VIII. CLOSURE CERTIFICATION

Review of Closure Plan	540
Inspection During Closure	2,640
Review of Manifest and Analysis, Final Inspection, and Certification	<u>540</u>
Subtotal	3,720

IX. MOBILIZATION/DEMOBILIZATION

Subtotal	2,000
----------	-------

Total

170,879 ~~135,860~~

Add 15% for contingency

25,632 ~~20,380~~

TOTAL

196,511 ~~156,240~~

196,500 SAY ~~156,200~~

COST ESTIMATE
FOR DEACTIVATION FURNACE CLOSURE
RAVENNA ARMY AMMUNITION PLANT

I. REMOVAL OF ASH RESIDUES

The estimates which follow assume that certain components of the deactivation furnace need to be disassembled and reassembled to facilitate removal of ash residues. Also, the ash residues removed are assumed to be hazardous waste.

A. Removal of Ash Residues

1. Labor Required (1 crew of 2 persons for a total of 8 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	8	40	320
Labor	1	8	30	240
Subtotal				560

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Vacuum/Sweeper	1	8	L.S.	160
Container	1	-	L.S.	40
Misc. Tools		8	L.S.	200
Subtotal				400

Total = \$560 + \$400 = \$960

B. Sampling and Analysis

Samples to be collected and analyzed:

One (1) - Ash residues to be analyzed for EP toxicity and reactivity.

1. Labor Required

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Engineer	1	1	60	60
Technician	1	2	45	90
Subtotal				150

2. Equipment & Supplies

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Misc. Supplies	-	-	L.S.	<u>150</u>
Subtotal				<u>150</u>

3. Sample Analysis

<u>Analysis</u>	<u>Total Samples</u>	<u>Rate (\$/samp.)</u>	<u>Amount (\$)</u>
EP Toxicity	1	210	210
Reactivity	1	200	<u>200</u>
Subtotal			<u>410</u>

Total = \$150 + \$150 + \$410 = \$710

II. DECONTAMINATION OR DISMANTLING OF EQUIPMENT

The estimates which follow assume that the interior of each of the furnace drum, exhaust stack, and collection conveyor will first be flushed with pressure clean water rinse for three attempts, followed by one attempt of sandblasting and pressure water rinsing to establish the equipment as clean. Also, all rinseate and waste encapsulating plastic sheets are assumed to be contaminated but not as hazardous waste.

A. Pressure Water Rinsing

1. Labor Required (1 crew of 3 persons for a total of 16 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	16	40	640
Washer	1	16	35	560
Labor	1	16	30	<u>480</u>
Subtotal				1,680

2. Equipment

Volume of rinse water generated on a 3 gpm high pressure water and a total of 9 hours of rinsing time:

$$3 \text{ gpm} \times 60 \text{ min./hr} \times 9 \text{ hrs} = 1,620 \text{ gallons}$$

Rent two 3,000-gallon fractionation (frac) tanks for storage of rinseate at a cost of \$600/month plus \$150 for initial set-up and removal after completion.

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
High Pressure Washer	1	16	L.S.	400
Vacuum Tanker	1	-	L.S.	300
Frac Tanks	2	-	L.S.	750
Forklift	1	16	L.S.	400
Pump & Hose	1	16	L.S.	400
55-Gal Drums	10	16	L.S.	320
Heavy Plastic Sheets		-	L.S.	<u>150</u>
Subtotal				2,720

Total = \$1,680 + \$2,720 = \$4,400

B. Sandblasting and Pressure Water Rinsing

1. Labor Required (1 crew of 3 persons for a total of 12 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Sandblaster	1	8	35	280
Pot Loader	1	8	35	280
Washer	1	4	35	140
Equip. Operator	1	4	40	160
Labor	1	12	30	<u>360</u>
Subtotal				1,220

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Air Compressor, pot, and wand	1	12	L.S.	200
Vacuum/Sweeper	1	12	L.S.	200
Roll-off Boxes	2	12	L.S.	100
High Pressure Washer	1	12	L.S.	200
Forklift	1	12	L.S.	200
Vacuum Tanker	1	-	L.S.	100
Pump & Hose	1	12	L.S.	100
Misc. Tools	-	12	L.S.	<u>100</u>
Subtotal				1,200

3. Materials

a. Sand

Sand usage at 4 pounds per square foot

= 500 sf x 4 lbs/sf = 2,000 lbs
\$10.00 per 100 lbs x 2,000 lbs = \$200

b. Heavy Plastic Sheets - \$60

Subtotal - \$260

Total = \$1,220 + \$1,200 + \$260 = \$2,680

C. Sampling and Analysis

Samples to be collected and analyzed:

Two (2) - Rinseate generated from the first attempt of pressure rinsing including one from the final rinseate.

Two (2) - Rinseate generated from the second attempt of pressure rinsing including one from the final rinseate.

Two (2) - Rinseate generated from the third attempt of pressure rinsing including one from the final rinseate.

One (1) - Sandblasting residues generated from the first attempt of sandblasting.

Two (2) - Rinseate generated from the pressure water rinsing following the first attempt of sandblasting.

All above samples will be analyzed for EP toxic metals, TNT, 2,4-DNT, 2,6-DNT, and RDX.

1. Labor Required

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Engineer	1	1	60	60
Technician	1	6	45	270
Subtotal				330

2. Equipment & Supplies

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Misc. Supplies	-	-	L.S.	150
Subtotal				150

3. Sample Analysis

<u>Analysis</u>	<u>Total Samples</u>	<u>Rate (\$/Samp.)</u>	<u>Amount (\$)</u>
EP Toxic Metals	9	130	1,170
TNT, 2,4-DNT, 2,6-DNT, and RDX	9	150	<u>1,350</u>
Subtotal			<u>2,520</u>

Total = \$330 + \$150 + \$2,520 = \$3,000

III. REMOVAL OF TIMBER WALLS

The estimates which follow assume that all four timber walls along with their earth fills are determined to be hazardous waste and need to be removed and managed as hazardous waste.

A. Sampling and Analysis

Samples to collected and analyzed:

Four (4) - Core/plug wood samples from four interior walls.

Four (4) - Composite core soil samples from earth fills of four timber walls.

All above samples will be analyzed for EP toxic metals; TNT, 2,4-DNT, 2,6-DNT, and RDX; and EP toxicity.

1. Labor Required

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Engineer	1	1	60	60
Technician	1	8	45	<u>360</u>
Subtotal				<u>420</u>

2. Equipment & Supplies

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Misc. Supplies	-	-	L.S.	<u>150</u>
Subtotal				<u>150</u>

3. Sample Analysis

<u>Analysis</u>	<u>Total Samples</u>	<u>Rate (\$/samp.)</u>	<u>Amount (\$)</u>
EP Toxic Metals	8	130	1,040

TNT, 2,4-DNT, 2,6-DNT, and RDX	8	150	1,200
EP Toxicity	8	210	<u>1,680</u>
Subtotal			3,920

Total = \$420 + \$150 + \$3,920 = \$4,490

B. Removal of Timber Walls and Earth Fills

The work involved includes removal of four timber walls along with their earth fills, cutting each timber log to be shorter than 3 feet (to be accepted by a security landfill), and placing all timber pieces and earth fills on an on-site storage area.

1. Labor Required (1 crew of 3 persons for a total of 8 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	8	45	360
Labor	2	8	30	<u>480</u>
Subtotal				840

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rates (\$/hr)</u>	<u>Amount (\$)</u>
Forklift	1	8	L.S.	200
Chain Saw	1	8	L.S.	50
Containers	2	8	L.S.	<u>100</u>
Subtotal				350

Total = \$840 + \$350 = \$1,190

C. Installation of New Timber walls and Earth Fills

1. Labor Required (1 crew of 3 persons for a total of 24 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	24	40	960
Labor	2	24	30	<u>1,440</u>
Subtotal				2,400

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
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Forklift	1	24	L.S.	600
Backhoe	1	8	L.S.	<u>300</u>
Subtotal				900

3. Materials

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Timber Walls	4	300	1,200
Earth fills	4	50	<u>200</u>
Subtotal			1,400

Total = \$2,400 + \$900 + \$1,400 = \$4,700

IV. SOIL DECONTAMINATION

A. Soil Excavation

Assume the top 4 feet (including 1 foot buffer zone) of soil throughout the entire barricade area and the 18'-0" x 11'-3" grid around the collection conveyor discharge area outside the western timber wall will be excavated and removed.

Total excavation = (37' x 22' + 18' x 11.25') x 4'
 = 4066 CF
 = 151 CY
 + 11 (18.5' x 11' x 1') = 2239 cf, = 83 cy

1. Labor Required (1 crew of 2 persons for a total of 16 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	16	40	640
Labor	1	16	30	<u>480</u>
Subtotal				1,120

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Backhoe	1	16	L.S.	400
Forklift	1	16	L.S.	400
Drums	10	16	L.S.	<u>250</u>
Subtotal				1,050

Total = \$1,120 + \$1,050 = \$2,170

- B. Backfilling, Grading, and Seeding

$\$2,170 / 151 \text{ cy} = \$14 / \text{c.y.}$
 $\$14 \times 83 \text{ cy} = \$1,162$
 $+ 2,170$
3,332

Assume that approximately 150 CY of fill and backfill soils will be excavated and transported from an on-site borrow area, and 20 CY of topsoil will be transported from an off-site source. Both the borrow and furnace areas (except concrete paved areas) will be graded, covered with a 6" topsoil layer, and planted with grass.

1. Labor Required (1 crew of 2 persons for a total of 24 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Truck Driver/ Equip. Operator	1	24	40	960
Labor	1	24	30	720
Subtotal				1,680

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Backhoe	1	24	L.S.	600
Truck	1	24	L.S.	400
Spreader	1	16	L.S.	50
Compactor	1	16	L.S.	200
Subtotal				1,250

3. Materials

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Topsoil	20 CY	2.50	50
Grass Seed	120 SY	1.00	120
Mulch	L.S.	50	50
Subtotal			220

Total = \$1,680 + \$1,250 + \$220 = \$3,150

- C. Sampling and Analysis

Samples to be collected and analyzed:

Fifteen (15) - Composite soil samples from 0-1 foot, 1-2 foot, and 2-3 foot depths at each of the five designated grids. All 15 samples will be analyzed for arsenic, beryllium, cadmium, chromium, copper, nickel, lead, zinc, barium, antimony, and tin (hereinafter referred to as the

$\$3,150 / 151 \text{ CY} = \$21/\text{CY}$
 $\$21 \times 83 = \$1,743$
 $+ 3150$
4893

11 contaminated metals).

One (1) - Composite core soil sample from the stored excavated soil to be analyzed for EP toxicity.

1. Labor Required

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Engineer	1	4	60	240
Technician	2	8	45	720
Subtotal				960

2. Equipment & Supplies

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Sampling Equip. & Supplies	L.S.	200	200
Subtotal			200

3. Sample Analysis

<u>Analysis</u>	<u>Total Samples</u>	<u>Rate (\$/samp.)</u>	<u>Amount (\$)</u>
11 Contaminated Metals	15	220	3,300
EP Toxicity	1	210	210
Subtotal			3,510

Total = \$960 + \$200 + \$3,510 = \$4,670

Handwritten: \$4,670 / 16 samples = \$292/sample
~~\$292~~ x 11 = \$3212

V. CONSTRUCTION OF CONCRETE SLABS AND REINSTALLATION OF DEACTIVATION FURNACE

1. Labor Required (1 crew of 3 persons for a total of 16 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	16	45	720
Labor	2	16	30	1,440
Subtotal				2,160

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Concrete Mix/Feed Truck	1	8	L.S.	200

Handwritten: +4,670
7,882

Forklift	1	8	L.S.	200
Misc. Tools		8	L.S.	<u>200</u>
Subtotal				600

3. Materials (Assume concrete slabs to be 1' thick with reinforced steels in them)

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Reinforced Concrete	30 CY	150	4,500
Misc. Materials	L.S.	200	<u>200</u>
Subtotal			4,700

Total = \$2,160 + \$600 + \$4,700 = \$7,460

VI. DISPOSAL OF WASTES

A. Disposal of Ash Residues, Timber Walls, and Contaminated Soils

Assume 20 truckloads (one truckload is about 20 to 24 tons of materials) of ash residues, timber log pieces, and contaminated soils will be transported in bulk to Envirosafe, Inc. (a permitted security landfill) in Toledo, Ohio.

1. Transportation

20 Truckloads x 2 x 180 Miles x \$3/mile = \$21,600

2. Disposal of Wastes $+ 6 \text{ Truckloads } \times 2 \times 18 \times 93 = + \underline{\$6,480} = \$28,080$

Total Weight = $2 \times (36 \times 1 \times 9 + 20.5 \times 1 \times 9) \times 2.6$
 $\times 62.4 + 151 \times 27 \times (2.5 \times 62.4)$
 = 801,000 lbs
 = 400 Tons

Disposal Cost @ \$155/Ton = \$155 x 400 = \$62,000

Total = \$21,600 + \$62,000 = \$83,600

B. Disposal of Rinseate $1.5 \text{ Ton/c.y.} = 83 \times 1.5 = 124.5 \text{ T}$
 $124.5 \times 155 = \underline{\$19,298}$

Assume one truckload of rinseate and other liquid wastes will be transported to Chem-Clear, Inc. (a permitted industrial waste TSD facility) in Cleveland, Ohio. $= \$1,298$

1. Transportation

TOT = 109,378

1 Truckload x 80 Miles x \$5/mile = \$400

2. Disposal of Wastes

Total Volume = 1,620 gallons + 680 gallon
= 2,300 gallons

Chem-Clear will charge \$0.14 to \$0.30 per gallon for disposal depending on types and concentrations of metals, plus \$2/Ton for the state tax. Use \$0.25 per gallon charge for estimate.

Disposal Cost = 2,300 x \$0.25 + 2,300/7.48 x 62.4/2,000
x \$2 = \$575 + \$19 = \$594 say \$600

Total = \$400 + \$600 = \$1,000

VII. BACKGROUND AND CONFIRMATORY SOIL SAMPLING AND ANALYSIS

Samples to be collected and analyzed:

Sixteen (16) - Composite background soil samples taken at the depth of 0-3 foot at each of 16 sampling locations.

Five (5) - Confirmatory grab soil samples taken at the center of each grid pit.

All above samples will be analyzed for the 11 contaminated metals.

1. Labor Required

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Engineer	1	4	60	240
Technician	2	10	45	900
Subtotal				1,140

2. Equipment & Supplies

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Sampling Equip. & Supplies	L.S.	300	200
Subtotal			200

3. Sample Analysis

<u>Analysis</u>	<u>Total Samples</u>	<u>Rate (\$/samp.)</u>	<u>Amount (\$)</u>
-----------------	----------------------	------------------------	--------------------

11 Contaminated Metals	21	220	<u>4,620</u>
Subtotal			4,620

Total = \$1,140 + \$200 + \$4,620 = \$5,960

*5,960 / 21 samples = \$284/sample
 \$284 x 11 = \$3124*

VIII. CLOSURE CERTIFICATION

An independent registered professional engineer must certify = 9,084
 the proper completion of closure activities. To accomplish this, it is estimated that the engineer follows the following three work effort:

A. Review of Closure Plan

<u>Description</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Professional Engineer	8	65	520
Clerical	1	20	<u>20</u>
Subtotal			540

B. Inspection During Closure

<u>Description</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Professional Engineer	40	65	2,600
Clerical	2	20	<u>40</u>
Subtotal			2,640

C. Review of Manifests and Analysis, Final Inspection, and Certification

<u>Description</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Professional Engineer	8	65	520
Clerical	1	20	<u>20</u>
Subtotal			540

Total = \$540 + \$2,640 + \$540 = \$3,720

IX. MOBILIZATION/DEMOBILIZATION

\$2,000

Does this assume the worst case

(ie all ~~of the~~ unit price conditions exercised
safe quantities estimated

Need to Add Subcontract Cost	ST 156,200
Subcontractor Bond	1.5% of subcontracts \$
Engineer Coordination	30 hours @ \$57.50 \$4600 ST 100,000
Allocated Fee	5% 80,400
Total	168,840 Round to \$100,000 \$168,900

I assume item VIII would be BAT's cost which is not a part of the specification

Did BAT submit a bid evaluation sheet when they revised the specification?

Samples in VIII do 21

RE? Basic do 31 plus any additional

Items 3c, 3e, 4c are there add on or alternative

under VI Is Environmentally Hazardous or Contaminated Facility
Clean Clean Hazardous or Contaminated

BAT Assumptions

Item 1 b Ash residue is hazardous

Item 2 b. Rinseate is contaminated but not hazardous

2 c. Sandblast residues and rinseate is non-hazardous

2 f. Second and third sandblast effort will not be required

Item 3 All Timber walk and fill are hazardous

Item 4 d & e No new grids & analysis

4b or c Haz or Cont.?
conflict with above

4b or c 150cy of soil to be removed

where are ^{added} 15 composite samples estimated
should be 40 clearly in spec.

page 9 ^{corrected} one time had to not enough

BAT Assumptions
 ✓ = included

BID FORM
 CLOSURE OF DEACTIVATION FURNACE
 RAVENNA ARMY AMMUNITION PLANT

Item	Description	Basic Work a	Additional Work					
			b	c	d	e	f	g
1.	Removal of Ash Residues	✓ LS	✓ LS	 	 	 	 	
2.	Decontamination or Dismantling of Equipment	✓ LS	¹⁻³ no /rinse	¹⁻² ✓(2) /rinse	✓ LS	¹⁻³ no /blast	¹⁻² no /blast	
3.	Disposal or Decontamination of Timber Walls	✓ LS	¹⁻⁴ /wall	¹⁻⁴ /wall	¹⁻⁴ /wall	¹⁻⁴ /wall	 	
4.	Disposal or Decontamination of Soils	✓ LS	¹⁻⁴ /c.y.	¹⁻⁴ 151 /c.y.	no /grid	no /analysis	150 /c.y.	120 /sq.
5.	Mobilization	✓ LS	 	 	 	 	 	
6.	Demobilization	✓ LS	 	 	 	 	 	
SUBTOTAL								

Notes: Item 3 c is alternate to 3b for each wall (not additive)
 Item 3 e is alternate to 3d for each wall (not additive)
 Item 4 c is alternate to 3b for each c.y. (not additive)

4 d & e represent new grids outside the barricade



RAVENNA ARSENAL INC.

8451 STATE ROUTE 5
RAVENNA, OHIO 44266-9297

February 1, 1990

Telephone (216) 358-7111

cc: N. Wulff
H. Cooper
T. Chanda
S. McCauslin
File

Asteron 346-3210

Olin Corporation
426 North Shamrock
East Alton, Il. 62024
ATTN.: Carol Roslund

Carol,

Attached for your review and comments is the service contract we have entered into with BAT Associates of Euclid, Ohio to prepare a closure plan for Ravenna Army Ammunition Plant Deactivation Furnace.

The enclosed plan is in draft form and Ravenna Arsenal comments are so noted.

Please review and comment by February 16. Final plan will not be submitted to the State of Ohio prior to your approval.

Best Regards,

B.J. Jenkins, Administrator
Contract/Procurement & Purchasing

BJJ/co

Attachments

BAT

BAT Associates, Inc.

ENGINEERS • SCIENTISTS • PLANNERS

27801 Euclid Avenue, Suite 450
Euclid, Ohio 44132
(216) 261-3724 • FAX (216) 261-2705

February 6, 1990

Ms. Susan McCauslin
Ravenna Arsenal, Inc.
8451 State Route 5
Ravenna, Ohio 44266-9297

RE: Technical Specifications for Deactivation Furnace Closure
Ravenna Army Ammunition Plant, Ravenna, Ohio

Dear Ms. McCauslin:

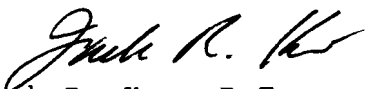
Enclosed is a copy of the draft technical specifications for the referenced project for your review and comment.

Due to uncertainty on the actual scope of work, the technical specifications have been prepared in such a way that each major item of work is broken into a number of sub-items based on the nature of work. The scope of work for each sub-item is then defined for purposes of bidding and payment.

The EA and FONSI reports for the furnace closure project are being prepared and will be ready for your review in the next few days.

Very truly yours,

BAT Associates, Inc.



Jack R. Kuo, P.E.
Senior Environmental Engineer

JRK:lf

Enclosure

TECHNICAL SPECIFICATIONS
FOR
DEACTIVATION FURNACE CLOSURE
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

Prepared for:

Ravenna Arsenal, Inc.
8451 State Route 5
Ravenna, Ohio 44266

Prepared by:

BAT Associates, Inc.
27801 Euclid Avenue, Suite 450
Euclid, Ohio 44132

February 1990

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GENERAL REQUIREMENTS
ITEM 0

0.1 GENERAL CONDITIONS

The Subcontractor shall familiarize himself with the Closure Plan for Deactivation Furnace, Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio dated January 1990 (hereinafter referred to as the Closure Plan) (See Attachment I) which , with the following technical specifications, forms a part of this contract.

0.2 EXISTING CONDITIONS

A visit to the job site shall be made by the Subcontractor prior to submitting his bid in order to become thoroughly familiar with existing conditions, including the Ravenna Army Ammunition Plant's (hereinafter referred to as Buyer) operation in the affected area. A submittal of bid will be considered as evidence to the Buyer that this has been done. No allowance will be made for lack of knowledge of existing conditions.

Staging areas will be provided on or near the job site for material storage, equipment decontamination, etc.

0.3 DRAWINGS

The following drawings are included to show the general location and construction of the furnace and associated equipment:

<u>DWG. NO.</u>	<u>DESCRIPTION</u>
A - 109	General Area Map
A - 2580	General Layout, Burning and Demolition Grounds
A - 2558	Building T-3401 Deactivation Furnace, Small Arms

0.4 PROGRESS CHART

Within five working days after notice to proceed, the Subcontractor shall submit a bar-type schedule chart indicating the time required for completion of specified work. One bar (minimum) shall be included for each section (item) of specifications, and dates shall be clearly indicated for starting, completion, and other information as may be required by the Buyer.

Bar chart (indicating progress) shall be updated on Wednesday of each week until the work is completed and accepted by the Buyer.

0.5 PROTECTION OF BUYER'S FACILITIES AND EQUIPMENT

All necessary precautions shall be taken to prevent damage to any of the Buyer's facilities and equipment which may be in or near the job site. The Subcontractor shall be responsible for any damage by his operations.

0.6 SCHEDULE

The job shall be completed by the date specified in the Closure Plan. The Subcontractor will be expected to work overtime and on weekend if necessary to meet the completion dates. Any overtime or weekend work deemed necessary shall be included in the base bid. No additional monetary compensation will be allowed for overtime or weekend work requested by the Subcontractor in order to meet the completion date.

0.7 REMOVED MATERIALS

Unless otherwise specified or indicated by the Buyer, all removed materials shall become property of the Subcontractor and shall be removed from the RVAAP by the Subcontractor.

0.8 SAFETY, SECURITY, AND HEALTH REQUIREMENTS

Buyer's safety and security regulations as stipulated in the Ravenna Arsenal, Inc.'s pamphlet "Safety and Security Rules" dated 1986 shall be complied with at all time. No vehicle or materials shall be placed, stored, or parked in roads, corridors, and passageways that interfere with Buyer's operations.

All local, state, and federal safety and health regulations shall be complied with throughout this contract.

Smoking will not be allowed in designated "No Smoking" areas.

Welding or cutting shall not be performed without the presence or written approval of Buyer's authorized personnel. All welding and cutting shall be properly shielded to protect workmen in the area. Extreme caution shall be exercised in the use of blow torches, or such, to guard against the danger of fire resulting from same.

Any overhead moving equipment shall be kept under constant observation during movement and operation.

0.9 DUST CONTROL

All possible precaution and care shall be taken in the control of dust produced by soil excavation or by other means in the work area. The method of dust control shall be approved by the Buyer's Representative.

0.10 CLEAN-UP

A neat and orderly working area shall be maintained at all times, including storage and staging areas.

The job area shall be kept clean and free of accumulations of rubbish. At the completion of each day's work, the area shall be thoroughly cleaned; all tools, equipment, etc., shall be arranged in orderly manner; and all waste materials and trash shall be properly stored and/or disposed in accordance with the Closure Plan and the Buyer's policies. The use of burning at the job site for disposal of refuse and debris will not be permitted.

0.11 INSPECTION

The closure activities will be inspected by an independent registered professional engineer at critical points of the closure process. The Subcontractor shall provide all information requested by the inspector.

REMOVAL OF ASH RESIDUES
ITEM 1

1.1 WORK INCLUDED

Under Item 1, the Subcontractor shall furnish all labor, materials, tools, and equipment necessary to perform removal of ash residues from the furnace drum, exhaust stack, and collection conveyor in accordance with the methods and procedures as described in the Closure Plan. The work shall include:

- o Ash residues removal including, if necessary, disassembly and reassembly of equipment.
- o Sampling and analysis.
- o Decontamination of equipment and tools in contact with ash residues.
- o Storage and disposal of contamination wastes.
- o Storage and disposal of ash residues removed.
- o Other work necessary for completion of Item 1 - Removal of Ash Residues.

Since the ash residues removed can be hazardous or non-hazardous waste which will require different methods of storage and disposal, for purposes of bidding Item 1 is further divided into two sub-items:

1. Item 1a (Basic Work 1a) - Item 1a shall include the total work as described above assuming the ash residues removed are determined to be non-hazardous waste.
2. Item 1b (Additional Work 1b) - Item 1b shall include the additional work beyond Item 1a (Basic Work 1a) if the ash residues removed are determined to be hazardous waste.

1.2 PRICE BID

The price bid for Item 1 shall include two sub-items - Item 1a (Basic Work 1a) and Item 1b (Additional Work 1b). Each price bid shall be a lump sum price for all labor, materials, tools, equipment, and incidentals necessary and required for completing all work involved as described in the Closure Plan and specified herein.

1.3 PAYMENT

The lump sum price bids for Items 1a and 1b shall constitute the bases for payments in full for all labor, materials, tools, equipment, and incidentals necessary and required for completing all work involved in each sub-item as described in the Closure Plan and specified herein. The payment shall be made only to sub-items which are actually performed by the Subcontractor.

DECONTAMINATION OR DISMANTLING OF EQUIPMENT
ITEM 2

2.1 WORK INCLUDED

Under Item 2, the Subcontractor shall furnish all labor, materials, tools, and equipment necessary to perform decontamination of equipment including the furnace drum, collection conveyor, exhaust stack, and associated piping in accordance with the methods and procedures as described in the Closure Plan. The work shall include:

- o Decontamination of equipment including, if necessary, disassembly and reassembly of equipment and/or temporary removal of one timber wall to facilitate decontamination.
- o Sampling and analysis.
- o Decontamination of equipment and tools in contact with rinseate and/or contaminated encapsulating plastic sheets.
- o Storage and disposal of decontamination wastes.
- o Storage and decontamination of rinseate and contaminated encapsulating plastic sheets.
- o Other work necessary for completion of Item 2- Decontamination or Dismantling of equipment.

The actual work which may be involved under Item 2 will depend on how easy or difficult the equipment can be decontaminated and established as clean, and whether the rinseate and/or contaminated encapsulating plastic sheets are determined to be hazardous waste. For purposes of bidding, Item 2 is further divided into six sub-items based on possible scenarios on the outcome of equipment decontamination. These sub-items along with work included in each sub-item are described as follows:

1. Item 2a (Basic Work 2a) - Item 2a shall include the total work in which the equipment is established as clean after the first attempt of rinsing, and the rinseate and contaminated encapsulating plastic sheets are determined to be non-hazardous waste.
2. Item 2b (Additional Work 2b) - Item 2b shall include the additional work beyond Item 2a or 2c below if the rinseate and/or contaminated encapsulating plastic sheets are determined to be hazardous waste.
3. Item 2c (Additional Work 2c) - Item 2c shall include the

additional work for second or third attempt of rinsing, and the rinseate and contaminated encapsulating plastic sheets are determined to be non-hazardous waste.

4. Item 2d (Additional Work 2d) - Item 2d shall include the additional work for the first attempt of sand blasting followed by pressure water rinsing; and the sand blasting residues, rinseate, and contaminated encapsulating plastic sheets are determined to be non-hazardous waste.
5. Item 2e (Additional Work 2e) - Item 2e shall include the additional work beyond Item 2d or 2f below if the sand blasting residues, rinseate, and contaminated encapsulating plastic sheets are determined to be hazardous waste.
6. Item 2f (additional Work 2f) - Item 2f shall include the additional work for the second attempt or each of subsequent attempt of sand blasting followed by pressure water rinsing; and the sand blasting residues, rinseate, and contaminated encapsulating plastic sheets are determined to be non-hazardous waste.

2.2 PRICE BID

The price bid for Item 2 shall include six sub-items - Items 2a (Basic Work 2a), 2b, 2c, 2d, 2e, and 2f (Additional Works 2b, 2c, 2d, 2e, and 2f, respectively). Each price bid shall be a lump sum price for all labor, materials, tools, equipment, and incidentals necessary and required for completing all work as described in the Closure Plan and specified herein.

2.3 PAYMENT

The lump price bids for Items 2a, 2b, 2c, 2d, 2e, and 2f shall constitute the bases for payments in full for all labor, materials, tools, equipment, and incidentals necessary and required for completing all work involved in each sub-item as described in the Closure Plan and specified herein. The payment shall be made only to sub-items which are actually performed by the Subcontractor.

DISPOSAL OR DECONTAMINATION OF TIMBER WALLS
ITEM 3

3.1 WORK INCLUDED

Under Item 3, the Subcontractor shall furnish all labor, materials, tools, and equipment necessary to perform decontamination or disposal of four timber walls including the earth fill in each wall, in accordance with the methods and procedures as described in the Closure Plan. The work shall include:

- o Sampling and analysis.
- o Removal, storage, and disposal of timber walls including the earth fill in the wall, if necessary.
- o Decontamination of equipment or tools in contact with timber walls and/or earth fills.
- o Storage and disposal of decontamination wastes.
- o Other work necessary for completion of Item 3 - Disposal or Decontamination of Timber Walls.

The actual work which may be involved under Item 3 will depend on analytical results of the four timber wall samples and four earth fill samples as described in the Closure Plan. For purposes of bidding, Item 3 is further divided into five sub-items as follows:

1. Item 3a (Basic Work 3a) - Item 3a shall include sampling and analysis of the four core/plug timber wall samples and four composite core earth fill samples as described in the Closure Plan. No removal of timber walls or earth fills is involved under Item 3a (i.e. all timber walls and earth fills are determined to be clean).
2. Item 3b (Additional Work 3b) - Item 3b shall include the additional work for removal, storage, and disposal of one timber wall (both interior and exterior) if the interior wall is determined to be contaminated but not hazardous.
3. Item 3c (Additional Work 3c) - Item 3c shall include the additional work for removal, storage, and disposal of one timber wall (both interior and exterior) if the interior wall is determined to be hazardous.
4. Item 3d (Additional Work 3d) - Item 3d shall include the additional work for removal, storage, and disposal of earth

fill in one timber wall if the fill is determined to be contaminated but not hazardous.

5. Item 3e (Additional Work 3e) - Item 3e shall include the additional work for removal, storage, and disposal of earth fill in one timber wall if the fill is determined to be hazardous waste.

3.2 PRICE BID

The price bid for Item 3 shall include five sub-items - Item 3a (Basic Work 3a), 3b, 3c, 3d, and 3e (Additional Works 3b, 3c, 3d, and 3e, respectively). Item 3a shall be a lump sum price bid while Items 3b, 3c, 3d, and 3e shall be unit price bids for all labor, materials, tools, equipment, and incidentals necessary and required for completing all work involved in each sub-item as described in the Closure Plan and specified herein.

3.3 PAYMENT

The lump sum price bid for Item 3a and unit price bids for Item 3b, 3c, 3d, and 3e shall constitute the bases for payments for actual work performed by the Subcontractor. The payment shall be made only for the actual work performed by the Subcontractor.

DISPOSAL OR DECONTAMINATION OF SOILS
ITEM 4

4.1 WORK INCLUDED

Under Item 4, the Subcontractor shall furnish all labor, materials, tools, and equipment necessary to perform disposal or decontamination of soils underneath and/or around the Deactivation Furnace in accordance with the methods and procedures as described in the Closure Plan. The work shall include:

- o Sampling and analysis to determine the extents (vertical and horizontal) of soil contamination and to confirm the effectiveness of decontamination after excavation of all contaminated soils, including sampling and analysis of 16 background soil samples.
- o Removal of the Deactivation Furnace unit out of the barricade to a temporary clean storage area near the job site and, if necessary, removal of one timber wall to allow such a removal.
- o Excavation of contaminated soil.
- o Backfill, grading, and seeding (excluding concrete paved areas) of excavated areas.
- o Reinstallation of the Deactivation Furnace unit and timber wall removed.
- o Installation of concrete slabs of sufficient reinforcing strength inside the timber walls (barricade) and a 10' x 10' area around the discharge area of the collection conveyor immediately outside the western timber wall. The concrete floor shall be coated with a sealant.
- o Decontamination of equipment and tools in contact with contaminated soils.
- o Storage and disposal of decontamination wastes.
- o Storage and disposal of excavated soil.
- o Other work necessary for completion of work under Item 4- Disposal or Decontamination of soils.

All concrete shall be ready-mixed and delivered in accordance with ASTM-C94. All concrete shall be controlled having a minimum 28-day compressive strength of 4,000 psi. Water-cement ratio

shall be in accordance with ACI recommendations. Slump of vibrated concrete shall be 3" maximum. Air content shall not exceed 3% maximum by volume. The concrete floor shall be reinforced with steel, if necessary, to sustain the entire furnace load and maximum shock loading during burning/detonation operations. The concrete slabs shall be 3" above the finished grade.

Excavation of contaminated soils shall be open excavation. All removed contaminated soils shall be temporarily stored in a plastic sheet paved area before being drummed. The stored soils shall be covered with plastic sheets to prevent soils from washing away by rainfall and runoff.

All fill and backfill shall be furnished, placed, compacted, and graded by the Subcontractor. The fill materials shall be furnished from off-site sources and shall be clean and free of contaminants except those naturally occurred. The backfill shall be compacted to a dry density of at least 90% of the maximum dry density as determined by ASTM D-698 at a moisture content of +/- 3% of the optimum moisture content. On top of the backfilled material a 6" topsoil layer shall be provided. The topsoil shall be planted with grass. Seeding shall be Fescue, or its equivalent, sown on the backfilled areas (except concrete paved areas) either mechanically or by hand. The area shall then be lightly brushed or raked to provide a slight covering over the seed. Straw or mulch shall be added to prevent seeds from washing away.

Due to uncertainty on the extents (vertical and horizontal) of soil contamination, it is virtually impossible to define the actual scope of work under Item 4 at this time. For purposes of bidding, seven sub-items under Item 4 along with work included in each sub-item are established as follows:

1. Item 4a (Basic Work 4a) - Item 4a shall include initial sampling and analysis of 15 composite soil samples from the five 17' x 9.25' grids; sampling and analysis of 16 background soil samples; decontamination of sampling equipment; storage and disposal of decontamination wastes; removal and reinstallation of the Deactivation Furnace unit and one timber wall; and installation of concrete slabs per specifications.
2. Item 4b (Additional Work 4b) - Item 4b shall include the additional work for excavation, storage, and disposal of one cubic yard of contaminated, non-hazardous soil.
3. Item 4c (Additional work 4c) - Item 4c shall include the additional work for excavation, storage, and disposal of one cubic yard of hazardous soil.

4. Item 4d (Additional Work 4d) - Item 4d shall include the additional work for collection of 3 composite soil samples at the depths of 0-1', 1'-2', and 2'-3' from a 17' x 9.25' grid in accordance with the procedures described in section 1.7.2.2 of the Closure Plan.
5. Item 4e (Additional Work 4e) - Item 4e shall include the additional work for analysis of a soil sample for arsenic, beryllium, cadmium, chromium, copper, nickel, lead, zinc, barium, antimony, and zinc using USEPA SW-846 methods.
6. Item 4f (Additional Work 4f) - Item 4f shall include the additional work for furnishing backfill material, backfilling, and compacting one cubic yard of soil.
7. Item 4g (Additional Work 4g) - Item 4g shall include the additional work for grading and seeding one square yard of backfilled area.

4.2 PRICE BID

The price bid for Item 4 shall include seven sub-items - Item 4a (Basic Work 4a), 4b, 4c, 4d, 4e, 4f, and 4g (Additional Works 4b, 4c, 4d, 4e, 4f, and 4g, respectively). The price bid shall be a lump sum price for Item 4a and unit price for Items 4b, 4c, 4d, 4e, 4f, and 4g; for all labor, materials, tools, equipment, and incidentals necessary and required for completing all work involved in each sub-item as described in the Closure Plan and specified herein.

4.3 PAYMENT

The lump price bid for Item 4a and unit price bids for Items 4b, 4c, 4d, 4e, 4f, and 4g shall constitute the bases for payments of actual work performed by the Subcontractor. The payment shall be made only for the actual work performed by the Subcontractor.

MOBILIZATION
ITEM 5

5.1 WORK INCLUDED

Under Item 5, the Subcontractor shall furnish all labor, materials, tools, equipment, and transportation necessary to mobilize and set up all necessary equipment for performance of closure of the Deactivation Furnace. The work shall include mobilization of equipment to the job site, set-up of equipment, and job orientation for workers.

5.2 PRICE BID

The price bid for Item 5 shall be a lump price for all labor, materials, tools, equipment, transportation, and incidentals necessary and required for completing Item 5 - Mobilization.

5.3 PAYMENT

The lump sum price bid for Item 5 shall constitute payment in full for all labor, materials, tools, transportation, equipment, and incidentals necessary and required for completing Item 5 work.

DEMOBILIZATION
ITEM 6

6.1 WORK INCLUDED

Under Item 6, the Subcontractor shall furnish all labor, materials, tools, equipment, and transportation necessary to demobilize all equipment used for closure of the Deactivation Furnace. The work shall include demobilization of equipment out of the RVAAP and clean up the job site.

6.2 PRICE BID

The price bid for Item 6 shall be a lump sum price for all labor, materials, tools, equipment, transportation, and incidentals necessary and required for completing all work under Item 6 - Demobilization.

6.3 PAYMENT

The lump sum price bid for Item 6 shall constitute payment in full for all labor, materials, tool, equipment, transportation, and incidentals necessary and required for completing all Item 6 work.

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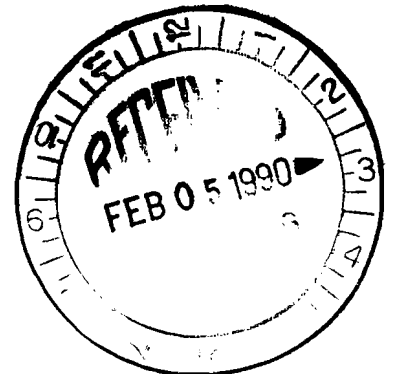
2-2-90

Susan:

This is the final revised plan. Please throw away the copy we sent to you yesterday (2-1-90). There have been a number of minor changes.

Good luck.

John K...



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(216) 261-3724 • FAX (216) 261-2705

February 9, 1990

Ms. Susan McCauslin
Ravenna Arsenal, Inc.
8451 State Route 5
Ravenna, Ohio 44266-9297

RE: Environmental Assessment and Finding of No Significant Impact for
Closure of Deactivation Furnace, Ravenna Army Ammunition Plant,
Ravenna, Ohio

Dear Ms. McCauslin:

Enclosed are copies of Environmental Assessment (EA) and Finding of No
Significant Impact (FONSI) for the referenced project for your review and
comments.

Very truly yours,

BAT Associates, Inc.



Jack R. Kuo, P.E.
Senior Environmental Engineer

JRK:lf

Enclosures

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Euclid, Ohio 44132
(216) 261-3724 • FAX (216) 261-2705

February 12, 1990

Ms. Susan McCauslin
Ravenna Arsenal, Inc.
8451 State Route 5
Ravenna, Ohio 44266-9297

RE: Closure Plan for Deactivation Furnace Closure
Ravenna Army Ammunition Plant, Ravenna, Ohio


Dear Ms. McCauslin:

Enclosed is a copy of the revised Closure Plan for the referenced project for your review and approval. The revised report has incorporated your comments provided through telephone this morning.

The Technical Specifications which have incorporated your comments will be transmitted to you by a postal mail.

Very truly yours,

BAT Associates, Inc.



Jack R. Kuo, P.E.
Senior Environmental Engineer

JRK:lf

Enclosure



RAVENNA ARSENAL INC.

**8451 STATE ROUTE 5
RAVENNA, OHIO 44266-9297**

oo (216) 358-7111

Autovon 346-3216

February 16, 1990

Mr. Jack R. Kuo
Senior Environmental Engineer
BAT Associates, Inc.
27801 Euclid Avenue, Suite 450
Euclid, Ohio 44132

Dear Mr. Kuo:

We have reviewed the Environmental Assessment and Finding of No Significant Impact prepared by you for the closure of our Deactivation Furnace. Enclosed you will find these documents with our comments written within. We have also enclosed several examples along with the comments to assist you in making revisions.

Please feel free to call me if you have any questions concerning the comments. Thank you.

Sincerely,

RAVENNA ARSENAL, INC.

Susan E. McCauslin
Environmental Specialist

BAT

BAT Associates, Inc.

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(216) 261-3724 • FAX (216) 261-2705

February 27, 1990

Ms. Susan McCauslin
Ravenna Arsenal, Inc.
8451 State Route 5
Ravenna, Ohio 44266

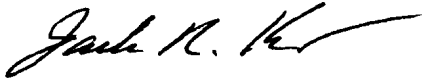
RE: Cost Estimate for Deactivation Furnace Closure (Revision 1)
Ravenna Army Ammunition Plant

Dear Ms. McCauslin:

Enclosed is a copy of the revised pages of the referenced cost estimate for your review and approval. The revisions have been made in accordance with your comments provided via telephone this afternoon.

Very truly yours,

BAT Associates, Inc.



Jack R. Kuo, P.E.
Senior Environmental Engineer

JRK:lf

Enclosure

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COST ESTIMATE SUMMARY
 DEACTIVATION FURNACE CLOSURE
 RAVENNA ARMY AMMUNITION PLANT

<u>DESCRIPTION</u>	<u>COST (\$)</u>
I. REMOVAL OF ASH RESIDUES	
Removal of Ash Residues	960
Sampling and Analysis	<u>710</u>
Subtotal	1,670
II. DECONTAMINATION OR DISMANTLING OF EQUIPMENT	
Pressure Water Rinsing	4,400
Sandblasting and Pressure Water Rinsing	2,680
Sample Analysis	<u>3,000</u>
Subtotal	10,080
III. REMOVAL OF TIMBER WALLS	
Sampling and Analysis	4,490
Removal of Timber Walls and Earth Fills	1,190
Installation of New Timber Walls and Earth Fills	<u>4,700</u>
Subtotal	10,380
IV. SOIL DECONTAMINATION	
Soil Excavation	2,170
Backfilling, Grading, and Seeding	<u>3,150</u>
Subtotal	5,320
V. CONSTRUCTION OF CONCRETE SLABS AND REINSTALLATION OF DEACTIVATION FURNACE	
Subtotal	7,460
VI. DISPOSAL OF WASTES	
Disposal of Ash Residues, Timber Walls, and Contaminated Soil	62,900
Disposal of Rinseate	<u>1,000</u>
Subtotal	63,900
VII. BACKGROUND AND CONFIRMATORY SOIL SAMPLING AND ANALYSIS	
Subtotal	6,780

VIII. CLOSURE CERTIFICATION

Review of Closure Plan	540
Inspection During Closure	2,640
Review of Manifest and Analysis, Final Inspection, and Certification	<u>540</u>
Subtotal	3,720

IX. MOBILIZATION/DEMOBILIZATION

Subtotal	2,000
Total	111,310
Add 15% for contingency	<u>16,700</u>
TOTAL	128,010
	SAY <u>128,000</u>

Assume that approximately 150 CY of fill and backfill soils will be excavated and transported from an on-site borrow area, and 20 CY of topsoil will be transported from an off-site source. Both the borrow and furnace areas (except concrete paved areas) will be graded, covered with a 6" topsoil layer, and planted with grass.

1. Labor Required (1 crew of 2 persons for a total of 24 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Truck Driver/ Equip. Operator	1	24	40	960
Labor	1	24	30	<u>720</u>
Subtotal				1,680

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Backhoe	1	24	L.S.	600
Truck	1	24	L.S.	400
Spreader	1	16	L.S.	50
Compactor	1	16	L.S.	<u>200</u>
Subtotal				1,250

3. Materials

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Topsoil	20 CY	2.50	50
Grass Seed	120 SY	1.00	120
Mulch	L.S.	50	<u>50</u>
Subtotal			220

Total = \$1,680 + \$1,250 + \$220 = \$3,150

V. CONSTRUCTION OF CONCRETE SLABS AND REINSTALLATION OF DEACTIVATION FURNACE

1. Labor Required (1 crew of 3 persons for a total of 16 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	16	45	720
Labor	2	16	30	<u>1,440</u>
Subtotal				2,160

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Concrete				
Mix/Feed Truck	1	8	L.S.	200
Forklift	1	8	L.S.	200
Misc. Tools		8	L.S.	<u>200</u>
Subtotal				600

3. Materials (Assume concrete slabs to be 1' thick with reinforced steels in them)

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Reinforced			
Concrete	30 CY	150	4,500
Misc. Materials	L.S.	200	<u>200</u>
Subtotal			4,700

Total = \$2,160 + \$600 + \$4,700 = \$7,460

VI. DISPOSAL OF WASTES

A. Disposal of Ash Residues, Timber Walls, and Contaminated Soils

Assume one truck load of ash residues, timber log pieces, and contaminated soils will be transported in bulk to Envirosafe, Inc. (a permitted security landfill) in Toledo, Ohio.

1. Transportation

1 Truck Load x 180 Miles x \$5/mile = \$900

2. Disposal of Wastes

Total Weight = 2 x (36 x 1 x 9 + 20.5 x 1 x 9) x 2.6
 x 62.4 + 151 x 27 x (2.5 x 62.4)
 = 801,000 lbs
 = 400 Tons

Disposal Cost @ \$155/Ton = \$155 x 400 = \$62,000

Total = \$900 + \$62,000 = \$62,900

B. Disposal of Rinseate

Assume one truck load of rinseate and other liquid

wastes will be transported to Chem-Clear, Inc. (a permitted industrial waste TSD facility) in Cleveland, Ohio.

1. Transportation

1 Truck Load x 80 Miles x \$5/mile = \$400

2. Disposal of Wastes

Total Volume = 1,620 gallons + 680 gallon
= 2,300 gallons

Chem-Clear will charge \$0.14 to \$0.30 per gallon for disposal depending on types and concentrations of metals, plus \$2/Ton for the state tax. Use \$0.25 per gallon charge for estimate.

Disposal Cost = 2,300 x \$0.25 + 2,300/7.48 x 62.4/2,000
x \$2 = \$575 + \$19 = \$594 say \$600

Total = \$400 + \$600 = \$1,000

VII. BACKGROUND AND CONFIRMATORY SOIL SAMPLING AND ANALYSIS

1. Labor Required

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Engineer	1	4	60	240
Technician	1	8	45	360
Subtotal				600

2. Equipment & Supplies

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Sampling Equip. & Supplies	L.S.	300	300
Subtotal			300

3. Sample Analysis

<u>Analysis</u>	<u>Total Samples</u>	<u>Rate (\$/samp.)</u>	<u>Amount (\$)</u>
EP Toxic Metals TNT, 2,4-DNT, 2,6-DNT, and RDX	21	130	2,730
Subtotal	21	150	3,150
			5,880

Total = \$600 + \$300 + \$5,880 = \$6,780

VIII. CLOSURE CERTIFICATION

An independent registered professional engineer must certify the proper completion of closure activities. To accomplish this, it is estimated that the engineer follows the following three work effort:

A. Review of Closure Plan

<u>Description</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Professional Engineer	8	65	520
Clerical	1	20	<u>20</u>
Subtotal			540

B. Inspection During Closure

<u>Description</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Professional Engineer	40	65	2,600
Clerical	2	20	<u>40</u>
Subtotal			2,640

C. Review of Manifests and Analysis, Final Inspection, and Certification

<u>Description</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Professional Engineer	8	65	520
Clerical	1	20	<u>20</u>
Subtotal			540

Total = \$540 + \$2,640 + \$540 = \$3,720

IX. MOBILIZATION/DEMOBILIZATION

\$2,000

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February 23, 1990

Ms. Susan McCauslin
Ravenna Arsenal, Inc.
8451 State Route 5
Ravenna, Ohio 44266

RE: Cost Estimate for Deactivation Furnace Closure
Ravenna Army Ammunition Plant

Dear Ms. McCauslin:

Pursuant to our contract agreement, enclosed is a copy of the draft Cost Estimate for the referenced project for your review and comments.

The cost estimate was performed based on conservative conditions that might be encountered during closure. The actual closure cost might be higher or lower than the estimate.

If you have any questions regarding our cost estimates, please feel free to contact me at (216) 261-3724.

Very truly yours,

BAT Associates, Inc.



Jack R. Kuo, P.E.
Senior Environmental Engineer, P.E.

JRK:lf

Enclosure

COST ESTIMATE
FOR DEACTIVATION FURNACE CLOSURE
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

Prepared for:

Ravenna Arsenal, Inc.
8451 State Route 5
Ravenna, Ohio 44266

Prepared by:

BAT Associates, Inc.
27801 Euclid Avenue, Suite 450
Euclid, Ohio 44132

February 1990

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COST ESTIMATE
FOR DEACTIVATION FURNACE CLOSURE
RAVENNA ARMY AMMUNITION PLANT

I. REMOVAL OF ASH RESIDUES

The estimates which follow assume that certain components of the deactivation furnace need to be disassembled and reassembled to facilitate removal of ash residues. Also, the ash residues removed are assumed to be hazardous waste.

A. Removal of Ash Residues

1. Labor Required (1 crew of 2 persons for a total of 8 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	8	40	320
Labor	1	8	30	240
Subtotal				560

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Vacuum/Sweeper	1	8	L.S.	160
Container	1	-	L.S.	40
Misc. Tools		8	L.S.	200
Subtotal				400

Total = \$560 + \$400 = \$960

B. Sampling and Analysis

Samples to be collected and analyzed:

One (1) - Ash residues to be analyzed for EP toxicity and reactivity.

1. Labor Required

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Engineer	1	1	60	60
Technician	1	2	45	90
Subtotal				150

2. Equipment & Supplies

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Misc. Supplies	-	-	L.S.	<u>150</u>
Subtotal				150

3. Sample Analysis

<u>Analysis</u>	<u>Total Samples</u>	<u>Rate (\$/samp.)</u>	<u>Amount (\$)</u>
EP Toxicity	1	210	210
Reactivity	1	200	<u>200</u>
Subtotal			410

Total = \$150 + \$150 + \$410 = \$710

II. DECONTAMINATION OR DISMANTLING OF EQUIPMENT

The estimates which follow assume that the interior of each of the furnace drum, exhaust stack, and collection conveyor will first be flushed with pressure clean water rinse for three attempts, followed by one attempt of sandblasting and pressure water rinsing to establish the equipment as clean. Also, all rinseate and waste encapsulating plastic sheets are assumed to be contaminated but not as hazardous waste.

A. Pressure Water Rinsing

1. Labor Required (1 crew of 3 persons for a total of 16 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	16	40	640
Washer	1	16	35	560
Labor	1	16	30	<u>480</u>
Subtotal				1,680

2. Equipment

Volume of rinse water generated on a 3 gpm high pressure water and a total of 9 hours of rinsing time:

$$3 \text{ gpm} \times 60 \text{ min./hr} \times 9 \text{ hrs} = 1,620 \text{ gallons}$$

Rent two 3,000-gallon fractionation (frac) tanks for storage of rinseate at a cost of \$600/month plus \$150 for initial set-up and removal after completion.

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
High Pressure Washer	1	16	L.S.	400
Vacuum Tanker	1	-	L.S.	300
Frac Tanks	2	-	L.S.	750
Forklift	1	16	L.S.	400
Pump & Hose	1	16	L.S.	400
55-Gal Drums	10	16	L.S.	320
Heavy Plastic Sheets		-	L.S.	<u>150</u>
Subtotal				2,720

Total = \$1,680 + \$2,720 = \$4,400

B. Sandblasting and Pressure Water Rinsing

1. Labor Required (1 crew of 3 persons for a total of 12 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Sandblaster	1	8	35	280
Pot Loader	1	8	35	280
Washer	1	4	35	140
Equip. Operator	1	4	40	160
Labor	1	12	30	<u>360</u>
Subtotal				1,220

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Air Compressor, pot, and wand	1	12	L.S.	200
Vacuum/Sweeper	1	12	L.S.	200
Roll-off Boxes	2	12	L.S.	100
High Pressure Washer	1	12	L.S.	200
Forklift	1	12	L.S.	200
Vacuum Tanker	1	-	L.S.	100
Pump & Hose	1	12	L.S.	100
Misc. Tools	-	12	L.S.	<u>100</u>
Subtotal				1,200

3. Materials

a. Sand

Sand usage at 4 pounds per square foot

= 500 sf x 4 lbs/sf = 2,000 lbs
\$10.00 per 100 lbs x 2,000 lbs = \$200

b. Heavy Plastic Sheets - \$60

Subtotal - \$260

Total = \$1,220 + \$1,200 + \$260 = \$2,680

C. Sampling and Analysis

Samples to be collected and analyzed:

Two (2) - Rinseate generated from the first attempt of pressure rinsing including one from the final rinseate.

Two (2) - Rinseate generated from the second attempt of pressure rinsing including one from the final rinseate.

Two (2) - Rinseate generated from the third attempt of pressure rinsing including one from the final rinseate.

One (1) - Sandblasting residues generated from the first attempt of sandblasting.

Two (2) - Rinseate generated from the pressure water rinsing following the first attempt of sandblasting.

All above samples will be analyzed for EP toxic metals, TNT, 2,4-DNT, 2,6-DNT, and RDX.

1. Labor Required

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Engineer	1	1	60	60
Technician	1	6	45	<u>270</u>
Subtotal				330

2. Equipment & Supplies

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Misc. Supplies	-	-	L.S.	<u>150</u>
Subtotal				150

3. Sample Analysis

<u>Analysis</u>	<u>Total Samples</u>	<u>Rate (\$/Samp.)</u>	<u>Amount (\$)</u>
EP Toxic Metals TNT, 2,4-DNT, 2,6-DNT, and RDX	9	130	1,170
Subtotal			<u>1,350</u>
			2,520

Total = \$330 + \$150 + \$2,520 = \$3,000

III. REMOVAL OF TIMBER WALLS

The estimates which follow assume that all four timber walls along with their earth fills are determined to be hazardous waste and need to be removed and managed as hazardous waste.

A. Sampling and Analysis

Samples to collected and analyzed:

Four (4) - Core/plug wood samples from four interior walls.

Four (4) - Composite core soil samples from earth fills of four timber walls.

All above samples will be analyzed for EP toxic metals; TNT, 2,4-DNT, 2,6-DNT, and RDX; and EP toxicity.

1. Labor Required

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Engineer	1	1	60	60
Technician	1	8	45	<u>360</u>
Subtotal				420

2. Equipment & Supplies

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Misc. Supplies	-	-	L.S.	<u>150</u>
Subtotal				150

3. Sample Analysis

<u>Analysis</u>	<u>Total Samples</u>	<u>Rate (\$/samp.)</u>	<u>Amount (\$)</u>
EP Toxic Metals	8	130	1,040

TNT, 2,4-DNT,
2,6-DNT, and

RDX	8	150	1,200
EP Toxicity	8	210	<u>1,680</u>
Subtotal			3,920

Total = \$420 + \$150 + \$3,920 = \$4,490

B. Removal of Timber Walls and Earth Fills

The work involved includes removal of four timber walls along with their earth fills, cutting each timber log to be shorter than 3 feet (to be accepted by a security landfill), and placing all timber pieces and earth fills on an on-site storage area.

1. Labor Required (1 crew of 3 persons for a total of 8 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	8	45	360
Labor	2	8	30	<u>480</u>
Subtotal				840

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rates (\$/hr)</u>	<u>Amount (\$)</u>
Forklift	1	8	L.S.	200
Chain Saw	1	8	L.S.	50
Containers	2	8	L.S.	<u>100</u>
Subtotal				350

Total = \$840 + \$350 = \$1,190

C. Installation of New Timber walls and Earth Fills

1. Labor Required (1 crew of 3 persons for a total of 24 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	24	40	960
Labor	2	24	30	<u>1,440</u>
Subtotal				2,400

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
--------------------	------------	--------------	---------------------	--------------------

Forklift	1	24	L.S.	600
Backhoe	1	8	L.S.	<u>300</u>
Subtotal				900

3. Materials

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Timber Walls	4	300	1,200
Earth fills	4	50	<u>200</u>
Subtotal			1,400

Total = \$2,400 + \$900 + \$1,400 = \$4,700

IV. SOIL DECONTAMINATION

A. Soil Excavation

Assume the top 4 feet (including 1 foot buffer zone) of soil throughout the entire barricade area and the 18'-0" x 11'-3" grid around the collection conveyor discharge area outside the western timber wall will be excavated and removed.

Total excavation = (37' x 22' + 18' x 11.25') x 4'
= 4066 CF
= 151 CY

1. Labor Required (1 crew of 2 persons for a total of 16 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	16	40	640
Labor	1	16	30	<u>480</u>
Subtotal				1,120

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Backhoe	1	16	L.S.	400
Forklift	1	16	L.S.	400
Drums	10	16	L.S.	<u>250</u>
Subtotal				1,050

Total = \$1,120 + \$1,050 = \$2,170

B. Backfilling, Grading, and Seeding

Assume that approximately 150 CY of fill and backfill soils will be excavated and transported from an on-site borrow area, and 20 CY of topsoil will be transported from an off-site source. Both the borrow and furnace areas (except concrete paved areas) will be graded, covered with a 6" topsoil layer, and planted with grass.

1. Labor Required (1 crew of 2 persons for a total of 24 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Truck Driver/ Equip. Operator	1	24	40	960
Labor	1	24	30	<u>720</u>
Subtotal				1,680

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Backhoe	1	24	L.S.	600
Truck	1	24	L.S.	400
Spreader	1	16	L.S.	50
Compactor	1	16	L.S.	<u>200</u>
Subtotal				1,250

3. Materials

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Topsoil	20 CY	2.50	50
Grass Seed	120 SY	1.00	120
Mulch	L.S.	50	<u>50</u>
Subtotal			220

Total = \$1,680 + \$1,250 + \$220 = \$3,150

- C. Sampling and Analysis

Samples to be collected and analyzed:

Fifteen (15) - Composite soil samples from 0-1 foot, 1-2 foot, and 2-3 foot depths at each of the five designated grids. All 15 samples will be analyzed for arsenic, beryllium, cadmium, chromium, copper, nickel, lead, zinc, barium, antimony, and tin (hereinafter referred to as the

11 contaminated metals).

One (1) - Composite core soil sample from the stored excavated soil to be analyzed for EP toxicity.

1. Labor Required

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Engineer	1	4	60	240
Technician	2	8	45	720
Subtotal				960

2. Equipment & Supplies

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Sampling Equip. & Supplies	L.S.	200	200
Subtotal			200

3. Sample Analysis

<u>Analysis</u>	<u>Total Samples</u>	<u>Rate (\$/samp.)</u>	<u>Amount (\$)</u>
11 Contaminated Metals	15	220	3,300
EP Toxicity	1	210	210
Subtotal			3,510

Total = \$960 + \$200 + \$3,510 = \$4,670

V. CONSTRUCTION OF CONCRETE SLABS AND REINSTALLATION OF DEACTIVATION FURNACE

1. Labor Required (1 crew of 3 persons for a total of 16 hours)

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Equip. Operator	1	16	45	720
Labor	2	16	30	1,440
Subtotal				2,160

2. Equipment

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Concrete Mix/Feed Truck	1	8	L.S.	200

Forklift	1	8	L.S.	200
Misc. Tools		8	L.S.	<u>200</u>
Subtotal				600

3. Materials (Assume concrete slabs to be 1' thick with reinforced steels in them)

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Reinforced Concrete	30 CY	150	4,500
Misc. Materials	L.S.	200	<u>200</u>
Subtotal			4,700

Total = \$2,160 + \$600 + \$4,700 = \$7,460

VI. DISPOSAL OF WASTES

- A. Disposal of Ash Residues, Timber Walls, and Contaminated Soils

Assume 20 truckloads (one truckload is about 20 to 24 tons of materials) of ash residues, timber log pieces, and contaminated soils will be transported in bulk to Envirosafe, Inc. (a permitted security landfill) in Toledo, Ohio.

1. Transportation

20 Truckloads x 2 x 180 Miles x \$3/mile = \$21,600

2. Disposal of Wastes

Total Weight = 2 x (36 x 1 x 9 + 20.5 x 1 x 9) x 2.6
 x 62.4 + 151 x 27 x (2.5 x 62.4)
 = 801,000 lbs
 = 400 Tons

Disposal Cost @ \$155/Ton = \$155 x 400 = \$62,000

Total = \$21,600 + \$62,000 = \$83,600

- B. Disposal of Rinseate

Assume one truckload of rinseate and other liquid wastes will be transported to Chem-Clear, Inc. (a permitted industrial waste TSD facility) in Cleveland, Ohio.

1. Transportation

1 Truckload x 80 Miles x \$5/mile = \$400

2. Disposal of Wastes

Total Volume = 1,620 gallons + 680 gallon
= 2,300 gallons

Chem-Clear will charge \$0.14 to \$0.30 per gallon for disposal depending on types and concentrations of metals, plus \$2/Ton for the state tax. Use \$0.25 per gallon charge for estimate.

Disposal Cost = 2,300 x \$0.25 + 2,300/7.48 x 62.4/2,000
x \$2 = \$575 + \$19 = \$594 say \$600

Total = \$400 + \$600 = \$1,000

VII. BACKGROUND AND CONFIRMATORY SOIL SAMPLING AND ANALYSIS

Samples to be collected and analyzed:

Sixteen (16) - Composite background soil samples taken at the depth of 0-3 foot at each of 16 sampling locations.

Five (5) - Confirmatory grab soil samples taken at the center of each grid pit.

All above samples will be analyzed for the 11 contaminated metals.

1. Labor Required

<u>Description</u>	<u>No.</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Engineer	1	4	60	240
Technician	2	10	45	900
Subtotal				1,140

2. Equipment & Supplies

<u>Description</u>	<u>Quantity</u>	<u>Unit Price (\$)</u>	<u>Amount (\$)</u>
Sampling Equip. & Supplies	L.S.	300	200
Subtotal			200

3. Sample Analysis

<u>Analysis</u>	<u>Total Samples</u>	<u>Rate (\$/samp.)</u>	<u>Amount (\$)</u>
-----------------	----------------------	------------------------	--------------------

11 Contaminated Metals	21	220	<u>4,620</u>
Subtotal			4,620

Total = \$1,140 + \$200 + \$4,620 = \$5,960

VIII. CLOSURE CERTIFICATION

An independent registered professional engineer must certify the proper completion of closure activities. To accomplish this, it is estimated that the engineer follows the following three work effort:

A. Review of Closure Plan

<u>Description</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Professional Engineer	8	65	520
Clerical	1	20	<u>20</u>
Subtotal			540

B. Inspection During Closure

<u>Description</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Professional Engineer	40	65	2,600
Clerical	2	20	<u>40</u>
Subtotal			2,640

C. Review of Manifests and Analysis, Final Inspection, and Certification

<u>Description</u>	<u>Hours</u>	<u>Rate (\$/hr)</u>	<u>Amount (\$)</u>
Professional Engineer	8	65	520
Clerical	1	20	<u>20</u>
Subtotal			540

Total = \$540 + \$2,640 + \$540 = \$3,720

IX. MOBILIZATION/DEMOBILIZATION

\$2,000

CURRENT OR BACKLOG OF DEFICIENCY IDENTIFICATION AND INDUSTRIAL PREPAREDNESS MEASURE (IPM)
(AMCCOM Suppl 1 to AR 700-90)

1. INSTALLATION NAME/PIN
RAVENNA ARMY AMMUNITION PLANT PIN 995282

2. DATE OF SUBMISSION
ORIGINAL 3/90 REVISÉ

4. LINE/AREA
GENERAL

5. LINE/AREA STATUS CODE
A

6. IPM NUMBER

7. REASON CODE
C1

8. PROG FUNDING CODE
D

12. TIME TO COMP DESIGN
6

9. IMPACT CODE
E

10. IMPLEMENTATION CODE
G

11. TIME IPM REQ AFTER M-DAY

15. ITEM/COMPONENT MANUFACTURED
a. N/A
b.
c.
d.
e.
f.
g.
h.
i.
j.
k.
l.
m.
n.
o.
p.

16. ISN
N/A

17. PROD CAP (MAX)
WITHOUT IPM
N/A

WITH IPM
N/A

18. PROD LEVEL OFF TIME
WITHOUT IPM
N/A

WITH IPM
N/A

19. RELATED IPMS

20. OP
 MISS
 PRO
21. LO
22. PR
a. RE
(1) LA
(2) MA
(3) SU
19
(4) G&
(5) FE
(6) TO
23
26. DD
27. AM
NU

23. DEFICIENCY PROJECT TITLE RCRA CLOSURE OF DEACTIVATION FURNACE
DESCRIPTION: (Bldg no, equipment, sq ft, length, quantity, etc.)
 a. REAL PROPERTY FAC CAT CODE NUMBER 21630
 b. EQUIPMENT
TO RCRA CLOSE RVAAP's DEACTIVATION FURNACE IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS.
P.O.C. R.J. KASPER, COR AV346-3124
S. MCCAUSLIN, RAI AV346-3220

28. VERIFIED YES
OFFICE _____
SIGNATURE _____
29. VAUDATED YES
OFFICE _____
SIGNATURE _____

24. JUSTIFICATION (Includes impact on mobilization planning, effort, economics, etc.)
OHIO ADMINISTRATIVE CODE: REGULATIONS 3745-66-11 AND 3745-66-12.



RAVENNA ARSENAL INC.

**8451 STATE ROUTE 5
RAVENNA, OHIO 44266-9297**

Telephone (216) 358-7111

Autovon 346-3218

March 15, 1990

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

TO: Ohio EPA, Division of Solid and Hazardous Waste Management
ATTN: Thomas Crepeau - Program Planning and Mgmt. Section
P.O. Box 1049
Columbus, Ohio 43266-0149

Subject: RCRA Closure of Deactivation Furnace

Dear Sir:

Pursuant to our letter of November 8, 1989 notifying you of our intent to close the Ravenna Army Ammunition Plant's Deactivation Furnace, enclosed you will find the Deactivation Furnace Closure Plan submitted in triplicate for your approval.

We trust this plan will meet with your satisfaction and we await your approval.

The point of contact for this installation will be Thomas M. Chanda, Environmental Engineer, (216)297-3221.

Sincerely,
Ravenna Arsenal, Inc.

H.R. Cooper
Plant Engineer
HRC:SM:ade:90004

cc: AMCCOM
AMSMC-ISE

Jim!

Probably was sent to R. Shinboris

Ohio EPA, Northeast District Office
ATTN: Ms. Debby Berg
2110 E. Aurora Road
Twinsburg, Ohio 44087

*E. Cpt. Deggieri -
AMSMC-PEG Not
given copy.*

N. Wulff w/o att.
R. Holford w/o att.
G. Wolfgang w/o att.
S. McCauslin
File

3/20/90

United States Environmental Protection Agency
Washington, DC 20460

EPA Federal Agency Pollution Abatement Plan — Project Report

I. Facility Information

1 State Alpha O H	2 Agency/Bureau 2 1 3 8	3 GSA Installation 2 0 7 3 6	4 EPA Region 0 5	5 Country U S A	6 New Installation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
7 Name of the Installation R A V E N N A A R M Y A M M M U N I T I O N P L A N T					
8 Street Address 8 4 5 1 S T A T E R O U T E 5					
9 City Name R A V E N N A				10 ZIP Code, if known 4 4 2 6 6 - 9 2 9 7	11 Ownership Type F C

II. Basic Project Information

1 Agency Project Number R V 0 0 9 0 5 0 1 2	2 Various Locations <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	3 Media S W	4 Pollutant Category H A Z D	5 Funding Account 0 12	6 Year Funding Required 9 0
7 Project Name (Brief description) R I C R A C L O S U R E D E A C T I V A T I O N F U R N A C E					
8 Project Contact Name S U S A I N E M C C A U S L I N			9 Contact Telephone 2 1 6 - 2 9 7 1 - 3 2 2 0		10 Total Cost Estimate (in \$1,000's) 1 2 1 4 . 3

11 Project Assessment	12 Compliance Status
<input type="checkbox"/> High (H) Project critical to Agency program and/or cleanup of local environment <input checked="" type="checkbox"/> Med (M) Project important to Agency program and/or cleanup of local environment <input type="checkbox"/> Low (L) Project desirable to Agency program and/or cleanup of local environment	<input type="checkbox"/> ESOP Does not meet established standard and compliance deadline has passed <input checked="" type="checkbox"/> ESOP Does not meet established standard and compliance deadline is in the future <input type="checkbox"/> PSOP Does not meet pending standard and compliance deadline is in the future <input type="checkbox"/> ESRO Meets established standard but needs replacement due to obsolescence <input type="checkbox"/> ESRE Meets established standard but needs replacement due to need for expansion <input type="checkbox"/> ESOL Meets established standards but needs to demonstrate leadership <input type="checkbox"/> OTHER Other

13 Project Cost		14 Project Milestones/Progress (All dates are month/year)		
Fiscal Year	Budgeted (\$1,000)	Funded (\$1,000)	Design/Plan Completion	Construction/Work
			Start	Completion
9 0	2 1 4 . 3	0 . 0	0 3 9 0	0 8 9 0 0 2 9 1
			Final Compliance Required	Progress Code
			0 0 0 0	2 F Y 9 1
For DOE User Only				
			Program ID	Field Office

Project Narrative (including description of legal requirement and pollutants to be controlled)

AS OF NOVEMBER 8, 1989, RVAAPS' DEACTIVATION FURNACE CAN NO LONGER OPERATE AS A MISCELLANEOUS, THERMAL TREATMENT UNIT. THE FURNACE MUST BE UPGRADED TO MEET INCINERATOR STANDARDS, OR MUST BE CLOSED AS A RCRA UNIT. DUE TO FINANCIAL CONSIDERATIONS, RVAAP HAS SUBMITTED FOR OEPA REVIEW AND APPROVAL A FORMAL RCRA CLOSURE PLAN FOR THE DEACTIVATION FURNACE.

Exhibit 1 - Page 3
1383 REPORT EXHIBIT 1
AMCCOM SUPPLEMENTAL INFORMATION SHEET

Installation name: RAVENNA ARMY AMMUNITION PLANT
Project Name: RCRA PHYSICAL CLOSURE OF RVAAP DEAC FURNACE

1. FUNDED: Yes/No
2. PRON:
3. AMS CODE/PROGRAM ELEMENT (PE): PAA
4. EXECUTING AGENCY: RVAAP OPERATING CONTRACTOR
5. PRIORITY: HIGH
6. 319R #:
7. HAZMIN: Yes/No
8. SOURCE STATUS: Active/Inactive
9. TECH/ADMIN APPROVAL: Yes/No (REF 319R)
10. PERCENT CMPL: -0-
11. a. SUPPORTS PRODUCTION: Yes/No
b. IF YES, SPECIFY:
12. TYPE EFFORT: RCRA CLOSURE
13. CORRECT NOV: Yes/No
14. ON COMPLIANCE SCHEDULE/AGREEMENT: Yes/No
15. NEPA DOCUMENTATION:
 - a. PREPARED: Yes/No (ENVIRONMENTAL ASSESSMENT IN PREPARATION)
 - b. APPROVED: Yes/No (WILL FOLLOW WHEN COMPLETE)
16. IMPACT IF NOT FUNDED:

RAVENNA ARMY AMMUNITION PLANT WILL NOT BE IN COMPLIANCE WITH OAC-3745-66-11
OAC 3745-66-12.

March 20, 1990

RAVENNA ARMY AMMUNITION PLANT
RAVENNA ARSENAL, INC.
DEACTIVATION FURNACE CLOSURE

COST ESTIMATE

SUBCONTRACT COST TO COMPLETE CLOSURE PER APPROVED CLOSURE PLAN (SEE ATTACHED SUBCONTRACT COST SUMMARY)	\$196,500
SUBCONTRACTOR'S BOND (1.5%)	2,948
RAI ENGINEERING COORDINATION 80 HOURS AT \$57.50/HOUR	<u>4,600</u>
SUBTOTAL	\$204,048
ALLOCATED FEE (5%)	\$ 10,202
TOTAL	<u>214,250</u>
ROUNDED	<u>\$214,300</u>

SUBCONTRACT

COST ESTIMATE SUMMARY
DEACTIVATION FURNACE CLOSURE
RAVENNA ARMY AMMUNITION PLANT

	<u>DESCRIPTION</u>	<u>COST (\$)</u>
I.	REMOVAL OF ASH RESIDUES	
	Removal of Ash Residues	960
	Sampling and Analysis	710
	Subtotal	<u>1,670</u>
II.	DECONTAMINATION OR DISMANTLING OF EQUIPMENT	
	Pressure Water Rinsing	4,400
	Sandblasting and Pressure Water Rinsing	2,680
	Sample Analysis	3,000
	Subtotal	<u>10,080</u>
III.	REMOVAL OF TIMBER WALLS	
	Sampling and Analysis	4,490
	Removal of Timber Walls and Earth Fills	1,190
	Installation of New Timber Walls and Earth Fills	4,700
	Subtotal	<u>10,380</u>
IV.	SOIL DECONTAMINATION	
	Soil Excavation	3,332
	Backfilling, Grading, and Seeding	4,893
	Sampling and Analysis	7,882
	Subtotal	<u>16,107</u>
V.	CONSTRUCTION OF CONCRETE SLABS AND REINSTALLATION OF DEACTIVATION FURNACE	
	Subtotal	7,460
VI.	DISPOSAL OF WASTES	
	Disposal of Ash Residues, Timber Walls, and Contaminated Soil	109,378
	Disposal of Rinseate	1,000
	Subtotal	<u>110,378</u>
VII.	BACKGROUND AND CONFIRMATORY SOIL SAMPLING AND ANALYSIS	

Subtotal	9,084
VIII. CLOSURE CERTIFICATION	
Review of Closure Plan	540
Inspection During Closure	2,640
Review of Manifest and Analysis, Final Inspection, and Certification	<u>540</u>
Subtotal	<u>3,720</u>
IX. MOBILIZATION/DEMOBILIZATION	
Subtotal	2,000
Total	170,879
Add 15% for contingency	<u>25,632</u>
TOTAL	196,511
SAY	<u>196,500</u>



RAVENNA ARSENAL, INC.
8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297
TELEPHONE: (216) 358-7111 • FAX: (216) 297-3216

March 27, 1990

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

TO: Commander
U.S. Army Armament, Munitions and Chemical Command
ATTN: AMSMC-PCG-B (Shirlene Wise)
Rock Island, IL 61299-6000

Subject: RCRA Physical Closure of Deactivation Furnace
(Ref: 1. FY89 Environmental Restoration Project 5892910-002, RCRA Deactivation Furnace Closure Plan (CLIN 0046AC)
2. RAI letter dated February 14, 1990, Subject: Closure Plan for Deactivation Furnace.
3. AMSMC-ISE (200-1a) February 21, 1990, Subject: SAB)

Dear Ms. Wise:

The Closure Plan for the Deactivation Furnace has been prepared under Reference 1 project and submitted to AMSMC-ISE (Ref. 2). Upon their recommendation (Ref. 3) the plan was submitted to the Ohio EPA on March 15, 1990. The next step after Ohio EPA approval of the plan is to perform the physical closure. An estimated \$214,300 is required to perform closure in accordance with the plan. Request funds in the amount of \$214,300 be made available.

Project documentation for the physical RCRA closure of the RVAAP Deactivation Furnace is included for further action. The Closure Plan was previously submitted to AMSMC-ISE (Ref. 2) and is not resubmitted. Closure of the Deactivation Furnace as a RCRA thermal treatment unit is mandated by EPA. Failure to proceed with the closure in a timely fashion will place RVAAP in violation of State and Federal hazardous waste regulations. After Ohio EPA approval of the Closure Plan, the installation will have 180 days to complete physical closure. We estimate that Ohio EPA approval will not be received until August 1, 1990; however, it could be received earlier. The schedule in the Closure Plan estimates 180 days to complete the closure. Therefore, the project funds must be available when the plan is approved in order to complete closure in the required 180 days.

RCRA PHYSICAL CLOSURE DEACTIVATION FURNACE
Page 2

Form 319-R is being sent to AMCCOM, ATTN: AMSMC-BPA-P. A DD Form 1411 and an Environmental Assessment are being prepared and will be submitted upon completion.

Point of contact for this installation is Ms. Susan McCauslin at Autovon 346-3220.

Sincerely,

RAVENNA ARSENAL, INC.

H.R. Cooper
H.R. Cooper
Plant Engineer

D.E. Kanavy

D. Kanavy, Accounting Manager

HRC:SM:90007

cc: AMSMC-ISE (ATTN: Ronnie DePorter)

N. Wulff
B. Jenkins
D. Kanavy
S. McCauslin
File

Attachment: EPA Form 3500-7 w/1383 Report
Exhibit I Supplemental Information
Cost Estimate

RAVENNA ARMY AMMUNITION PLANT
RAVENNA ARSENAL, INC.

1383 REPORT EXHIBIT I
SUPPLEMENTAL INFORMATION

1. PROJECT NARRATIVE/DESCRIPTION

This project is to implement the approved RCRA Closure Plan for RVAAP's Deactivation Furnace currently under interim status. As of Nov. 8, 1989, regulatory mandate precludes any further RCRA thermal treatment activities of the Deactivation Furnace; unless the unit were to undergo a physical upgrade what would equate to RCRA Hazardous Waste Incinerator standards. Due to the economic impact pertinent to the incinerator upgrade of the unit, the only recourse is to perform a RCRA closure.

Funding Type: PAA Installation: Semi-active

Required for Mobilizations: No

2. SPECIFIC TYPE OF POLLUTION/CONTAMINATION

The Facility has been intermittently active since mid-1960's. Current extent of contamination unknown. The proposed action will be to address these aspects in the implementation of the closure plan. Impacted surface area is estimated at a 100 Ft. radius around the deactivation furnace facility.

4. POLLUTION SOURCE AND DISCHARGE EMISSION OR DEPOSIT POINT (FACILITY DESCRIPTION)

The deactivation facility has been used to demilitarize fuse and booster assemblies, primers, detonators, and small arms ammunition. The furnace, unprotected from climatic elements, is a fuel oil fired rotary retort that measures 20 ft. in length with a 4 foot diameter; and which maintains a 1,000 degree F- 1,200 degree F operating temperature. The military, components are fed onto an inclined conveyor which drops the components into the starting end of the retort. The components travel into the high temperature flame, detonate, and pass on through the retort onto another conveyor that transfers the metal parts/shrapnel into a collection bin. The smoke, gases and particulate generated from the combination of the fuel oil fired flame and detonation of military components goes uncontrolled out through a 20 ft. high exhaust stack located at the retort's receiving end. The emission sources result from the particulate exiting the exhaust stack and ash residue and metal parts exiting the retort's completed process end.

5. EXISTING TREATMENT AND OTHER CONTROL MEASURES, (EXISTING CONDITIONS)

Existing treatment is to demilitarize/detonate the military component containing explosive. Designed controls only affect collecting the majority of metal parts/shrapnel and some ash residues.

6. EFFECTIVENESS OF EXISTING TREATMENT AND CONTROL

The process of component detonation and end process collection of metal parts is significantly successful. The containment and collection of ash residues is marginally effective.

7. REMEDIAL MEASURES PROPOSED AND ESTIMATED EFFECT IN CORRECTING PROBLEMS

Implement the prescribed physical work as set forth in the approved RCRA closure plan.

8. APPLICABLE STANDARD

- 40 CFR Part 264 Subpart G & X
- 40 CFR Part 265 Subpart G & P
- Ohio Administrative Code (OAC) 3745-66-11
- OAC 3745-66-12

9. OTHER RELEVANT INFORMATION

The Deactivation Furnace will continue to operate following approved closure. Since Class A and B explosives and related munition items are the only type categories meeting RCRA hazardous waste definition; Class C type materials, defined as non-hazardous, can continue to be processed through the deactivation furnace. Class C type items would primarily equate to small arms ammunition and minute quantity explosive containing components.

BAT

BAT Associates, Inc.

ENGINEERS • SCIENTISTS • PLANNERS

27801 Euclid Avenue, Suite 450
Euclid, Ohio 44132
(216) 261-3724 • FAX (216) 261-2705

April 9, 1990

Ms. Susan E. McCauslin
Ravenna Arsenal, Inc.
8451 State Route 5
Ravenna, Ohio 44266-9297

RE: Environmental Assessment for Closure of Deactivation Furnace
Ravenna Army Ammunition Plant

Dear Ms. McCauslin:

We have finally received the concurrence letters from the U.S. Fish and Wildlife Service and Ohio Historical Preservation Office for the above referenced project. Enclosed is a copy of the revised Environmental Assessment which incorporated your recent review comments and the above two concurrence letters.

If you have any questions, please feel free to contact me at (216) 261-3724.

Very Truly Yours,

BAT ASSOCIATES, INC.



Jack R. Kuo, P.E.
Principal

JRK/1kr

Enclosure

*CS: J. McCaslin
file*

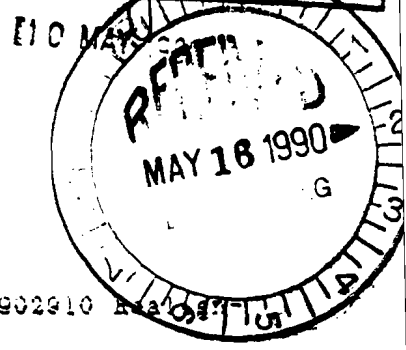
General Manager
 Ravenna Arsenal, Inc
 FWD FOR
 Information
 Compliance as applicable
 Reply NLT

TO: 51-19107
<input checked="" type="checkbox"/> CP-COR
<input checked="" type="checkbox"/> CONT ADM
<input checked="" type="checkbox"/> PROP ADM
<input checked="" type="checkbox"/> OASAS
<input checked="" type="checkbox"/> SECURITY
<input checked="" type="checkbox"/> PAI
<input checked="" type="checkbox"/> RETURN FOR FILE

AMSMD-ISE (200-1a)

MEMORANDUM FOR AMSMD-EPA (R)

SUBJECT: Project 5902910 - Request for Additional Funding



1. References:

- a. Memorandum, AMSMD-ISE, 3 May 1990, subject: Project 5902910 Request for Additional Funding Request.
- b. FL 65, AMSMD-PCG-S (R), 6 April 1990, subject: Request for Funding Action Ravenna AAF (encl).

2. Funding is required immediately for the following projects:

a. Ravenna Army Ammunition Plant (AAF): Physical Closure Deactivation Furnace - \$214,300.00. The closure plan for the deactivation furnace was submitted to the Ohio Environmental Protection Agency (EPA) for approval on 15 May 1990. After Ohio EPA approval of the closure plan, Ravenna AAF will have 180 days to complete physical closure. It is anticipated that Ohio EPA approval will not be received until August 1, 1990; however, it could be received earlier. The schedule in the closure plan estimates 180 days to complete the closure. Therefore, funds must be available when the plan is approved in order to complete closure in the required 180 days. Closure of the deactivation furnace as a Resource Conservation and Recovery Act thermal treatment unit is mandated by EPA. Failure to proceed with the closure in a timely fashion will place Ravenna AAF in violation of state and Federal hazardous waste regulations.

b. Hawthorne AAF: Close hazardous waste incinerators at western Area Demilitarization Facility-Bldgs 117-3 and 117-4 (HA0090301) - \$20,415.00. The east incinerator at building 117-4 and the two rotary furnaces at building 117-3 lost interim status on 9 November 1989. The State of Nevada has issued a closure order for these incinerators in accordance with the requirements in 40 CFR Part 269.1124 (3) (1). Failure to comply will result in the issuance of a Notice of Violation and possible heavy fines for the Army.

- 3. Presently, there are no funds available in the Project 5902910 'pool' to fund these efforts (see reference 1.a.).
- 4. Request your assistance in obtaining the additional funds required to fund the above mentioned projects.
- 5. The point of contact for this action is Mrs. Bonnie DePorter, AMSMD-ISE-M, extension 21890.

5/19/90

Encl

OFFICE	ACTION
<input checked="" type="checkbox"/> GM	
<input checked="" type="checkbox"/> CO-COR	
<input checked="" type="checkbox"/> ACC/IG	
<input checked="" type="checkbox"/> SEC	
<input checked="" type="checkbox"/> ENGR	
<input checked="" type="checkbox"/> IR	
<input type="checkbox"/> S&T&O	
<input type="checkbox"/> P&CA	
<input type="checkbox"/> SAF	
<input type="checkbox"/> DPM	
<input type="checkbox"/> RETURN	

info only
 ORIGINAL SIGNED
 RONALD T. SHINEGRI
 Chief, Environmental Quality Division

11 0 MAY 1990

AMSMC-ISE

SUBJECT: Project 3902910 - Request for Additional Funding

OF (w/encl):

AMSMC-EPA-P (R)

AMSMC-ISE-E

✓ AMSMC-PCG-A (R)

AMSMC-PCG-B (R)

A PUBLIC NOTICE OF A FINDING OF NO SIGNIFICANT IMPACT

THE PROPOSED ACTION: Closure of the Deactivation Furnace at the Ravenna Army Ammunition Plant, Ravenna, Ohio.

DESCRIPTION OF THE PROPOSED ACTIVITY: The Ravenna Army Ammunition Plant intends to close its Deactivation Furnace in accordance with State & Federal RCRA (hazardous waste) regulations. The Deactivation Furnace is a RCRA treatment facility which was used for burning and deactivation of Class A & Class B explosives. (hazardous wastes). After closure as a RCRA facility the furnace will be operated as a non-hazardous waste treatment unit for Class C explosive wastes (non-hazardous wastes). No alternatives are intended to be acted upon due to technical or economic reasons, or failure to meet the Ohio & Federal hazardous waste regulations.

ANTICIPATED ENVIRONMENTAL EFFECTS: The proposed activity will involve extensive sampling and analysis, the removal of ash residues and contaminated timber walls and soils and the decontamination of the Deactivation Furnace and associated equipment. These activities may generate contaminated non-hazardous and hazardous wastes. All wastes generated will be properly managed and disposed of in accordance with their waste classification (hazardous or non-hazardous).

CONCLUSIONS LEADING TO A FNSI: An Environmental Assessment has been performed upon the proposed activity as prescribed by Federal And Army Regulations. The assessment has concluded, upon the review of all intended actions encompassed within the proposed activity and its compliance with regulatory guidelines set forth under the Resource Conservation & Recovery Act, Historic Preservation Act & Endangered Species Act, that there will be no significant impact on human health or the environment. Therefore, an Environmental Impact Statement (EIS) is not required.

ADMINISTRATION OF ENVIRONMENTAL DOCUMENTATION: The proposed activity has no concerns of national interest and therefore the FNSI documentation will only be given public notice on a local level. The full text of the Environmental Assessment and the Finding of No Significant Impact shall be available for review and comment at the Ravenna Army Ammunition Plant's Building 1030 reception room between the hours of 7 AM. and 3 PM. Monday through Friday (working days). The review and comment period shall last 30 days commencing with the first day of the public notice. All comments shall be forwarded to:

Commander
Ravenna Army Ammunition Plant
Attn: Installation Environmental Coordinator
8451 SR. 5
Ravenna, Ohio 44266

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Commander
Ravenna Army Ammunition Plant
Attn: Installation Environmental Coordinator
8451 SR. 5
Ravenna, Ohio 44266

L.A.A.

RAVENNA ARSENAL, INC

P.O. NO. **2527**
This Number and Shipper's Name Must Appear on All Shipments & Papers Relating To This Order.

DO NOT OVERSHIP - OVERSHIPMENTS WILL BE RETURNED

CONTRACT NO. **88-2-0001**

RELEASE NO. _____

DATE 5-24-68	TERMS F/30	F.O.B. OT
SHIP VIA RAIL	PER YOUR QUOTATION	ACCT. NO. 25-000; 2500-7700

TO
ARMY-CORPORAL
125 E. CHERRY ST.
INDIANA, IN 46306

SHIP TO
ARMY 1400
7/ARMY - 1400
M/F P.O. 2527

ITEM	QUANTITY	UNIT	DESCRIPTION	PRICE	
				UNIT	TOTAL
1.	1	EA	<p>FOR THE PURPOSES OF THIS ORDER, THE BUYER AGREES TO THE TERMS AND CONDITIONS OF THE ABOVE ORDER OF THE ARMY AND TO ACCEPT THE DELIVERY OF THE MATERIALS UNDER THE TERMS OF THIS ORDER.</p> <p>CONTRACT/ORDR/1400/5-24-68 PLANT/IND/1400 INDIAN/IN/1400 IND/IND/1400</p> <p>DELIVERY REQUIRED 5/29-30-31/68</p>		261.36/EA
					261.36

ALL MATERIAL FURNISHED ON THIS ORDER MUST BE IN COMPLIANCE WITH THE BUY AMERICAN ACT.
 PRIORITY RATING | **DO-C3** | CERTIFIED FOR NATIONAL DEFENSE USE UNDER DMS

RAVENNA ARSENAL, INC.
 BY _____
 CONTRACT/PROCUREMENT & PURCHASING

REGULATION I: _____
 AUTHORIZED SIGNATURE AND TITLE

DEPT. COPY

A PUBLIC NOTICE OF A FINDING OF NO SIGNIFICANT IMPACT

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Commander
Ravenna Army Ammunition Plant
Attention: Installation Environmental Coordinator
8451 State Route 5
Ravenna, Ohio 44266

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Commander
Ravenna Army Ammunition Plant
Attention: Installation Environmental Coordinator
8451 State Route 5
Ravenna, Ohio 44266

RAVENNA ARSENAL, INC.

INTEROFFICE MEMO

TO: JOHN WATSON

FROM: S. MCCAUSLIN

DATE: June 5, 1990

SUBJECT: PUBLIC NOTICE & REVIEW OF ENVIRONMENTAL ASSESSMENT
(EA) FOR RVAAP'S DEACTIVATION FURNACE CLOSURE PLAN

The attached subject document must be made available at RVAAP Headquarters Reception Lobby for a 30-day public review process. The document's availability shall be only made during normal working hours from 0700 to 1500 hrs., Monday through Friday, excluding holidays, until June 29, 1990.

The document will be relinquished to the applicable reviewer upon request and subsequently returned by the reviewer to the custody of the telecommunications/reception office. The document shall not leave the reception room area during the public review period.

A copy of this document is being provided to Virginia Pyles.

This office shall be available, if need arises, during the administration of this review process.



S. McCauslin

cc: V. Pyles w/attachment
COR w/o attachment
N. Wulff w/o attachment
H. Cooper w/o attachment

sm65.mem

ENVIRONMENTAL ASSESSMENT FOR
CLOSURE OF DEACTIVATION FURNACE
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

Prepared by:

BAT ASSOCIATES, INC.
27801 EUCLID AVENUE, SUITE 450
EUCLID, OHIO 44132

Prepared for:

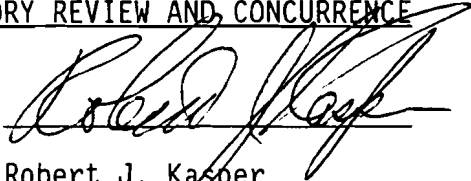
Ravenna Arsenal, Inc.
8451 State Route 5
Ravenna, Ohio 44266

APRIL 1990

ENVIRONMENTAL ASSESSMENT FOR
CLOSURE OF DEACTIVATION FURNACE
RAVENNA ARMY AMMUNITION PLANT
PORTAGE COUNTY, OHIO 44266-9297

SIGNATORY REVIEW AND CONCURRENCE

Signed

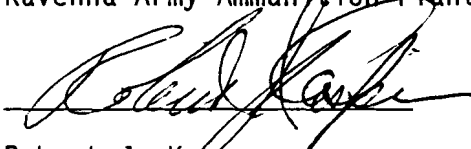


Date

19 April 90

Robert J. Kasper
Commanding Officer's Representative
Ravenna Army Ammunition Plant

Signed

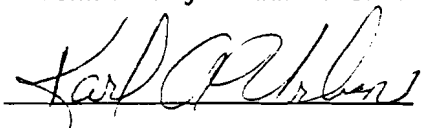


Date

19 April 90

Robert J. Kasper
Installation Environmental Coordinator
Ravenna Army Ammunition Plant

Signed



Date

18 April 1990

Karl A. Urban
Operations Security Officer
Ravenna Army Ammunition Plant

Signed



Date

17 April 1990

T.M. Chanda
Environmental Engineer
Ravenna Arsenal, Inc.

Signed

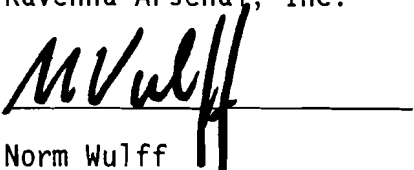


Date

4/17/90

H.R. Cooper
Plant Engineer
Ravenna Arsenal, Inc.

Signed



Date

4/18/90

Norm Wulff
Vice President & General Manager
Ravenna Arsenal, Inc.

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6.0	Relationship Between Local Short Term Use of Man's Environment and Maintenance and Enhancement of Long Term Productivity	10
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Attachment A - Concurrence Letter From The U.S. Fish and Wildlife Service

Attachment B - Concurrence Letter From The Ohio Historic Preservation Office

**ENVIRONMENTAL ASSESSMENT FOR
CLOSURE OF DEACTIVATION FURNACE
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO**

1.0 PURPOSE AND NEED FOR ACTION

1. INTRODUCTION

The Ravenna Army Ammunition Plant (RVAAP) is an ammunition production and storage facility owned by the U.S. Department of Army and operated by Ravenna Arsenal, Inc. (RAI) under prime contract DAAA09-88-Z-0001. The plant is located at 8451 State Route 5, Ravenna, Portage County, Ohio. Figure 1 is a vicinity map which shows the general location of the plant. The RVAAP has been in operation since early 1940's.

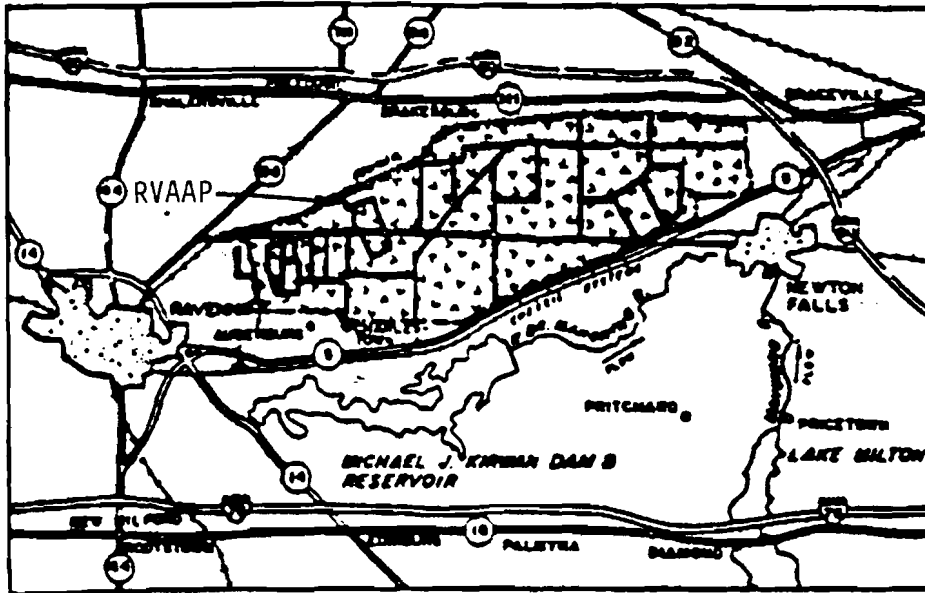
The RVAAP operates a deactivation furnace located in the Burning Ground approximately at the center of the facility (see Figures 2 and 3). The furnace is used intermittently for treatment of small munitions and other reactive items from RVAAP that have exceeded shelf life or are otherwise defective. The furnace was operated as a hazardous waste treatment facility with a RCRA identification number of OH 5210020736 (Line No. 1 on the RCRA Part A Permit Application).

The Deactivation Furnace is a #2 fuel oil fired rotary steel furnace drum (1-1/4" thick) which receives explosive filled components from a feed conveyor on one end in an enclosed control room. The drum contains flutes which move the components at a slow speed toward the burner end. The components reach an elevated temperature and the explosive burns or detonates. The ash residues including metal parts are discharged into a collection conveyor to a container for disposal. The furnace is located out of doors and is surrounded by earth-filled timber walls to protect operating personnel (See Figure 4).

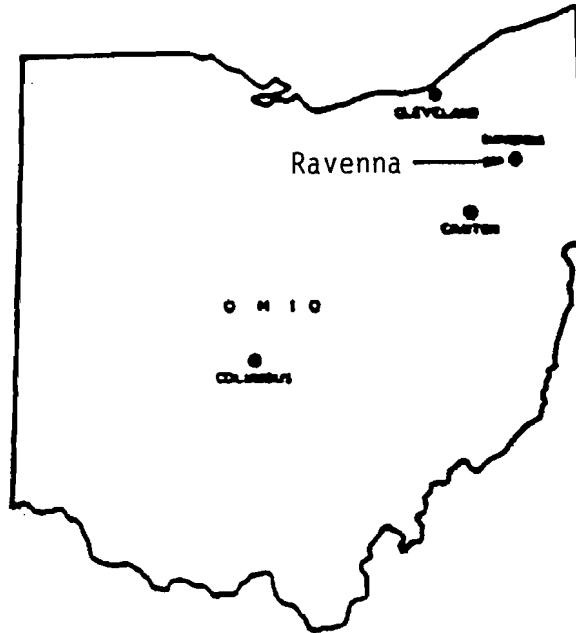
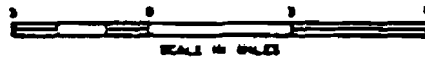
Explosive wastes (D003) which were or could have been treated in the furnace included: fuze and booster assemblies, ammunition primers, small arms ammunition, and small packets (no greater than 400 grains) of explosives and/or propellants that resulted in ash residues containing EP toxic metals, aluminum, tin, iron, magnesium, calcium silicates, chlorides, potassium, copper, strontium, antimony, and various thermally degraded organic compounds containing oxygen, nitrogen, sulphur, carbon, and hydrogen.

The RVAAP Deactivation Furnace is a RCRA treatment facility. The furnace must be closed in accordance with RCRA regulations because it cannot be upgraded to meet incinerator standards as required for Class A and B explosives (hazardous wastes). After closure as a RCRA facility, the furnace will be operated as a non-hazardous waste treatment facility for Class C explosive components (non-hazardous waste).

FIGURE 1
GENERAL LOCATION AND ORIENTATION OF RVAAP



LOCATION MAP



Burning Ground. See Figure 3 for Details

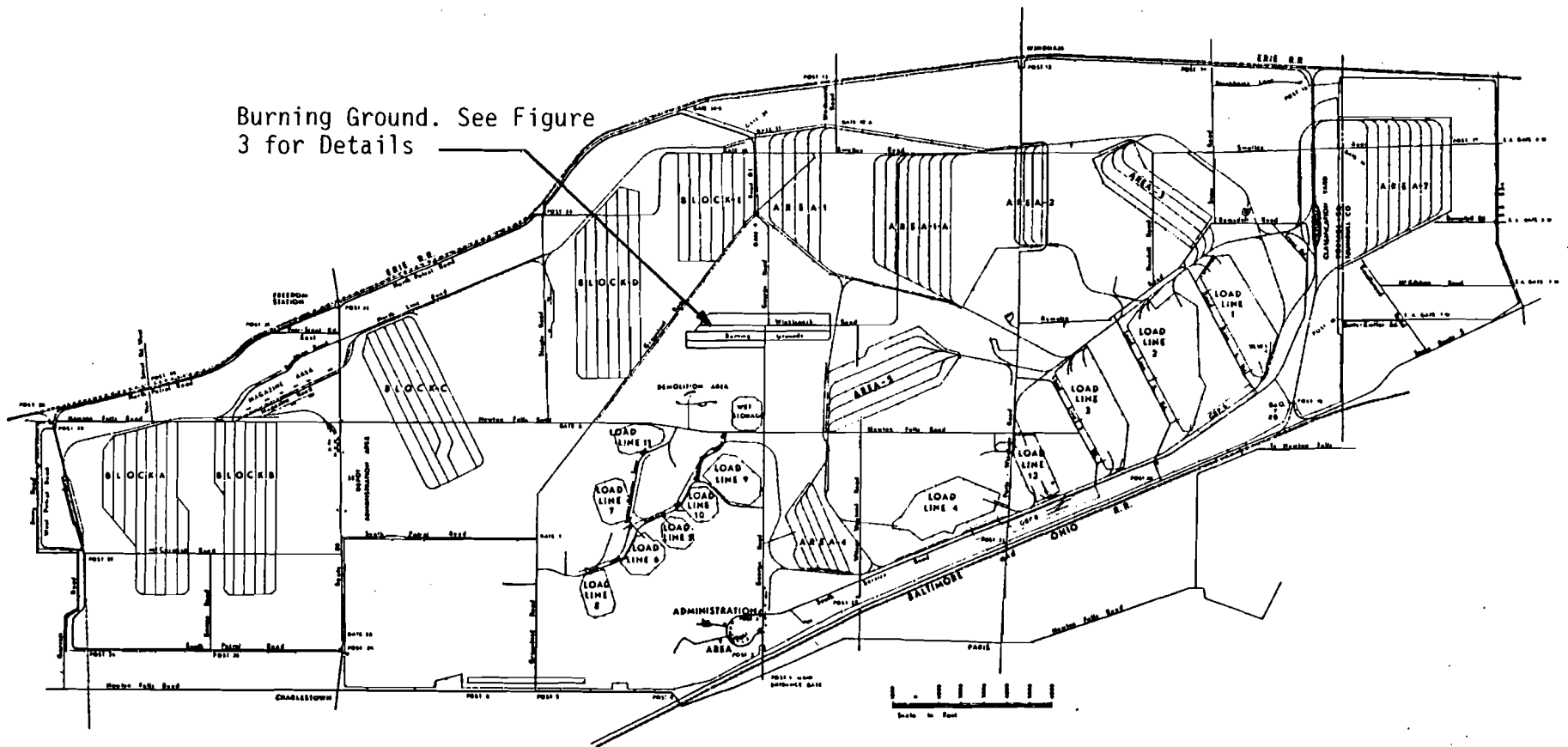


FIGURE 2 - GENERAL MAP OF RVAAP

RAVENNA ARMY AMMUNITION PLANT			
RAVENNA, OHIO			
OPERATED BY RAVENNA ARSENAL, INC.			
APPROVED	SIGNATURE	DATE	TITLE
SAFETY			GENERAL AREA MAP
TECHNICAL			
PRODUCTION			
ENGINEERING			
GENERAL MANAGER			
CHIEF ENGINEERING OFFICE			
REP. DWG. NO.			
DRWN. AUTHORITY	ENGR.	ENGR.	
DATE	6-8-50		
SCALE	As Shown		A-109

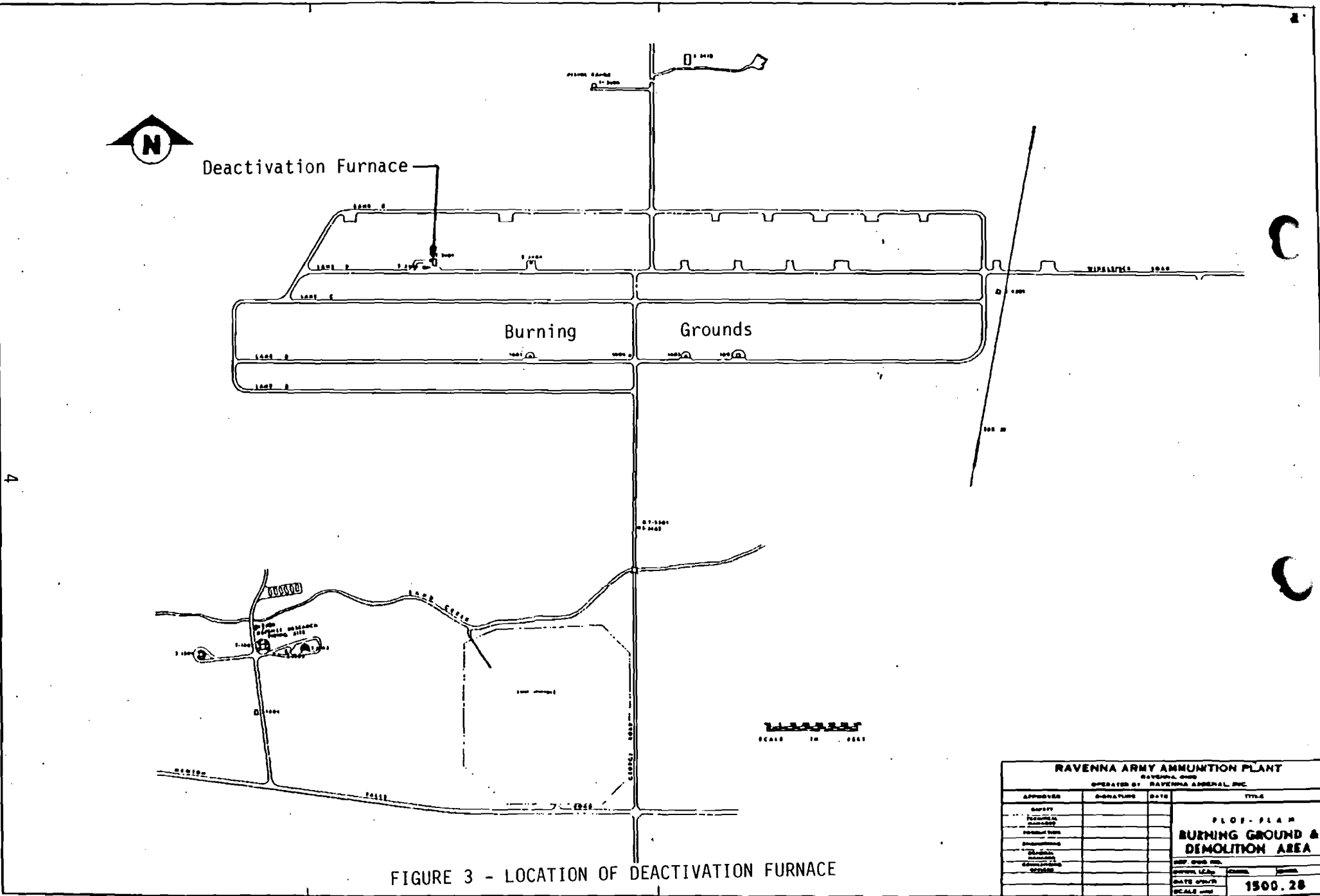


FIGURE 3 - LOCATION OF DEACTIVATION FURNACE

RAVENNA ARMY AMMUNITION PLANT			
OPERATED BY RAVENNA GENERAL, INC.			
APPROVER	SIGNATURE	DATE	TITLE
SAFETY			PLAT PLAN BURNING GROUND & DEMOLITION AREA <small>REF. DESIG. NO.</small> <small>DATE OF PLAN</small>
PLANNING			
OPERATIONS			
ENGINEERING			
CONSTRUCTION			
INSPECTION			
GENERAL			
DATE OF PLAN			1500.28
SCALE			

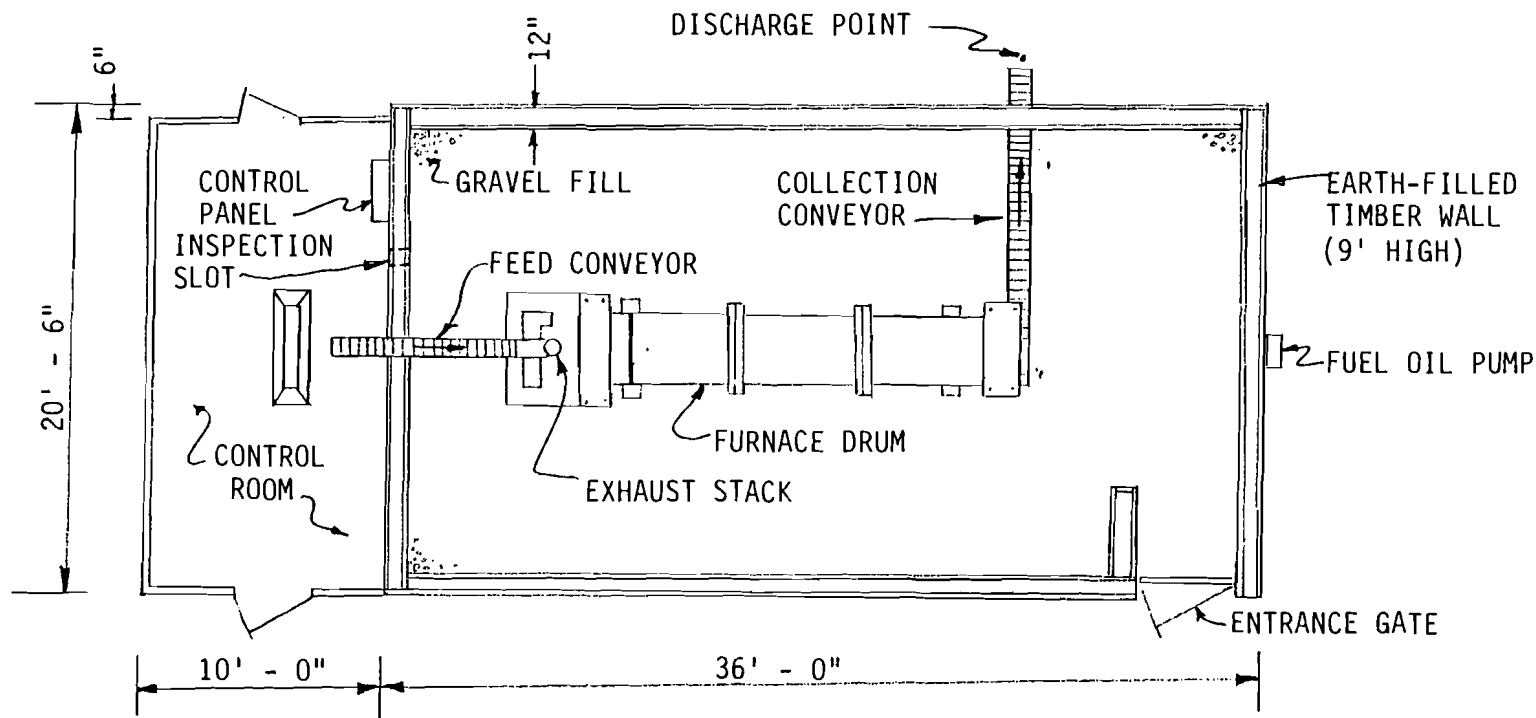


FIGURE 4 - PLAN OF DEACTIVATION FURNACE FACILITY
 SCALE : 1/8" = 1' - 0"

2.0 DESCRIPTION OF PROPOSED ACTION

1. DESCRIPTION OF EXISTING DEACTIVATION FURNACE UNIT

The existing Deactivation Furnace unit consists of the following pieces of equipment:

- A feed conveyor.
- A furnace drum (burn chamber).
- A collection conveyor.
- An exhaust stack.
- Master control panel.
- A fuel oil pump with associated piping.

The entire Deactivation Furnace unit except the master control panel, fuel oil pump, and part of the feed conveyor is surrounded with a 9-foot timber wall filled with earth (see Figure 4). The master control panel is located in a 10' x 20' prefabricated corrugated steel building adjacent to the Deactivation Furnace barricade with an isolation timber wall in between. The master control panel controls the operation of the Deactivation Furnace unit including the fuel oil pump which is located immediately outside the northern timber wall of the barricade.

The Deactivation Furnace unit is supported by horizontal steel beams laid on the ground and by steel pipes erected from the ground. There are no concrete pads underneath or around the furnace unit.

2. DESCRIPTION OF PROPOSED ACTION

The purpose of the proposed action is to decontaminate, dismantle, or remove any contaminated furnace equipment, structures, and soils at and/or around the Deactivation Furnace. The proposed action will consist of the following activities.

- Remove ash residues present in the Deactivation Furnace and associated appurtenances including the exhaust stack, furnace drum, and collection conveyor. The removed ash residues will be sampled and analyzed to determine whether they are hazardous or non-hazardous waste and managed accordingly.
- Collect and analyze samples from interior surfaces of all timber walls and their earth fills to determine whether they are contaminated with hazardous constituents or explosive materials (TNT, 2,4-DNT, 2,6-DNT, and RDX), and if contaminated, whether they are hazardous or non-hazardous waste. If a timber wall and/or its earth fill are determined to be contaminated, they will be removed and disposed according to their waste classification (hazardous or non-hazardous) waste. Otherwise, they will be left in place

for continued use. Any removed timber wall or earth fill will be replaced with a new, clean wall or fill.

- Decontaminate the Deactivation Furnace and associated appurtenances including the exhaust stack, furnace drum, collection conveyor, and all associated piping by flushing the interior of each of the above equipment (piping to be flushed on exterior surfaces) with a pressure clean water rinse which is collected in 55-gallon drums. The final rinseate will be sampled and analyzed to determine whether the equipment is clean. If after three attempts of pressure water rinsing, the equipment is still not clean, the equipment will then be decontaminated by sand blasting followed by pressure water rinsing until it is established clean. All rinseate and sand blasting residues will be sampled and analyzed to determine whether they are hazardous or non-hazardous waste and managed accordingly.
- Collect and analyze soil samples from 17' x 9.25' grids at and/or around the Deactivation Furnace to determine the extent (vertical and horizontal) of contamination. The contaminated soils will then be excavated, removed, and disposed according to their waste classification (hazardous or non-hazardous).

All sampling and analysis will be conducted in accordance with USEPA's SW-846 methods.

3.0 DESCRIPTION OF ALTERNATIVES TO PROPOSED ACTION

In the process of determining the preferred alternative, other potentially feasible alternatives were examined. Alternative actions evaluated include:

1. DISMANTLE/REMOVE THE ENTIRE DEACTIVATION FURNACE UNIT AND CONTAMINATED SOILS AND PROPERLY DISPOSE OF THEM.

Under this alternative, the entire Deactivation Furnace unit including the feed conveyor, furnace drum, collection conveyor, exhaust stack, control room, control panel, fuel oil pump with associated piping, timber walls along with earth fills, and contaminated soil at and/or around the Deactivation Furnace unit will be dismantled/removed without prior decontamination. Samples will be taken from these removed equipment, structures, and soils, and analyzed to determine whether they are clean, contaminated but non-hazardous, or hazardous; and managed properly according to their waste classification. This alternative will meet the federal and state regulations pertaining to RCRA facility closure. However, the RVAAP will have to construct a new non-hazardous waste treatment facility for burning and detonation of Class C explosive wastes which are classified as non-hazardous. Economically, this alternative is not acceptable to RVAAP.

2. UPGRADE THE DEACTIVATION FURNACE UNIT TO MEET RCRA INCINERATOR STANDARDS.

This alternative will require preparation and submittal of a RCRA Part B permit application for the Deactivation Furnace unit and upgrading of the unit to comply with all requirements as stipulated in the Part B permit application, including all decontamination procedures to be performed under the proposed action.

Although implementation of this alternative will allow the Deactivation Furnace to be continuously used as a RCRA treatment facility for burning and detonation of Class A and B explosive wastes (hazardous), this alternative is eliminated for the following reasons:

- The deadline for filing a Part B permit application for incinerators (November 8, 1989) has passed.
- The cost for upgrading the system is too high.

3. NO ACTION

The "no action" alternative would maintain the Deactivation Furnace unit as it is. This will be in violation of the federal and state regulations as the Deactivation Furnace is a RCRA treatment facility and must be closed in accordance with the applicable RCRA regulations if the facility is to be ceased as a RCRA treatment facility. Therefore, the "no action" alternative is not acceptable.

4.0 PROBABLE IMPACTS OF PROPOSED ACTION ON ENVIRONMENT

1. AIR QUALITY

There may be some dust generated during excavation and transferring of contaminated soils at the job site. However, the dust generation is expected to be in a small quantity, localized, and of short duration; and therefore will have no significant impact on air quality. The only persons to be affected by dust are the workers who will wear proper protection against any potential dust hazards.

2. TRAFFIC

The access roads to the job site will have a slight increase in vehicle traffic during closure activities. This will be of short duration on an infrequent basis. The vehicle traffic may consist of flatbed trucks, pick-up trucks, and automobiles. The impact to the RVAAP operation as a result of this slight increase in vehicle traffic is expected to be very minimal and insignificant because the normal traffic on the access roads is very light. The impact can be minimized or eliminated by proper coordination between the RVAAP and the closure subcontractor.

3. NOISE

There may be some low-level noise generated as a result of equipment operations during closure activities. This noise will be of short duration on an infrequent basis. Furthermore, the noise will be limited to the job site area which is far away from the surrounding populations. Therefore, the proposed action has no significant impact on the noise environment.

4. GEOLOGY AND SOILS

Impacts on the local geology will be inconsequential. The contaminated soils at and/or around the Deactivation Furnace unit will be excavated and backfilled with clean ones. The topography will basically remain the same after backfill and grading. The backfilled areas will be seeded to prevent erosion of soil. Therefore, there will be no adverse impact on geology, topography, and soil conditions.

5. NATURAL RESOURCES

The proposed action will not involve cutting trees, destroying or affecting any established wetlands or critical wildlife habitat. The relative short duration and small confined area of closure activities will allow the natural environment to continue virtually uninterrupted.

6. LAND USE

The proposed action will not change land use at or around the job site. The land use at or around the job site will remain the same.

7. FISH AND WILDLIFE

The proposed action will not involve any tree cutting or modification of lakes or streams. The continued natural setting, short duration, and small confined area of closure activities will not adversely affect any endangered species (flora and fauna) and the wildlife habitat. This conclusion of assessment was concurred by the U.S. Fish and Wildlife Service. A formal letter of concurrence is included in Attachment A.

8. SURFACE WATER

No bodies of water will be adversely affected by the proposed action. Some surface runoff may be effected by the excavation and grading operations. However, since the job site area is relatively flat and small, fierce runoff will not occur. During closure activities, measures will be taken if necessary to control and sustain runoff. Excavated areas will be seeded immediately after backfilling and grading to avoid erosion and increased storm water runoff. With the provisions for control of surface water runoff, water quality will not be adversely affected.

9. HAZARDOUS RISK/WASTE DISPOSAL

The proposed action will consist of sampling and analysis; and decontamination, dismantling, removal, and/or disposal of contaminated equipment, structures, and soils. These activities will generate approximately 1 cubic foot of ash residues, 1 to 2 tons of timber wastes, 46 cubic yards of contaminated soils, and 500 to 1,000 gallons of rinseate. These wastes will be properly managed and disposed of at a permitted hazardous waste treatment and disposal facility, a wastewater treatment plant, or a licensed sanitary landfill according to their

waste classification (hazardous or non-hazardous). All workers performing the proposed closure activities will wear gloves, protective clothes, and, if necessary, respirators to prevent any potential hazards from exposure to or contacting with the wastes. There will be no adverse impact on public and workers' safety and health.

10. ARCHEOLOGICAL/HISTORICAL

There are no known potential historical or archeological sites located within the vicinity of the proposed action. A formal letter of concurrence on this assessment from the Ohio Historic Preservation Office is included in Attachment B.

5.0 PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The adverse environmental effects associated with the proposed action will consist of dust generation, slight increase in vehicle traffic, and noise generation. These effects will be of short duration, intermittent, localized, and having little or insignificant adverse impacts on the environment.

6.0 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG TERM PRODUCTIVITY

The local short-term use of man's environment during closure activities of the Deactivation Furnace will result in compliance with the federal and state regulations pertaining to RCRA facility closure, a decontaminated Deactivated Furnace unit for continued use as a non-hazardous waste treatment facility, and clean soil at and/or around the Deactivation Furnace unit. The natural setting will remain the same and continue to allow long-term productivity of the environment. The proposed action will not create any known or expected long-term adverse effect on the environment.

7.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES THAT WOULD BE INVOLVED IN THE PROPOSED ACTION

The fuel utilized by the equipment and vehicles for the proposed closure activities is a natural resource which will be irreversible and irretrievable as a result of the proposed action.

8.0 MEASURES TO MITIGATE ADVERSE ENVIRONMENT EFFECTS

Proper measures will be taken to mitigate all adverse environmental effects which may occur during the proposed closure activities. The measures will include close coordination between the RVAAP and the subcontractor to mitigate the effect of slight increase in vehicle traffic; wearing protective clothes, and if necessary, respirators to mitigate effects of dust; and use of less noisy equipment for closure activities.

9.0 AGENCIES AND PERSONS CONSULTED

Attached to this document are copies of the letters from the Ohio Historic Preservation Office and U.S. Fish and Wildlife Service. Other agencies which will receive a review copy of this assessment are listed below. In addition, the Finding Of No Significant Impact (FONSI) will be published in the Kent-Ravenna Record Courier.

1. Local Agencies

- Portage County Regional Planning Commission
- Northeast Ohio Four County Regional Planning and Development Organization

2. State Agencies

- Ohio Environmental Protection Agency
- Ohio Historical Society (SHPO)

3. Federal Agencies

- U.S. Fish and Wildlife Service, Department of Interior
- Ravenna Army Ammunition Plant (Government and Contractor Office)

10.0 CONCLUSION

As a result of the Environmental Assessment, a Finding Of No Significant Impact (FONSI) will be published.

ATTACHMENT A

BAT

RECEIVED
U.S. AIR FORCE
COMMUNICATIONS CENTER

BAT Associates, Inc.

ENGINEERS • SCIENTISTS • PLANNERS

27801 Euclid Avenue, Suite 450

Euclid, Ohio 44132

(216) 261-3724 • FAX (216) 261-2705

FEB 26 1990

February 21, 1990

Mr. Kenneth Multerer, Biologist
U.S. Fish and Wildlife Service
6950-H Americana Parkway
Reynoldsburg, Ohio 43068

RE: Deactivation Furnace Closure
Ravenna Army Ammunition Plant
Ravenna, Ohio

Dear Mr. Multerer:

BAT Associates, Inc. (BAT) has been contracted by Ravenna Arsenal, Inc. (RAI) to prepare an environmental assessment for closure of a deactivation furnace located at the Ravenna Army Ammunition Plant (RVAAP) near Ravenna, Ohio. I am writing to request your determination of potential effects on rare and endangered species due to proposed closure activities.

The RVAAP is an ammunition production and storage facility owned by the U.S. Department of Army and operated by RAI. The plant is located at 8451 State Route 5, Ravenna, Portage County, Ohio. Figure 1 is a vicinity map which shows the general location of the plant. The RVAAP has been in operation since early 1940s.

The RVAAP operated a deactivation furnace located in the Burning Ground approximately at the center of the facility (see Figures 2 and 3). The furnace was used intermittently for treatment of small munitions and other reactive items from RVAAP that had exceeded shelf life or were otherwise defective. The furnace is located out of doors and is surrounded by earth-filled timber walls to protect operating personnel (see Figure 4).

The RVAAP Deactivation Furnace is a hazardous waste treatment facility. The furnace must be closed in accordance with RCRA regulations because it cannot be upgraded to meet incinerator standards as required for burning and detonation of Class A and Class B explosives (hazardous wastes). After closure as a RCRA facility, the furnace will be operated as a non-hazardous waste treatment facility for burning and detonation of Class C explosive components (non-hazardous waste).

The purpose of the proposed action (furnace closure) is to decontaminate, dismantle, or remove any contaminated furnace equipment, structures, and soils at and around the Deactivation Furnace. The proposed action will include the following activities:

ROUTING SLIP
INCIDENT
ENGINEER
PLANNING
DESIGN
CONSTRUCTION
OPERATION
MAINTENANCE
SAFETY
ENVIRONMENT
LEGAL
FINANCE
ADMINISTRATION
OTHER
FILE
RETURN TO

Mr. Muterer
February 21, 1990
Page 2

1. Remove ash residues present in the Deactivation Furnace and associated appurtenances including the exhaust stack, furnace drum, and collection conveyor. The removed ash residues will be sampled and analyzed to determine whether they are hazardous or non-hazardous waste and managed accordingly.
2. Remove all timber walls and their earth fills if determined to be contaminated with hazardous constituents or explosive materials, and replace them with new, clean walls and fills. All removed timber walls and fills will be managed and disposed according to their waste classification (hazardous or non-hazardous waste).
3. Decontaminate the Deactivation Furnace and associated appurtenances including exhaust stack, furnace drum, collection conveyor, and all associated piping by flushing the interior of each of the above equipment with a pressure water rinse and, if necessary, by sand blasting. All rinseate and sand blasting residues will be disposed properly according to their waste classification.
4. Excavate contaminated soils at and around the Deactivation Furnace and dispose of them at a permitted security landfill if hazardous or at a licensed sanitary landfill if non-hazardous.
5. Excavate subsoil from a borrow area within the RVAAP (see Figure 2) to be used as fill or backfill materials for the excavated Deactivation Furnace areas. Place and compact the fill material on the excavated Deactivation Furnace areas. Cover both the borrow and backfilled Deactivation Furnace areas with topsoil, and grade and re-seed both areas.

Based on our environmental assessment, we have concluded that the proposed action will not adversely affect any endangered or threatened species of fish, wildlife or plants. If you agree with our conclusion, please countersign the enclosed copy of this letter and send the signed copy to me.

I appreciate your cooperation on this matter. If you have any questions or need additional information, please feel free to contact me at (216) 261-3724.

Mr. Muterer
February 21, 1990
Page 3

Very truly yours,

BAT Associates, Inc.



Jack R. Kuo, P.E.
Senior Environmental Engineer



Countersignature

Ken Multerer

3-6-90

Date

Enclosures: As stated

ATTACHMENT B

BAT

BAT Associates, Inc.

ENGINEERS • SCIENTISTS • PLANNERS

27801 Euclid Avenue, Suite 450
Euclid, Ohio 44132
(216) 261-3724 • FAX (216) 261-2705

February 21, 1990

RECEIVED FEB 26 1990

Ms. Catherine Stroup, Head
Review and Compliance, Historic Preservation
The Ohio Historical Society
1985 Velma Avenue
Columbus, Ohio 43211

RE: Deactivation Furnace Closure
Ravenna Army Ammunition Plant
Ravenna, Ohio

Dear Ms. Stroup:

BAT Associates, Inc. (BAT) has been contracted by Ravenna Arsenal, Inc. (RAI) to prepare an environmental assessment for closure of a deactivation furnace located at the Ravenna Army Ammunition Plant (RVAAP) near Ravenna, Ohio. I am writing to request your determination of potential effects on any known or listed archaeological or historic site due to proposed closure activities.

The RVAAP is an ammunition production and storage facility owned by the U.S. Department of Army and operated by RAI. The plant is located at 8451 State Route 5, Ravenna, Portage County, Ohio. Figure 1 is a vicinity map which shows the general location of the plant. The RVAAP has been in operation since early 1940s.

The RVAAP operated a deactivation furnace located in the Burning Ground approximately at the center of the facility (see Figures 2 and 3). The furnace was used intermittently for treatment of small munitions and other reactive items from RVAAP that had exceeded shelf life or were otherwise defective. The furnace is located out of doors and is surrounded by earth-filled timber walls to protect operating personnel (see Figure 4).

The RVAAP Deactivation Furnace is a hazardous waste treatment facility. The furnace must be closed in accordance with RCRA regulations because it cannot be upgraded to meet incinerator standards as required for burning and detonation of Class A and Class B explosives (hazardous wastes). After closure as a RCRA facility, the furnace will be operated as a non-hazardous waste treatment facility for burning and detonation of Class C explosive components (non-hazardous waste).

The purpose of the proposed action (furnace closure) is to decontaminate, dismantle, or remove any contaminated furnace equipment, structures, and soils at and around the Deactivation Furnace. The proposed action will include the following

Ms. Stroup
February 21, 1990
Page 2

activities:

1. Remove ash residues present in the Deactivation Furnace and associated appurtenances including the exhaust stack, furnace drum, and collection conveyor. The removed ash residues will be sampled and analyzed to determine whether they are hazardous or non-hazardous waste and managed accordingly.
2. Remove all timber walls and their earth fills if determined to be contaminated with hazardous constituents or explosive materials, and replace them with new, clean walls and fills. All removed timber walls and fills will be managed and disposed according to their waste classification (hazardous or non-hazardous waste).
3. Decontaminate the Deactivation Furnace and associated appurtenances including exhaust stack, furnace drum, collection conveyor, and all associated piping by flushing the interior of each of the above equipment with a pressure water rinse and, if necessary, by sand blasting. All rinseate and sand blasting residues will be disposed properly according to their waste classification.
4. Excavate contaminated soils at and around the Deactivation Furnace and dispose of them at a permitted security landfill if hazardous or at a licensed sanitary landfill if non-hazardous.
5. Excavate subsoil from a borrow area within the RVAAP (see Figure 2) to be used as fill or backfill materials for the excavated Deactivation Furnace areas. Place and compact the fill material on the excavated Deactivation Furnace areas. Cover both the borrow and backfilled Deactivation Furnace areas with topsoil, and grade and re-seed both areas.

Based on our environmental assessment, we have concluded that the proposed action will not adversely impact any known or listed archaeological or historic sites. If you agree with our conclusion, please countersign the enclosed copy of this letter and send the signed copy to me.

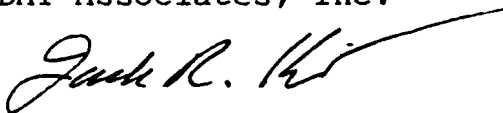
I appreciate your cooperation on this matter. If you have any questions or need additional information, please feel free to

Ms. Stroup
February 21, 1990
Page 3

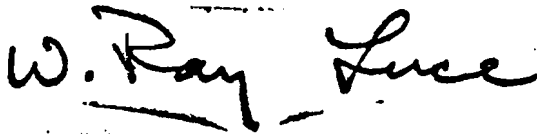
contact me at (216) 261-3724.

Very truly yours,

BAT Associates, Inc.



Jack R. Kuo, P.E.
Senior Environmental Engineer



Countersignature

APR 2 1990

Date

Enclosures: As stated

General Manager
Reverend Arsenal, Inc.
FOR
 Information
 Compliance as applicable
 Reply NLT

5 JUN 1990

AMSMC-PCG-3 (715K)

MEMORANDUM FOR Commander's Representative, Ravenna Army
Ammunition Plant, ATTN: SMCRV-CA, Ravenna, OH
44266-9297

SUBJECT: Resource Conservation and Recovery Act (RCRA) Physical
Closure of Deactivation Furnace

1. Reference letter, Ravenna Arsenal, Inc. (RAI), 20 Apr 90, SAB.
2. Reference letter forwarded the environmental assessment prepared for subject as above. The Environmental Management Branch has reviewed the environmental assessment and has determined it is acceptable for the intended purpose.
3. The point of contact is Ms. Shirlene Wise, DSN 793-3359.

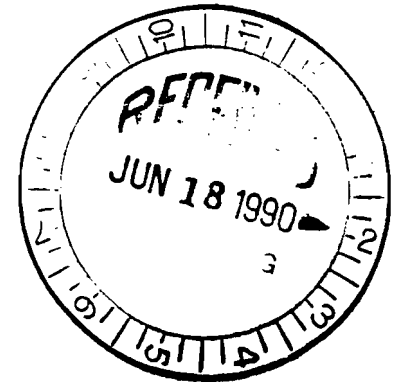
SIGNED

EMIL E. MASLANKA
Contracting Officer

RECEIVED
JUN 13 1990
N. WULFF

*Change/See
file*

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<input checked="" type="checkbox"/>	SAF	
<input type="checkbox"/>	DPM	
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T. Charles Dale

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.

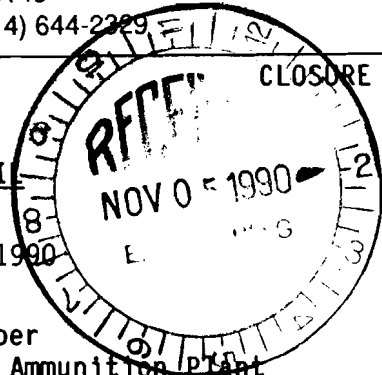
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NOV 05 1990
N. WULFF

State of Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149
(614) 644-3020 Fax (614) 644-2329

By: Mary Carvin Date 11-2-90

Richard F. Celeste



CLOSURE PLAN APPROVAL

CERTIFIED MAIL

November 1, 1990

Re: Closure Plan
Ravenna Army Ammunition Plant
OH5 210 020 736

Mr. H.R. Cooper
Ravenna Army Ammunition Plant
Ravenna Arsenal
8451 State Route 5
Ravenna, Ohio 44266-9297

TO	11/3/90
CR-COR	
CONT ADM	
PROP ADM	
OASAS	
SECURITY	
RAI	
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TO	OFFICE	GOVERNOR	ACTION
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Dear Mr. Cooper:

On March 22, 1990, Ravenna Army Ammunition Plant submitted to Ohio EPA a closure plan for a hazardous waste incinerator located at 8451 State Route 5, Ravenna, Ohio. The closure plan was submitted pursuant to Rule 3745-66-12 of the Ohio Administrative Code (OAC) in order to demonstrate that Ravenna Army Ammunition Plant'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 plan of Ravenna Army Ammunition Plant in accordance with OAC Rule 3745-66-12. No comments were received by Ohio EPA in this matter.

Based upon review of Ravenna Army Ammunition Plant's submittal and subsequent revisions, I conclude that the closure plan for the hazardous waste facility at Ravenna Army Ammunition Plant meets the performance standard contained in OAC Rule 3745-66-11 and complies with the pertinent parts of OAC Rule 3745-66-12.

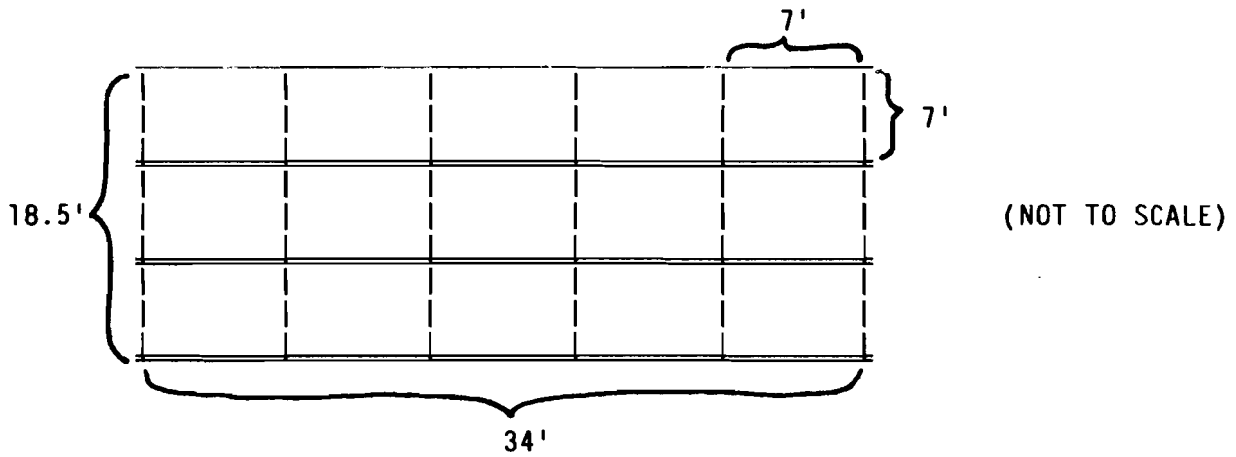
The closure plan submitted to Ohio EPA by Ravenna Army Ammunition Plant is hereby approved with the following modifications:

1. Ravenna Army Ammunition Plant (RVAAP) shall revise the closure plan to indicate that all samples projected to require EP Toxicity analysis shall be analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) instead. As of September 25, 1990 the federal regulations require large quantity generators of hazardous waste to use the TCLP analysis in the place of the EP Toxicity analysis to determine whether waste materials are characteristically hazardous for heavy metals, pesticides and several organic compounds.
2. RVAAP shall revise the closure plan sampling plan for the interior of the building housing the incinerator. The grid system proposed by RVAAP has no apparent statistical basis. RVAAP shall revise the grid system to use the following formula:

$$\text{Grid Interval} = \frac{\sqrt{\text{Area} \div \pi}}{2}$$

CONTAINED DIRECTOR'S JOURNAL
NOV - 2 1990

This grid formula calculates a grid interval of approximately 7 feet for the area (34 feet by 18.5 feet) presented in the closure plan. This 7 foot grid interval results in approximately 15 sampling squares (5 squares by 3 squares). RVAAP shall take a grab sample from the center of each square at each depth intervals specified in the closure plan (See drawing below). Compositing of samples between grid boxes is prohibited.



3. RVAAP shall revise the closure plan to indicate the location of the sixteen background sampling locations on the facility map.
4. RVAAP shall revise the closure plan to include a specific health and safety plan and not just a reference to such.
5. RVAAP shall provide the SW-846 test methods that will be used to analyze samples for closure purposes. Additionally, the closure plan shall be revised to include the testing procedure for samples thought to be contaminated by TNT, DNT, RDX, and explosive limits as determined by the Bureau of Mines gap test.
6. RVAAP shall specify the storage area locations which was included on pages 7 and 9 of the closure plan.

Notwithstanding compliance with the terms of the closure plan, 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.

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: Mary Cavin Date 11-2-90

105-2-90
ENTERED DIRECTOR'S JOURNAL

Mr. H.R. Cooper
Page Three

Nothing here shall waive the right of the Director to take action beyond the terms of the closure plan 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.

You are notified that this action of the Director is final and may be appealed to the Environmental Board of Review 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 Board of Review 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 Enforcement Section of the Office of the Attorney General within three (3) days of filing with the Board. An appeal may be filed with the Environmental Board of Review at the following address: Environmental Board of Review, 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 that the facility has been closed in accordance with the approved closure plan. The certification by the owner or operator shall include the statement found in OAC 3745-50-42(D). These certifications should be submitted to: Ohio Environmental Protection Agency, Division of Solid and Hazardous Waste Management, Attn: Thomas Crepeau, Data Management Section, P.O. Box 1049, Columbus, Ohio 43266-0149.

Sincerely,



Richard L. Shank, Ph.D.
Director

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: Mary Carvin Date 11-2-90

RLS/PV/pas

cc: Paul Vandermeer, Ohio EPA, DSHWM
Joel Morbito, USEPA - Region V
Tom Crepeau, Ohio EPA, DSHWM

Lisa Pierard, USEPA-Region V
Ahmed Mustafa, NEDO, Ohio EPA
Dave Wertz, NEDO, Ohio EPA

2122U

NOV 2 5 1990
ENVIRONMENTAL PROTECTION AGENCY



Luc

RAVENNA ARSENAL, INC.
8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297
TELEPHONE: (216) 358-7111 • FAX: (216) 297-3216

November 7, 1990

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

TO: Commander
U.S. Army Armament, Munitions and Chemical Command
ATTN: AMSMC-PCG-B (Shirlene Wise)
Rock Island, IL 61299-6000

Subject: RCRA Physical Closure of Deactivation Furnace
Ref: (1) RAI letter dated March 27, 1990, Subject: RCRA
Physical Closure of Deactivation Furnace (2) RAI letter
dated April 30, 1990, Subject: RCRA Physical Closure of
Deactivation Furnace.

Dear Ms. Wise:

On November 2, 1990 the RCRA Closure Plan for the RVAAP Deactivation Furnace was approved by Ohio EPA. The schedule for closure of the deactivation furnace requires that closure activities be completed within 180 days of the date of plan approval. As we said in Reference 1 the award of contract and actual physical closure will require the full 180 days; therefore the funds must be made available immediately. An estimated \$428,500 is required to perform closure in accordance with the approved plan. Request PAA 29-10 funds in the amount of \$428,500 be made available immediately in order to complete closure within the required 180 days.

An SF1411 for \$214,300 was submitted April 30, 1990; however, the disclosure statement has since been revised to charge general overhead to subcontracts. Based on the new disclosure statement the total project cost is now estimated at \$428,500. We recommend that the subcontract amount (\$199,448) be added to the FY91 cost base.

Point of contact for the Ravenna Arsenal, Inc. is Ms. Susan McCauslin at Autovon 346-3220.

Sincerely,

RAVENNA ARSENAL, INC.

H.R. Cooper

H.R. Cooper
Plant Engineer

D.E. Kanavy
D.E. Kanavy
Accounting Manager

SMC/ade/90026

Attachment: Revised Cost Estimate EPA Form 3500-7

cc: N. Wulff
B. Jenkins
D. Kanavy
S. McCauslin
File

cf: AMSMC-ISE (ATTN: Ronnie DePorter)

**SPECIFICATION PS-749
ENGINEERING SERVICES
FOR
DEACTIVATION FURNACE CLOSURE
FOR THE
RAVENNA ARMY AMMUNITION PLANT**

Ravenna Arsenal, Inc.

November 21, 1990

I. SCOPE

Subcontractor shall supply all labor, materials, and equipment necessary to oversee the physical closure of the Deactivation Furnace and certify the closure was completed in accordance with the Ohio EPA approved closure plan and RAI technical specifications.

II. LOCATION AND SPECIFICATIONS

- A. Subcontractor shall receive area map A-109 showing location of the deactivation furnace upon sight visitation prior to bid submittal.
- B. Subcontractor shall receive a copy of the approved closure plan.

III. QUALIFICATIONS

- A. Resident supervision should be a degreed engineer holding a P.E. in the civil or environmental field with a minimum of three (3) to five (5) years of related construction engineering experience. Resident engineer should have an in depth knowledge of all EPA, Federal and State regulations pertaining to hazardous waste units.
- B. Upon completion of physical closure a certification statement shall be required. Said statement shall be signed and stamped by a certified professional engineer in the civil or environmental field, registered in the State of Ohio.
 - 1. Said certification statement must be submitted within 30 days of completion of closure.

IV. DETAIL OF WORK

The responsibilities of the resident engineer are as follows.

- A. A constant professional oversight throughout the closure activities to assure the physical closure of the deactivation furnace is in complete compliance with the approved closure plan and all applicable EPA, Federal and State regulations.

- B. Maintain the field log book as detailed in the approved closure plan.
- C. Resident engineer shall supply a weekly update of work performed and will be responsible to bring any problems that have not been resolved, questions, decisions, or disputes to the attention of Ravenna Arsenal, Inc. for final solution.
- D. Resident engineer shall be responsible to assure that the contractor is in compliance with all EPA, OSHA, and RAI safety regulations.
- E. Provide to RAI a final closure report for submission to Ohio EPA detailing:
 - 1. Work performed
 - 2. Analytical results
- F. Provide a certification statement upon completion of physical closure.

V. ACCEPTANCE

Final acceptance shall be given only after:

- A. Submission of:
 - 1. Field log book
 - 2. All weekly progress reports
 - 3. Final closure report
 - 4. All test results
 - 5. Certification statement
- B. Approval by EPA.
- C. Walk through with resident engineer and RAI engineer.

VI. GENERAL

- A. With this bid, the subcontractor will state, in writing, the number of men to use on the job, and his starting and estimated completion dates (subject to change only because of weather or other conditions beyond his control).
- B. Disposition of Material
 - 1. Title to materials: Title to all materials and equipment to be demolished, excepting Government salvage and historical items, which are identified

below, is vested in the subcontractor upon receipt of notice to proceed. The Government will not be responsible for the condition, loss or damage to such property after notice to proceed. Salvage and historical items to remain the property of the Government are:

None.

2. **Material for subcontractor salvage:** Material for salvage shall be stored as approved by the Ravenna Arsenal, Inc., Engineering Division. Salvage materials shall be removed from Government property before completion of the contract. On extended projects salvage material shall be removed at least once per month. Materials for salvage shall not be sold on the site.
3. **Unsalvageable Materials:** Concrete, masonry, wood, roofing, and other nonsalvageable materials other than concrete permitted to remain in place, shall be disposed of off the installation. Materials contaminated with explosives as determined by the Project and Safety Engineer shall be hauled to the designated flashing area.
4. A DA Form 1818 - Individual Property Pass - shall be completed for all materials to be removed from Government property. Passes shall be signed by the plant or supervisory engineer.

C. Clean Up

1. **Debris Control:** Debris shall be removed, disposed off the installation, and transported in a manner as to prevent spillage on this installation or adjacent areas.
2. **Burning:** The use of burning at the project site for the disposal of refuse and debris will not be permitted.

D. Work will not be considered complete until accepted by Ravenna Arsenal, Inc. Engineering Division.

E. The subcontractor will be responsible for:

1. Acquainting himself with the work area.
2. His materials and equipment brought on site.

3. Keeping the work area neat and orderly at all times.
 4. Complying with all safety and security regulations as stipulated in the Ravenna Arsenal, Inc. Pamphlet "Safety and Security Rules" dated 1986.
 5. Avoiding any interference with Arsenal activities.
 6. Repair of damage to Government and RAI property caused by his operations.
- F. Normal working hours shall be between 8:00 a.m. and 4:30 p.m. Monday thru Friday, excluding designated plant holidays. Arrangements to work other than normal hours must be approved in advance.

Supervisory Engineer Concurrence



SPEC PROJECT FUNDS 504 2-4-96 PJP 2-4-96

MECHANICAL ORDER REQUEST

A09

CONTRACT DA-11-178-ORD-66

RAVENNA ARSENAL, INC. 55

Dept. Name ENGINEERING Dept. No. 55 Date 11/21/90 195

Project No. Account No. 63907699 M. O. No. 0046AF

New Construction Alterations Additional Equipment Equipment Replacement Repairs & Maintenance

COST DATA: (Detail Estimates on Reverse Side) Estimated Daily Savings \$ Payout Period, No. of Working Days

Labor \$ Overhead \$ Materials \$ Total \$ 374,697.00

Value of Gov't Furnished Material \$

DESCRIPTION 1711 - 2642

PHYSICAL CLOSURE AND CERTIFICATION OF PHYSICAL CLOSURE OF DEACTIVATION FURNACE.

FEB 12 1991

FULLY APPROVED

REASON

TO COMPLY WITH ALL FEDERAL EPA AND OHIO EPA REGULATIONS TO AVOID POSSIBLE PENALTIES.

FULLY EXPLAIN: Increase in Production; Improvement in Quality; Reduction in Operating Costs; and Safety Measure.

SUPPLY ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO PERFORM PHYSICAL CLOSURE OF THE RVAAP DEACTIVATION FURNACE PER OHIO EPA APPROVED CLOSURE PLAN AND PS748 AND PS749.

SEARCHED INDEXED SERIALIZED FILED

APPROVALS:

Engineering Mgr. H.C. [Signature]

Originating Dept./Div. Mgr.

General Mgr. [Signature]

Contracting Officer's Repr.

Comptroller D.E. Kanary [Signature]

Assigned to

Staff Engineer S MCCAUSLIN J McCauslin

Date: 11/21/90

PURCHASE REQUISITION

Dept.: 55

* These Sections To Be Filled In By Purchasing Division Only

VENDOR _____

ADDRESS _____

Ship Via: _____ Date Promised: _____

Terms: _____ F.O.B. _____ D.O. _____ D.M.S. Reg. _____

Confirming: _____ Order To: _____ Per Your Quote: _____ Buyer: _____

Receiving Dept.: _____ Deliver To: _____

Quantity	Stock No.	Description (Please Type)	* Price	Unit
		PROVIDE ALL LABOR MATERIAL AND EQUIPMENT FOR PHYSICAL CLOSURE OF THE DEACTIVATION FURNACE PER OHEPA APPROVED CLOSURE PLAN AND PS-748 AND 749.		

Reason For Ordering: TO COMPLY WITH EPA REQUIREMENTS Estimated Cost: \$199,448

Ordered By: S, MCCAUSLIN McCauley Delivery Required: ASAP

Acct. or M.O.: 176-2

Approved By: [Signature]
Dept. &/or Div. Mgr.

Approved By: [Signature]
Comptroller

ORDERED BY STOCK PURCHASE

Message 29

Sue
T. Chen do
File

RECEIVED
DEC 03 1990
N. WULFF

Date Received: THU, 29 NOV 90 16:15:20 CST
Received: from ria-emh1.army.mil by ria-emh1.army.mil; 29 Nov 90 16:14:28 CST
Received: from spips5.ria-emh2.army.mil by ria-emh1.army.mil; 29 Nov 90 16:14:26 CST
Date: Thu, 29 Nov 90 16:21:05 CST
From: Shirlene Wise <swise@ria-emh2.army.mil>
To: isel@ria-emh1
cc: orvaap@ria-emh1, oppxpg@ria-emh1, bpalp@ria-emh1, swise@ria-emh2

AMSMC-PCG-B (R) (715k)

~~29 Nov 90~~

MEMORANDUM FOR AMSMC-ISE (Ms. DePorter)

SUBJECT: Project 5902910 - Deactivation Furnace at Ravenna Army Ammunition Plant (AAP)

TO	11/30/90	IC
CB-COR		
CONT ADM		
PROP ADM		
OASAS		
SECURITY		
RAI		
RETURN FOR FILE		

1. Reference:

- a. Memorandum, AMSMC-ISE, 10 May 90, subject: Project 5902910 - Request for Additional Funding.
- b. Memorandum, AMSMC-BPA-P, 18 Jul 90, SAB.
- c. Memorandum, AMSMC-PCG-B, 14 Sep 90, SAB.
- d. Memorandum, Ravenna Army Ammunition Plant, SMCRV-CR, 6 Nov 90, subject: Ravenna Army Ammunition Plant Monthly Activity Report for October 1990.
- e. Email memorandum, RVAAP, SMCRV-CR, 8 Nov 90, subject: Project 5902910 - Closure of Deactivation Furnace - RVAAP.
- f. Email memorandum, AMSMC-PCG-B, 7 Nov 90, SAB.

2. This office has made several requests for status of funding of subject project. To date, no response has been received from your office. Failure to provide funding to accomplish this project is placing the plant in the position where a notice of violation is a certainty.

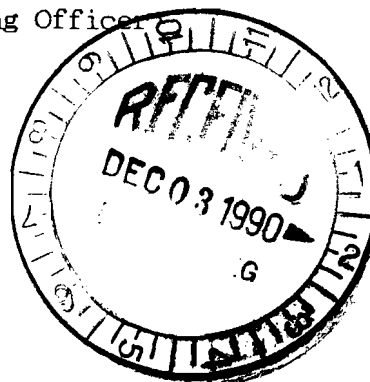
3. We again request your office take action to expeditiously provide the necessary funds to this office.

4. The point of contact is Ms. Shirlene Wise, extension 3359.

EMIL E. MASLANKA
Contracting Office

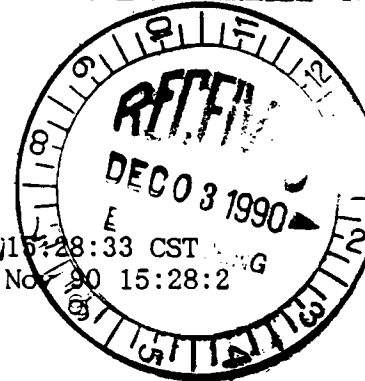
CF:
Commander's Representative
Ravenna Army Ammunition Plant
AMSMC-DPO (Mr. Ghose)
AMSMC-BPA-P

TO	OFFICE	ACTION
<input checked="" type="checkbox"/>	GM	
<input type="checkbox"/>	CO-COR	
<input checked="" type="checkbox"/>	ACCTG	
<input checked="" type="checkbox"/>	SEC	
<input checked="" type="checkbox"/>	ENGR	
<input type="checkbox"/>	IR	
<input type="checkbox"/>	S & T & O	
<input type="checkbox"/>	P & C A	
<input type="checkbox"/>	SAF	
<input type="checkbox"/>	DPM	
<input type="checkbox"/>	RETURN	



***** END OF MESSAGE *****

*T. Ch...
file*



Message 28

Date Received: THU, 29 NOV 90 15:30:03 CST
Received: from ria-emh1.army.mil by ria-emh1.army.mil; 29 Nov 90 15:28:33 CST
Received: from spips5.ria-emh2.army.mil by ria-emh1.army.mil; 29 Nov 90 15:28:23 CST
Date: Thu, 29 Nov 90 15:31:27 CST
From: Shirlene Wise <swise@ria-emh2.army.mil>
To: isel@ria-emh1
cc: orvaap@ria-emh1, oppxpg@ria-emh1, bpalp@ria-emh1, swise@ria-emh2

AMSMC-PCG-B (715k)

29 NOV 90

MEMORANDUM FOR AMSMC-ISE (Ms. DePorter, Mr. Onewokae)

SUBJECT: Request for Funding Action, Ravenna AAP (replaces FL 65 dated 6 Apr 90)

1. Request additional funds as indicated below:

- a. ITEM: Physical Closure Deac Furn
- b. PRON: New
- c. CUSTOMER ORDER NO: NA
- d. AMS-CD: Unk
- e. CURRENT FUNDS: \$0
- f. INCREASE REQMT: \$374,697.00
- g. NEW TOTAL: \$374,697.00
- i. PIIN: DAAA09-88-Z-0001
- j. CLIN: New
- k. QUANTITY: N/A
- l. Not used.
- m. NSN/DODAC: N/A
- n. ICN: N/A

TO	11/30/90
FROM	ADM
INFO	ADM
CLASS	
SECURITY	
RAI	
RETURN FOR FILE	

h. JUSTIFICATION: IAW RAI letter of 7 Nov 90 of which your office was copy furnished. Difference in amount between RAI letter and this request for funding action due to removal of subcontract contingency costs (and associated allocated fee) which the government cannot fund.

2. The point of contact is Ms. Shirlene Wise, ext. 3359.

//signed//

SHIRLENE WISE
Contract Specialist

CF:
Commander's Representative
Ravenna Army Ammunition Plant
AMSMC-BPA-P (WBBA1)
AMSMC-DPO (Mr. Ghose)

***** END OF MESSAGE *****

12-3-90
Wulf Kanavy
COOPER
DAVE
Per your Request!
JAE



cc: N. Wulff
T. M. Chanda
H. R. Cooper
J. D. McGee
J. W. Mound

RAVENNA ARSENAL, INC.
8451 STATE ROUTE 5, RAVENNA, OHIO 44266-9297
TELEPHONE: (216) 358-7111 • FAX: (216) 297-3216

June 6, 1990

RECEIVED
MAINTENANCE DEPT.

JUN 14 1990

AMM 8:30 AM
7/3/90

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
Division of Water Quality; Attn: Ms. Leslie Otten
Twinsburg, Ohio 44807

Subject: VOC Analysis Monitoring Procedures

Dear Ms. Otten:

The U. S. Army Environmental Hygiene Agency (USAEHA) recently completed a SOC/VOC groundwater survey on all active drinking water wells at Ravenna Army Ammunition Plant (RVAAP.) Army guidance requested this office consult with primacy regulator to determine if results will satisfy the organic monitoring requirements for VOCs.

Referencing Rule 3745-81-24(8) of the Ohio Administrative Code (OAC), well monitoring data collected after January 1, 1988 may be used toward compliance of the first four quarters of monitoring, providing that monitoring procedures comply with procedures required in this chapter.

The USAEHA has an approved lab certification for the State of Ohio, pursuant to chapter 3745-89 of the OAC.

Submitted for your review and confirmation are the analytical results done initially in September, 1987, and confirmation sampling results done in April, 1989. This information contains methodology and parameters without Chemical Abstract Service (CAS) numbers. All results are in micrograms or $\mu\text{g}/\text{l}$.

RVAAP, with this confirmation, will also submit analytical results at a later date (prior to January 1, 1991) from both Public Water Systems at point of entry into the distribution system to complete first quarter requirements.

Point of contact for further information is J. W. Mound, Maintenance Utilities Supervisor, phone (216) 297-3111, or T. M. Chanda, Environmental Engineer, phone (216) 297-3221.

Sincerely,

RAVENNA ARSENAL, INC.

H. R. Cooper
Plant Engineer

HRC:JWM:cm

Ohio EPA

State of Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149
(614) 644-3020 Fax (614) 644-2329

RECEIVED
JUN 18 1990
N. WULFF

<input type="checkbox"/>	CO-ORD
<input type="checkbox"/>	CONFIRM
<input type="checkbox"/>	EDUCATION
<input type="checkbox"/>	FINANCE
<input type="checkbox"/>	GENERAL
<input checked="" type="checkbox"/>	SECURITY
<input checked="" type="checkbox"/>	RECEIVED JUN 18 1990
<input checked="" type="checkbox"/>	RETURN FOR FILE

W/ENCE

Richard F. Celeste
Governor

TO	OFFICE	ACTION
<input type="checkbox"/>	GM	
<input type="checkbox"/>	CO-ORD	
<input type="checkbox"/>	ACCTG	
<input type="checkbox"/>	SEC	
<input checked="" type="checkbox"/>	ENGR	
<input type="checkbox"/>	IR	
<input type="checkbox"/>	S&T&O	
<input type="checkbox"/>	P&CA	
<input type="checkbox"/>	SAF	
<input type="checkbox"/>	DPM	
<input type="checkbox"/>	RETURN	

(17) found

June 13, 1990

Mr. H.R. Cooper
Plant Engineer
Ravenna Arsenal, Inc.
8451 State Route 5
Ravenna, OH 44266-9297

Dear Mr. Cooper:

I am writing in response to your letter dated June 6, 1990 to Ms. Leslie Otten from the Northeast District Office, Ohio EPA. The information submitted may be applied toward compliance only if submitted on Ohio EPA approved forms. For your convenience, I have attached several copies of the Synthetic Organic Chemical (SOC) and Volatile Organic Chemical (VOC) report forms. Please resubmit the data on the attached forms. Be sure to fill out the forms completely. Refer to the attached memo dated September 14, 1988 when completing the forms.

If you have further questions, you may contact me at (614) 644-2752.

Respectfully,

Cheryl A. Capers
Cheryl A. Capers
Water Quality Section
Division of Public Drinking Water

CAC/clk
23

Attachments: Memo from Dr. Applegate to Lab, 9/14/88
Correspondence from H.R. Cooper, Ravenna Arsenal, 6/6/90
Ohio EPA Report Forms (SOC)(VOC)

cc: Leslie Otten

RECEIVED
MAINTENANCE DEPT.
JUN 20 1990 PM
7, 8, 9, 10, 11, 12, 1, 2, 3, 4, 5, 6



84518
TE

H. R. Cooper
J. D. McGee
J. W. Mound
T. Baclawski (OHEPA, NEDO)
USA MEDDAC
USAEHA
N. Wulff

December 27, 1990

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

: Ohio EPA, Division of Public Drinking Water
Attn: Mr. Jim Evans, Environmental Supervisor,
Water Quality Section
1800 Watermark Drive
P. O. Box 1049
Columbus, Ohio 43266-0149

Subject: Volatile Organic Chemical (VOC) Analytical Data From
Ravenna Army Ammunition Plant (RVAAP) Active Raw
Water Sources

Dear Mr. Evans:

Pursuant to your conversation with this installation's Utility Supervisor, Mr. Joseph Mound, during the week of December 3, 1990, the attached completed VOC sample submission is provided concerning RVAAP's raw water sources: wellhouses 28, 29, 45, 60 and 68.

The time of sample information (block 43 through 46 of subject report) is annotated "unknown" as you instructed.

The VOC submission report for the distribution samples will be mailed directly to your agency by this installation's contracted laboratory.

For this subject action, the Government point of contact is Mr. Robert Kasper, (216) 297-3124; the Ravenna Arsenal Inc. point of contact is Mr. Joseph Mound, (216) 297-3111.

Sincerely,

RAVENNA ARSENAL, INC.

H. R. Cooper
Plant Engineer

HRC:JWM:cm
Att.

Date: MAY 16, 1990

PURCHASE REQUISITION

Dept.: 54

*** These Sections To Be Filled In By Purchasing Division Only**

VENDOR _____

ADDRESS _____

Ship Via: _____ Date Promised: _____

Terms: _____ F.O.B. _____ D.O. _____ D.M.S. Reg. _____

Confirming: _____ Order To: _____ Per Your Quote: _____ Buyer: _____

Receiving Dept.: _____ Deliver To: S. MCCAUSLIN BLDG 1030

Quantity	Stock No.	Description (Please Type)	* Price	Unit
1		PROVIDE NEWSPAPER NOTICE IN THE LEGAL NOTICE SECTION OF THE RECORD COURIER OF THE ATTACHED "FINDING OF NO SIGNIFICANT IMPACT (FNSI)" PUBLIC NOTICE.		
		NOTICE TO RUN THREE CONSECUTIVE DAYS.		

Reason For Ordering: REQUIRED BY ARMY REGULATIONS Estimated Cost: \$5.00

Ordered By: S. MCCAUSLIN Delivery Required: ASAP Acct. or M.O.: 55-699

Approved By: [Signature] Approved By: _____

Dept. &/or Div. Mgr.

Comptroller

September 10, 1990

Ohio EPA
Attn: Fiscal Administration
P.O. Box 1049
1900 WaterMark Drive
Columbus, OH 43266-0149

Dear Sir:

Physics International Company (PI) at Ravenna Army Ammunition Plant (RVAAP) no longer operates pursuant to EPA I.D. No. OH4 210 090 003 and Ohio Permit No. 02-67-0050.

A letter from US EPA to Robert Kasper, Commander's Representative, dated 28 NOV 1986 (attached) directs that all hazardous waste management activities occurring on the Ravenna Arsenal should fall under the OH5 210 020 736 and Identification Number OH4 210 090 003 should no longer be used.

Ravenna Arsenal Permit OH5 210 020 736 now includes Physics International operations on Load Lines 6 and 7. Therefore, we do not believe that Physics International is required to pay the requested Hazardous Waste Annual Permit Fee under OH4 210 090 003.

If further information is required regarding this subject, please contact Paul Cross (216)297-3250.

Sincerely,



David R. Kubala
Manager LAF

DRK/sar

Attachment