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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VII
AND THE
UNITED STATES DEPARTMENT OF THE ARMY

IN THE MATTER OF:	)	
	)	
The U.S. Department of the Army	)	FEDERAL FACILITY
Iowa Army Ammunition Plant	)	AGREEMENT UNDER
Middletown, Iowa	)	CERCLA SECTION 120
	)	
	)	Administrative
	)	Docket Number: VII-F-90-0029

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PRELIMINARY STATEMENT

Based on the information available to the Parties on the effective date of this FEDERAL FACILITY AGREEMENT (Agreement), and without trial or adjudication of any issues of fact or law, the Parties agree as follows:

I. JURISDICTION

Each Party is entering into this Agreement pursuant to the following authorities:

A. The U.S. Environmental Protection Agency (EPA), Region VII, enters into those portions of this Agreement that relate to the Remedial Investigation/Feasibility Study (RI/FS) pursuant to Section 120(e)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9620(e)(1), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. 99-499 (hereinafter

jointly referred to as CERCLA/SARA or CERCLA) and Sections 6001, 3008(h) and 3004(u) and (v) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6961, 6928(h), 6924(u) and (v), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA) (hereinafter jointly referred to as RCRA/HSWA or RCRA) and Executive Order 12580;

B. EPA, Region VII, enters into those portions of this Agreement that relate to operable unit remedial actions and final remedial actions pursuant to Section 120(e)(2) of CERCLA/SARA, Sections 6001, 3008(h) and 3004(u) and (v) of RCRA and Executive Order 12580;

C. The Department of the Army enters into those portions of this Agreement that relate to the RI/FS pursuant to Section 120(e)(1) of CERCLA, Sections 6001, 3008(h) and 3004(u) and (v) of RCRA, Executive Order 12580, the National Environmental Policy Act, 42 U.S.C. § 4321, and the Defense Environmental Restoration Program (DERP), 10 U.S.C. § 2701 et seq.;

D. The Department of the Army enters into those portions of this Agreement that relate to operable unit remedial actions and final remedial actions pursuant to Section 120(e)(2) of CERCLA/SARA, Sections 6001, 3008(h) and 3004(u) and (V) of RCRA, Executive Order 12580 and the DERP.

II. PARTIES

The Parties to this Agreement are the U.S. Environmental Protection Agency, Region VII and the Army. The terms of this

Agreement shall apply to and be binding upon the U.S. EPA, their authorized representatives and contractors performing work pursuant to this Agreement; and the Army, its authorized representatives and contractors performing work pursuant to this Agreement. It shall not be a defense of the Army that their contractors violated any of the terms of this Agreement. The Army will notify the EPA of the identity and assigned tasks of each of its contractors performing work under this Agreement upon their selection. This Agreement shall be enforceable against all of the foregoing through actions brought by the respective principal Parties to this Agreement. This Part shall not be construed as an agreement to indemnify any person. The Army shall provide a copy of this Agreement to its authorized representatives and contractors performing work pursuant to this Agreement. Each undersigned representative of a Party certifies that he or she is fully authorized to enter into the terms and conditions of this Agreement and to legally bind such Party to this Agreement.

III. DEFINITIONS

Except as otherwise explicitly stated herein, terms used in this Agreement which are defined in CERCLA and CERCLA/SARA shall have the meaning as defined in CERCLA. The following definitions shall apply for purposes of this Agreement:

A. "Agreement" means this Federal Facility Agreement, all attachments to this Agreement and all reports, plans, notices,

and other documents developed pursuant to this Agreement; and all such attachments and documents are an integral and enforceable part of this Agreement.

B. "ARAR" or "Applicable or Relevant and Appropriate Requirement" shall mean legally applicable or relevant and appropriate standards, requirements, criteria, or limitations as those terms are used in Section 121(d)(2)(A) of CERCLA, 42 U.S.C. § 9621(d)(2)(A).

C. "Army" means the United States Department of the Army and its authorized representatives.

D. "Authorized representative" means a person designated to act on behalf of a Party to this agreement for a specific purpose. For the Army, no contractor shall be considered an authorized representative except as may be provided pursuant to F.A.R. 1.602 (48 C.F.R. 1.602).

E. "CERCLA" or "CERCLA/SARA" means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, 42 U.S.C. § 9601 et seq.

F. "Conceptual Program Plan" means a document which describes the overall project management plan for the Site, including all major Site activities (eg. operable unit designation, anticipated removal actions, generalized field efforts, etc.) and an approximate timeline for their accomplishment.

G. "Days" means calendar days, unless business days are

specified. Any Submittal, Written Notice of Position or Written Statement of Dispute that, under the terms of this Agreement, would be due on a Friday, Saturday, Sunday or holiday, shall be due on the next business day.

H. "Deliver" or "Delivery" means depositing the notice, report or other document to be submitted into the United States mail, first class postage paid or by overnight delivery service, addressed to the party which is to receive it.

I. "Emergency removals" means a removal action taken because of an imminent and substantial endangerment to human health or the environment which requires implementation of a response action in such a timely manner that consultation with the EPA would be impractical.

J. "Feasibility Study" or "FS" means that study which fully evaluates and develops remedial action alternatives to prevent or mitigate the migration or the release of hazardous substances, pollutants or contaminants at and from the Site.

K. "IAAP" means the Iowa Army Ammunition Plant as shown on the map in Appendix 1.

L. "National Contingency Plan" or "NCP" means the implementing regulations for CERCLA found in Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300.

M. "Operable Unit" as defined in 40 C.F.R. 300.5 means a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion

of a remedial response manages migration, or eliminates or mitigates a release, threat of a release, or pathway of exposure.

N. "Parties" mean the EPA, and the Army.

O. "Remedial Design" or "RD" means the design that details and addresses the technical requirements of the Remedial Action by establishing the general size, scope and character of a project. Remedial Design begins with preliminary design and ends with the completion of the final detailed set of engineering plans and specifications.

P. "Remedial Investigation" or "RI" means that investigation conducted to fully determine the nature and extent of release or threat of release of hazardous substances, pollutants or contaminants and to gather necessary data to support the Feasibility Study and Endangerment Assessment.

Q. "RCRA" means the Resource Conservation and Recovery Act, 42 U.S.C. § 6901 et seq., as amended by the Hazardous and Solid Waste Amendments of 1984, Pub. L. 98-616.

R. "Site" means the Iowa Army Ammunition Plant and any areas contaminated by the migration of hazardous substances from the Iowa Army Ammunition Plant.

S. "Submittal" means each document, report, schedule, deliverable, work plan or other item to be submitted to the EPA pursuant to this Agreement.

T. "Timetables and Deadlines" mean schedules or the time limitations contained therein, that are applicable to certain documents denoted by the Parties as Primary Documents pursuant to

this Agreement and certain action completion dates during the implementation of this Agreement as established by the Parties.

U. "U.S. EPA" or "EPA" means the United States Environmental Protection Agency, its employees and authorized representatives.

V. "Written Notice of Position" means a written statement by a Party of its position with respect to any matter about which any other Party may initiate dispute resolution pursuant to Part XI of this Agreement.

IV. PURPOSE

A. The general purposes of this Agreement are to:

1. Ensure that the environmental impacts associated with past and present activities at the Site are thoroughly investigated and appropriate remedial action is taken as necessary to protect the public health, welfare and the environment.

2. Establish a procedural framework and schedule for developing, implementing and monitoring appropriate response actions at the Site in accordance with CERCLA/SARA, the NCP, Superfund guidance and policy, RCRA, RCRA guidance and policy.

3. Facilitate cooperation, exchange of information and participation of the Parties in such actions.

B. Specifically, the purposes of this Agreement are to:

1. Identify Operable Unit Remedial Action alternatives which are appropriate at the Site prior to the implementation of final remedial action(s) for the Site. These

alternatives shall be identified and proposed to the Parties as early as possible prior to formal proposal of Operable Unit remedial actions by the Army to the EPA pursuant to CERCLA/SARA. This process is designed to promote cooperation among the Parties in identifying Operable Unit remedial action alternatives prior to selection of final Operable Unit remedial actions.

2. Establish requirements for the performance of a RI to determine fully the nature and extent of the threat to the public health or welfare or the environment caused by the release and threatened release of hazardous substances, pollutants or contaminants at the Site.

3. Establish requirements for the performance of a FS for the Site to identify, evaluate, and select alternatives for the appropriate remedial action(s) to prevent, mitigate, or abate the release or threatened release of hazardous substances, pollutants or contaminants at the Site in accordance with CERCLA/SARA.

4. Identify the nature, objective and schedule of response actions to be taken at the Site. Response actions at the Site shall attain that degree of cleanup of hazardous substances, pollutants or contaminants mandated by CERCLA/SARA.

5. Implement the selected Operable Unit and final remedial action(s) in accordance with CERCLA and meet the requirements of Section 120(e)(2) of CERCLA for an interagency agreement between the EPA and the Army.

6. Assure compliance, through this Agreement, with

RCRA and other federal and state hazardous waste laws and regulations for matters covered herein.

7. Coordinate response actions at the Site with the mission and support activities at IAAP.

8. Expedite the cleanup process (i.e. shortening the time frames specified in this Agreement, whenever possible) to the extent consistent with protection of human health and the environment.

9. Provide for operation and maintenance of any remedial action selected and implemented pursuant to this Agreement.

V. INTENTION AND SCOPE

It is the intention of the Parties that this Agreement shall apply to all releases and threats of release of hazardous substances, pollutants or contaminants at or from IAAP, including such releases and threats of release at or from solid waste management units at IAAP, to which the provisions of CERCLA and RCRA or CERCLA alone apply.

VI. STATUTORY COMPLIANCE/RCRA-CERCLA INTEGRATION

A. The Parties intend to integrate the Army's CERCLA response obligations and RCRA corrective action obligations which relate to the release of hazardous substances, hazardous wastes, pollutants or contaminants covered by this Agreement into this comprehensive Agreement. Therefore, the Parties intend that activities covered by this Agreement will achieve compliance with

CERCLA, 42 U.S.C. § 9601 et seq.; satisfy the corrective action requirements of Sections 3004(u) and (v) of RCRA, 42 U.S.C. § 6924(u) and (v), for a RCRA permit, and Section 3008(h) of RCRA, 42 U.S.C. § 6928(h), for interim status facilities; and meet or exceed all applicable or relevant and appropriate Federal and State laws and regulations, to the extent required by Section 121 of CERCLA, 42 U.S.C. § 9621.

B. Based upon the foregoing, the Parties intend that any remedial action selected, implemented and completed under this Agreement will be protective of human health and the environment such that remediation of releases covered by this Agreement shall obviate the need for further corrective action under RCRA (i.e., no further corrective action shall be required). The Parties agree that with respect to releases of hazardous waste covered by this Agreement, RCRA shall be considered an applicable or relevant and appropriate requirement pursuant to Section 121 of CERCLA.

C. The Parties recognize that the requirement to obtain permits for response actions undertaken pursuant to this Agreement shall be as provided for in CERCLA and the NCP. The Parties further recognize that on-going hazardous waste management activities at IAAP may require the issuance of permits under Federal and State laws. This Agreement does not affect the requirements, if any, to obtain such permits. However, if a permit is issued to IAAP for on-going hazardous waste management activities at the Site, the EPA shall reference and incorporate

any appropriate provisions, including appropriate schedules (and the provision for extension of such schedules), of this Agreement into such permit. With respect to those portions of this Agreement incorporated by reference into permits, the parties intend that judicial review of the incorporated portions shall, to the extent authorized by law, only be reviewed under the provisions of CERCLA.

VII. FINDINGS OF FACT

This paragraph contains findings of fact determined by the EPA as the basis for this Agreement. None of these findings are admissions by IAAP or the Army for any purpose, including the extent of IAAP compliance with applicable federal or state environmental laws, nor are they in any other way legally binding on any Party.

Background

1. The Iowa Army ammunition Plant covers 19,127 acres in rural Des Moines County near Middletown, Iowa, approximately 10 miles west of Burlington, Iowa and the Mississippi River. IAAP is 1 mile northeast of Augusta, Iowa and the Skunk River.

2. IAAP is a Government-Owned, Contractor-Operated (GOCO) installation under the command of the U.S. Army Armament, Munitions, and Chemical Command (AMCCOM), Rock Island, Illinois.

3. IAAP's primary task since 1941 and intermittently to the present, has been Load, Assemble, and Pack (LAP) operations dealing with a variety of conventional ammunitions and fusing

systems. The current operating contractor is Mason and Hanger-Silas Mason Co., Inc.

4. On or about November 7, 1980, pursuant to Section 3005(e) of RCRA, 42 U.S.C. § 6925(e) and 40 C.F.R. § 270.70, the Army submitted a Part A Hazardous Waste Permit Application to the EPA for the subject site which qualified the site for operation under Interim Status.

5. On or about January 27, 1983, pursuant to 40 CFR § 270.10(a), EPA requested that IAAP submit a Part B Hazardous Waste Permit Application no later than July 29, 1983.

6. On or about July 27, 1983, IAAP submitted to EPA a Part B permit application and on or about March 12, 1984, IAAP submitted revisions to the Part B permit application.

7. On or about December 11, 1985 IAAP submitted an amended Part A of the RCRA permit application and on or about May 15, 1987 IAAP submitted a revised Part A permit application.

8. On or about June 12, 1987 the EPA approved the changes to the Part A pursuant to 40 C.F.R. § 270.72, specifically, increasing the design capability of processes used at the facility by adding two additional drum storage units located in Building 10-41-18 and Room A and B in Building 600-86.

9. On or about December 2, 1987, EPA received a revised Part A from IAAP indicating a change or addition during interim status in the processes for treatment, storage or disposal of hazardous waste, specifically, the addition of the container storage area in Building 11-37-34 and wastewater treatment tanks

located near Building 1-03.

10. A Federal Facility Compliance Agreement, Docket No. 88-H-0005, was signed and became effective on April 29, 1988. The compliance agreement required that IAAP:

a. submit a revised and complete Part B Hazardous Waste Permit Application for container storage bldg. No's 900-194-8, 10-41-18, 600-86, 11-37-34; line 6 and line 4A detonator treatment sumps; explosive waste incinerator; waste black powder treatment facility; deactivation furnace and wastewater treatment tanks near bldg. 1-03.

b. submit a Part B Hazardous Waste Permit Application for those open burning areas which will continue operating and submit a closure plan and post-closure plan/post closure permit application for all other open burning areas which will be closed.

c. submit a detailed explanation of the operations of the billet splitter, materials produced as a result of the "splitting" and the marketability of the split billet materials and any other information which might be useful in determining the regulatory status of the billets and billet splitter.

d. if EPA Headquarters determines that the billet splitter is a RCRA regulated hazardous waste management unit, IAAP shall submit a Part B Hazardous Waste Permit Application for the billet splitter.

e. submit a closure plan and post-closure plan for Trench 5 of the inert landfill.

f. manage gravel removed from the gravel filter beds as hazardous waste having the EPA Hazardous Waste No. K046 and submit a closure plan and/or a post-closure plan for the gravel filter beds and the ditches in the Line 6 drainage system.

g. EPA determined that the Blue Sludge lagoon is not a hazardous waste management unit.

h. implement the approved ground water quality assessment plan.

i. achieve compliance for the Part A.

11. On or about May 12, 1988, approval was given for the following amendments to IAPPs interim status: 1.) container storage unit in Building 11-37-34 in the Yard L storage area; 2.) tank storage unit located near Building 1-03; and 3.) black powder treatment tanks capacity change.

12. On or about September 1988, a revised Part B Permit

application was submitted to the EPA. IAAP modified the Part B application by amendments dated July 1989 and August 1989.

13. The Iowa Army Ammunition Plant was proposed for inclusion on the National Priorities List pursuant to Section 105 of CERCLA, 42 U.S.C. §9605, on July 14, 1989; see 54 Fed. Reg. 143 (1989). A Hazardous Ranking System (HRS) score of 29.73 was assigned to the site.

14. A Hazardous Waste Permit (EPA ID No. IA7213820445), dated November 1, 1989, was issued to IAAP on November 8, 1989 for certain hazardous waste management units. The Permit was issued for the operation of hazardous waste management facilities solely for hazardous wastes generated onsite from the production of ammunition items. No hazardous wastes generated offsite are accepted for on-site hazardous waste management. The Permit will remain in effect for ten (10) years from the date of issuance.

15. In compliance with the permit, hazardous wastes are managed in five (5) separate container storage units, thirty-eight (38) treatment tanks, and two (2) incinerators.

16. The five (5) container storage units are located in buildings No. 600-86, 11-37-34, 900-194-8 and 10-41-18. Building 600-86 consists of two container storage units in rooms A and B.

17. IAAP operates thirty-eight (38) treatment tanks. These units are known as the waste black powder treatment facility, the Line 4A treatment tanks, and the Line 1 treatment tanks.

18. The two (2) incinerators consist of the Explosive Waste

Incinerator (EWI) and the Deactivation Furnace (DF).

19. Thirty (30) Solid Waste Management Units (SWMU) have been identified at IAAP (as listed in Appendix 2) from the following inventories conducted at the facility:

a. RCRA Facility Assessment, Final Report, dated September 28, 1987;

b. Installation Assessment of the Iowa Army Ammunition Plant, Record Evaluation Report No. 127, dated January 1980.

c. RCRA Part B Hazardous Waste Permit.

20. IAAP submitted a permit amendment to EPA on or about May 1, 1990 to reduce the treatment tanks from 38 to 18. The amendment requests that 20 containers be deleted at the black powder treatment facility.

21. IAAP is seeking Part B permit status for a billet splitter at Building Number BG-2 and for storage of sump scrap and contaminated carbon at Building BG-12.

Environmental Studies

Certain environmental studies as listed below, have been performed at IAAP prior to this Agreement, but EPA has neither approved nor disapproved such studies or the conclusions stated therein.

1. An Installation Assessment to assess IAAP environmental quality, conducted by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), was completed in January 1980. The Installation Assessment identified four major contaminated areas:

Line 1, Load/Assembly and Pack Areas, Waste Lagoons, and Demolition Areas. Contaminants included ammunition primer mixes and the explosives 2,4,6-trinitrotoluene (TNT), cyclotrimethylenetrinitramine (RDX), and cyclotetramethylenetetranitramine (HMX).

2. An RI to determine contamination levels and off-IAAP migration potential was conducted by Environmental Research Group from February 1981 to October 1982. The RI revealed that RDX surface water contamination migration was occurring in Brush and Spring Creeks and that localized RDX ground water contamination was detected in the Pink Water Lagoon/Line 800 Area.

3. A follow-on RI to evaluate contamination levels and to characterize off-IAAP migration was conducted by Battelle from September 1982 to August 1984. The RI study concluded that no explosives contamination was found in surface or ground water at the IAAP boundary near Spring Creek. However, RDX ground water contamination levels exceeded human health criteria at the IAAP boundary near Brush Creek. The RI study could not conclusively prove that explosives contamination in the Pink Water Lagoon was localized. In addition, insufficient data was available to determine whether Brush Creek RDX contamination resulted from the Impoundment Area sediment leachate or from surface discharges.

4. Sampling and analysis of all IAAP monitoring wells and selected surface water sites was performed by Dames & Moore from September 1985 to October 1985. The study found localized contamination within the Pink Water Lagoon Area where the

explosives RDX, 2,4-dinitrotoluene (24DNT), 2,6-dinitrotoluene (26DNT), and TNT exceeded criteria levels.

5. An Endangerment Assessment to assess present and future risks at the Line 1 Impoundment and Line 800 Pink Water Lagoon areas was conducted by Dames & Moore from September 1985 to July 1989. Remedial action criteria were identified.

6. An FS to evaluate Remedial Action Alternatives for the Line 1 Impoundment and Line 800 Pink Water Lagoon areas was conducted by Dames & Moore from September 1985 to July 1989.

7. An assessment to evaluate contamination at the IAAP service station site (Petroleum Leak/Spill Area) was conducted by Dames & Moore from June 1989 to March 1990. Results from ground water, surface water, soil, and sediment samples indicated localized hydrocarbon and aromatic contamination in the soil and shallow ground water. Semi-annual monitoring of the ten monitoring wells is performed.

Contamination

1. Munitions production and renovation operations at IAAP have resulted in discharge of wastewaters containing explosives and explosive by-products to surface water systems, including holding ponds and impoundments.

2. An abandoned Pink Water Lagoon near Line 800 was operated from approximately 1943 to 1957. The lagoon is adjacent to Line 800 and an intermittent tributary to Brush Creek.

3. The Line 800 Pink Water Lagoon consists of an unlined, 5-acre impoundment approximately 4 feet deep surrounded by an

earthen berm.

4. From 1943 to 1955, the primary activity at Line 800 was ammunition renovation. The Line 800 Pink Water Lagoon was constructed in 1943 for the disposal of effluent from Line 800 and sludges trucked in from other operations around IAAP.

5. Historically, the abandoned Pink Water Lagoon also received all wastewater discharges from Line 1 including process water, washdown water, and other water that came in contact with explosives. Hence, the types of materials processed from Line 1 and potentially contained in the discharge included:

- composition B
- PBX
- RDX
- TNT
- baratol
- boracitol

6. Disposal of metal cleaning wastes at the Pink Water Lagoon also took place. Disposal of carbon and fly ash may have also occurred.

7. No known water treatment process was employed at the Pink Water Lagoon.

8. Currently, the Pink Water Lagoon is not used for wastewater disposal and holds accumulated sediments and standing water.

9. Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds are listed hazardous waste identified as K046 at 40 C.F.R. § 261.32.

10. Ground water monitoring wells were installed in the Pink Water Lagoon area near Line 800. Monitoring wells G-17

through G-20 were installed in 1981. Monitoring wells G-40 through G-47 were installed in November 1983.

11. Ground water samples were taken in December 1983. High levels of RDX and other explosives were detected in shallow wells G-17, G-18, G-19, and G-20 which are nested around the perimeter of the Line 800 Pink Water Lagoon. The Sample results are summarized below. All concentrations are in µg/l (micrograms per liter).

Well No.	RDX	TNB	2,4-DNT	TNT	2,6-DNT
G-17	68	nd	nd	nd	nd
G-18	9700	nd	45	760	89
G-19	7000	nd	25	160	45
G-20	20000	2300	110	860	140

nd - not detected above analytical detection limits

12. A surface water sample taken from the Line 800 Pink Water Lagoon in December 1983 indicated RDX at a level of 270 µg/l.

13. An intermittent drainage stream from Line 800 flows into Brush Creek. Brush Creek flows east of Line 800 and along the western border of Line 2 and Line 1. Sediment samples obtained along Brush Creek near Line 1 in December 1983 showed RDX concentrations from less than 0.5 µg/g (microgram per gram) to 400 µg/g. Surface water samples taken from Brush Creek along Line 800 to Line 1 ranged from less than 8.1 µg/l to 82 µg/l RDX.

14. Line 1 began operations in 1941 and continues to operate. An abandoned containment impoundment (hereinafter

"Former Line 1 Impoundment") is located near Line 1. The Impoundment was created in 1948 when a dam was constructed along the upper reaches of Brush Creek to impound effluent discharged from Line 1.

15. The Former Line 1 Impoundment extended about 1,300 feet upstream of the dam and covered approximately 3.6 acres. During period of high stream flow, the Impoundment may have reached as far as 2,400 feet upstream and covered an area as large as 7.5 acres.

16. The primary function of the Former Line 1 Impoundment was to allow settlement of particulates from explosives-contaminated wastewater prior to discharge downstream.

17. Wastes discharged into the Former Line 1 Impoundment included TNT and its degradation products.

18. During the 1981 SCS Engineers, Underground Pollution Investigation sludge sample No. 1 collected from the Former Line 1 Impoundment exhibited RCRA characteristic of ignitability.

19. TNT and RDX were detected in Brush Creek sediments, during the 1981 investigation, near the Former Line 1 Impoundment.

20. The 1984 Battelle Follow-on Study of Environmental Contamination concluded that explosives contamination in sediments at the Former Line 1 Impoundment is greatest near the southern end, but significant concentrations are present at least 500 feet upstream of the former dam.

21. No known water treatment process was employed at the Former Line 1 Impoundment other than the intermittent addition of

fly ash to adsorb explosive components and reduce color.

22. In 1957, the Former Line 1 Impoundment and some of the accumulated sediments were removed and impou: :ng was discontinued.

Endangerment

1. Four aquifer systems have been identified in southeastern Iowa, the drift aquifer which is the uppermost aquifer, the Mississippian aquifer, the Devonian aquifer, and the Cambrian-Ordovician aquifer.

2. Private residents utilize the shallow drift aquifer and the upper Mississippian aquifer for drinking water.

3. An estimated 100 people obtain drinking water from private wells within 3 miles of the location of hazardous substances at IAAP.

4. Surface water within 3 miles downstream of IAAP is used for recreational activities.

5. RDX has been detected in surface water samples obtained from Brush Creek at levels ranging up to 185 µg/l.

6. RDX and HMX were the dominant compounds detected in sediment samples obtained from Brush Creek. Concentrations up to 400 mg/kg RDX and 61 mg/kg HMX were detected in the sediment samples.

7. Contaminated sediments from Brush Creek have the potential to be eroded during period of high discharge and scour.

8. Other lines along Brush Creek with wastewater outfalls that may have contributed explosive contaminants to Brush Creek

include Line 2, Line 3, Line 5A, and the sewage disposal plant.

9. The following compounds have been used in the course of operations at the Iowa Army Ammunition Plant and are potential contaminants at the site:

Explosives
composition B
PBX
RDX
TNT
1,3,5 TNB
Boratol
Boracitol
lead azide
black powder
amatol (NH_4NO_3/TNT)
tetrazine
lead styphate
mercury fulminate
barium nitrate
antimony sulfate

Metal Cleaning
chromic acid

Pesticides
lindane
heptachlor
DDT
strychnine
2,4,5-T

Solvents
acetone
ethyl ether
xylene
toluene
methyl ethyl ketone (MEK)
benzene
chloroform
acetonitrile

Combustion by-products
fly ash

VIII. DETERMINATIONS OF LAW

This paragraph contains determinations of law made solely by the EPA. As with the Findings of Fact, infra, they are not admissions by IAAP or the Army for any purpose.

A. IAAP is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9);

B. IAAP is a person as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

C. Hazardous substances and pollutants or contaminants within the meaning of Sections 101(14) and 101(33) of CERCLA 42 U.S.C. §§ 9601(14) and (33), have been disposed of at IAAP;

D. There is a release or threatened release of hazardous substances and pollutants, or contaminants, into the environment at the Site as defined at Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

E. The Site is a federal facility within the meaning of Section 120 of CERCLA, 42 U.S.C. § 9620.

F. The response actions addressed by this Agreement are under the jurisdiction of the Army.

G. The actions to be taken pursuant to this Agreement are necessary to protect the public health and welfare and the environment and are consistent with the NCP.

H. The schedule for completing the actions required by this Agreement complies with the requirements of Section 120(e) of CERCLA, 42 U.S.C. § 9620(e).

IX. WORK TO BE PERFORMED

It is hereby agreed by the Parties that the Army shall conduct each of the following activities in accordance with the schedules set forth below and the deadlines established pursuant to Part XXIX of this Agreement:

A. Remedial Investigation and Feasibility Study

1. The Army shall conduct, in compliance with the deadlines established pursuant to Part XXIX of this Agreement, a

Remedial Investigation and Feasibility Study in accordance with the guidelines set forth in the document entitled "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA", OSWER Directive 9355.3-01 (October 1988) or more recent version thereof as EPA shall make available to the Army during the course of the RI/FS. The Remedial Investigation shall include, inter alia, the design and implementation of a monitoring program to define the extent and nature of environmental contamination, including but not limited to, soil, sediment, ground water, surface water, air, and biota contamination ,if any, at the Site and the extent and nature of releases of hazardous substances from the Site.

2. In accordance with Parts X and XXIX of this Agreement, the Army shall submit to the EPA for review and approval the RI and FS work plans.

3. The Army shall implement the RI and FS in accordance with the schedule established pursuant to Part XXIX of this Agreement.

4. The Parties agree that final Site cleanup level criteria will only be determined following completion of a Sitewide Risk Assessment to be prepared by the Army as part of the RI. The RI shall be coordinated with the FS such that both activities are completed in a timely and cost effective manner.

B. Operable Unit Remedial Actions

1. In accordance with Part XXIX of this Agreement, the

Army shall propose deadlines for the completion of Operable Unit Work Plans for any Operable Unit remedial actions currently anticipated. These work plans shall be reviewed in accordance with Part X of this Agreement.

2. All Operable Unit remedial actions undertaken pursuant to this Agreement shall comply with all NCP requirements and EPA guidelines governing such actions.

3. All requirements for remedial action selection and implementation pursuant to this Agreement shall apply to the selection and implementation of Operable Unit remedial actions.

4. Removal actions may be conducted on portions of the Site included within Operable Units in the same manner and to the same extent as if Operable Units had not been identified at the Site.

C. Remedial Action Selection

1. Upon approval of a FS Report by the EPA, the Army shall, after consultation with the EPA pursuant to Part X of this Agreement, publish the proposed plan for public review and comment in accordance with the public participation requirements of Part XXVII of this Agreement.

2. Within sixty (60) days of the completion of the public comment period on the proposed plan, the Army shall submit its proposed Record of Decision (ROD), including its response to all significant comments received from the public during the public comment period (Responsiveness Summary), to the EPA. The proposed ROD and Responsiveness Summary shall be written in

accordance with the guidance document entitled, "Guidance on Preparing Superfund Decision Documents", EPA/540/G-89/007 (July 1989) or more recent version thereof. In accordance with 40 C.F.R. Section 300.430(f)(4)(iii), the selection of the remedial action(s) at the Site shall be jointly made by the Army and the EPA in accordance with Section X of this Agreement. If mutual agreement on the remedy is not reached, selection of the remedy shall be made by the EPA Administrator. The remedial action selected by the EPA Administrator shall be final and is not subject to dispute resolution under Part XI, herein.

3. As specified in Section 120(e)(2) of CERCLA, the Army shall commence substantial and continuous physical onsite remedial action at the Site within fifteen (15) months of receipt of written notice of final approval of the ROD by the EPA.

4. The Army shall implement the remedial action in accordance with the provisions, time schedule, standards and specifications set forth in the approved Remedial Action Work Plan.

5. Prior to commencement of any remedial action, the Army shall provide for public participation in accordance with Part XXVII of this Agreement.

D. Removal Actions

1. Any removal actions undertaken by the Army at the Site will be conducted in a manner consistent with CERCLA including the notice and consultation provision of 10 U.S.C. § 2705, the NCP, and applicable state law.

2. For all removal actions, except emergency removals, prior to undertaking the action, the Army shall advise the EPA, in writing, as to the basis for the action, the nature of the action, the expected time period during which the action will be implemented, and the impact, if any, on any remedial action contemplated at the Site. For emergency removals, the Army shall provide as much advance notice as the circumstances leading to the removal action allow.

3. Prior to the initiation of any removal action which is not an emergency removal, the Army shall provide the EPA with an adequate opportunity for timely review and comment on any such proposed removal action. Following consideration of the EPA comments, the Army shall provide to the EPA a written response to those comments, as soon as practicable, normally within thirty (30) days of receipt of EPA comments. Army determination as to the necessity for taking emergency removal action shall not be subject to Parts XI and XXXI of this Agreement.

4. Upon completion of a removal action, the Army shall provide to the EPA, in writing, notification of the completion of the removal action and a description of the action taken.

5. If the EPA determines that there may be an imminent and substantial endangerment to the public health or welfare or the environment because of actual or threatened release of a hazardous substance, pollutant or contaminant at or from the Site, including, but not limited to, discovery of contamination of drinking water wells at concentrations that exceed any State

or Federal drinking water standards or action levels, the EPA may request that the Army take such response actions as may be necessary to abate such endangerment or threat and to protect the public health or welfare or the environment.

6. To the extent permitted by law, the EPA reserves such rights as it may have under CERCLA and the NCP to undertake any such response actions necessary, if the Army fails to undertake such response actions. To the extent permitted by law, the EPA may seek reimbursement from the Army for costs incurred for undertaking such response actions.

7. Nothing in this Agreement shall alter the Army's authority with respect to removal actions conducted pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604.

X. CONSULTATION WITH EPA

A. Applicability:

1. The provisions of this Part establish the procedures that shall be used by the Army and the EPA to provide the Parties with appropriate notice, review, comment, and response to comments regarding RI/FS and RD/RA documents specified herein as either primary or secondary documents. In accordance with Section 120 of CERCLA and 10 U.S.C. § 2705, the Army will normally be responsible for issuing primary and secondary documents to the EPA. As of the effective date of this Agreement, all draft and final reports for any deliverable document identified herein shall be prepared, distributed and subject to dispute in accordance with Paragraphs B through J

below.

2. The designation of a document as "draft" or "final" is solely for purposes of consultation with the EPA in accordance with this Part. Such designation does not affect the obligation of the Parties to issue documents, which may be referred to herein as "final", to the public for review and comment as appropriate and as required by law.

B. General Process for RI/FS and RD/RA documents:

1. Primary documents include those reports that are major, discrete portions of RI/FS or RD/RA activities. Primary documents are initially issued by the Army in draft subject to review and comment by the EPA. Following receipt of comments on a particular draft primary document, the Army will respond in writing to the comments received and issue a draft final primary document subject to dispute resolution. The draft final primary document will become the final primary document thirty (30) days after issuance, if dispute resolution is not invoked, or as modified by decision of the dispute resolution process.

2. Secondary documents include those reports that are discrete portions of the primary documents and are typically input or feeder documents. Secondary documents are issued by the Army in draft subject to review and comment by the EPA. Although the Army will respond to comments received, the draft secondary documents may be finalized in the context of the corresponding primary documents. A secondary document may be disputed at the time the corresponding draft final primary

document is issued.

C. Primary Reports:

1. The Army shall complete and transmit draft reports for the following primary documents to the EPA for review and comment in accordance with the provisions of this Part:

a. Conceptual Program Plan

b. Potential Areas of Concern Supplemental Report

c. Remedial Investigation Work Plan(s), including Sampling and Analysis Plan(s) and QAPP(s)

d. Remedial Investigation Report(s)

e. Baseline Risk Assessment(s)

f. Feasibility Study Work Plan(s)

g. Feasibility Study Report(s)

h. Proposed Plan(s)

i. Record(s) of Decision

j. Operable Unit Work Plan(s) and Report(s)

k. Remedial Design Work Plan(s)

l. Final Remedial Design(s)

m. Construction QA/QC Plan(s)

n. Remedial Action Work Plan(s)

o. Remedial Action Report(s), and

p. Community Relations Plan(s)

2. Only the draft final reports for the primary documents identified above shall be subject to dispute resolution. The Army shall complete and transmit draft primary documents in accordance with the timetable and deadlines

established in Part XXIX of this Agreement.

D. Secondary Documents:

1. The Army shall complete and transmit draft reports for the following secondary documents to the EPA for review and comment in accordance with the provisions of this Part:

a. Operable Unit Remedial Action Objectives/Data Quality Objectives

b. Health and Safety Plan for RI/FS Activities

c. Initial Screening of Alternatives

d. Detailed Analysis of Alternatives

e. Pre-design Technical Summary

f. Preliminary Design(s) (30% completion)

g. Intermediate Design(s) (60% completion)

h. Pre-final Design(s) (90% completion)

i. Health and Safety Plan for Field Construction Activities

j. Contingency Plan, and

k. Operation and Maintenance Plan

l. Treatability Studies (if necessary)

2. Although the EPA may comment on the draft reports for the secondary documents listed above, such documents shall not be subject to dispute resolution except as provided by Paragraph B hereof. Target dates shall be established for the completion and transmission of draft secondary reports pursuant to Part XXIX of this Agreement.

E. Meetings of the Project Managers on Development of Reports:

The Project Managers shall meet approximately every thirty (30) days, except as otherwise agreed by the Parties, to review and discuss the progress of work being performed at the site on the primary and secondary documents. Prior to preparing any draft report specified in Paragraphs C and D above, the Project Managers shall meet to discuss the report results in an effort to reach a common understanding, to the maximum extent practicable, with respect to the results to be presented in the draft report.

F. Identification and Determination of Potential ARARs:

1. For those primary reports or secondary documents that consist of or include ARAR determinations, prior to the issuance of a draft report, the Project Managers shall meet to identify and propose, to the best of their ability, all potential ARARs pertinent to the report being addressed. Draft ARAR determinations shall be prepared by the Army in accordance with Section 121(d)(2) of CERCLA, the NCP and pertinent guidance issued by the EPA, that is consistent with CERCLA and the NCP.

2. In identifying potential ARARs, the Parties recognize that actual ARARs can be identified only on a site-specific basis and that ARARs depend on the specific hazardous substances, pollutants and contaminants at a site, the particular actions proposed as a remedy and the characteristics of a site. The Parties recognize that ARAR identification is necessarily an iterative process and that potential ARARs must be re-examined

throughout the RI/FS process until a ROD is issued.

G. Review and Comment on Draft Reports:

1. The Army shall complete and transmit each draft primary report to the EPA on or before the corresponding deadline established for the issuance of the report. The Army shall complete and transmit the draft secondary document in accordance with the target dates established for the issuance of such reports established pursuant to Part XXIX of this Agreement.

2. Unless the Parties mutually agree to another time period, all draft reports shall be subject to a forty five (45)-day period for review and comment. Review of any document by the EPA may concern all aspects of the report (including completeness) and should include, but is not limited to, technical evaluation of any aspect of the document, and consistency with CERCLA, the NCP and any pertinent guidance or policy issued by the EPA. Comments by the EPA shall be provided with adequate specificity so that the Army may respond to the comments and, if appropriate, make changes to the draft report. Comments shall refer to any pertinent sources of authority or references upon which the comments are based, and, upon request of the Army, the EPA shall provide a copy of the cited authority or reference. In cases involving complex or unusually lengthy reports, EPA may extend the 45-day comment period for an additional 20 days by written notice to the Army prior to the end of the forty five (45)-day period. On or before the close of the comment period, EPA shall transmit their written comments to the

Army.

3. Representatives of the Army shall make themselves readily available to the EPA during the comment period for purposes of informally responding to questions and comments on draft reports. Oral comments made during such discussions need not be the subject of a written response by the Army on the close of the comment period.

4. In commenting on a draft report which contains a proposed ARAR determination, the EPA shall include a reasoned statement of whether they object to any portion of the proposed ARAR determination. To the extent that EPA does object, it shall explain the basis for its objection in detail and shall identify any ARARs which it believes were not properly addressed in the proposed ARAR determination.

5. Following the close of the comment period for a draft report, the Army shall give full consideration to all written comments on the draft report submitted during the comment period. Within forty five (45) days of the close of the comment period on a draft secondary report, the Army shall transmit to EPA its written response to comments received within the comment period. Within forty five (45) days of the close of the comment period on a draft primary report, the Army shall transmit to EPA a draft final primary report, which shall include the Army's response to all written comments received within the comment period. While the resulting draft final report shall be the responsibility of the Army, it shall be the product of consensus

to the maximum extent possible.

6. The Army may extend the forty five (45)-day period for either responding to comments on a draft report or for issuing the draft final primary report for an additional twenty (20) days by providing notice to the EPA. In appropriate circumstances, this time period may be further extended in accordance with Part XII hereof.

H. Availability of Dispute Resolution for Draft Final Primary Documents:

1. Dispute resolution shall be available to the Parties for draft final primary reports as set forth in Part XI.

2. When dispute resolution is invoked on a draft final primary report, work may be stopped in accordance with the procedures set forth in Part XI regarding dispute resolution.

I. Finalization of Reports:

The draft final primary report shall serve as the final primary report if no party invokes dispute resolution regarding the document or, if invoked, at completion of the dispute resolution process should the Army's position be sustained. If the Army's determination is not sustained in the dispute resolution process, the Army shall prepare, within not more than thirty five (35) days, a revision of the draft final report which conforms to the results of dispute resolution. In appropriate circumstances, the time period for this revision period may be extended in accordance with Part XII hereof.

J. Subsequent Modifications of Final Reports:

Following finalization of any primary report pursuant to Paragraph I above, the EPA or the Army may seek to modify the report, including seeking additional field work, pilot studies, computer modeling or other supporting technical work, only as provided in Paragraphs J. 1 and J. 2 below.

1. The EPA or the Army may seek to modify a report, after finalization, if it determines, based on new information (i.e., information that became available, or conditions that became known after the report was finalized) that the requested modification is necessary. The EPA or the Army may seek such a modification by submitting a concise written request to the Project Manager of the other Party. The request shall specify the nature of the requested modification and how the request is based on new information.

2. In the event that a consensus is not reached by the Project Managers on the need for a modification, either the EPA or the Army may invoke dispute resolution to determine if such modification shall be conducted. Modification of a report shall be required only upon a showing that: (1) the requested modification is based on significant new information, and (2) the requested modification could be of significant assistance in evaluating impacts on the public health or the environment, in evaluating the selection of remedial alternatives, or in protecting human health and the environment.

3. Nothing in this Subpart shall alter the EPA's

ability to request the performance of additional work which was not contemplated by this Agreement. The Army's obligation to perform such work must be established by either a modification of a report or document or by amendment to this Agreement.

XI. RESOLUTION OF DISPUTES

Except as specifically set forth elsewhere in this Agreement, if a dispute arises under this Agreement, the procedures of this Part shall apply.

All Parties to this Agreement shall make reasonable efforts to informally resolve disputes at the Project Manager or immediate supervisor level. If resolution cannot be achieved informally, the procedures of this Part shall be implemented to resolve a dispute.

A. Within forty-five (45) days after: (1) issuance of a draft final primary document pursuant to Part X (Consultation) of this Agreement, or (2) any action which leads to or generates a dispute, the disputing Party shall submit to the Dispute Resolution Committee (DRC) a written statement of dispute setting forth the nature of the dispute, the work affected by the dispute, the disputing Party's position with respect to the dispute and the technical, legal or factual information the disputing Party is relying upon to support its position.

B. Prior to any Party's issuance of a written statement of dispute, the disputing Party shall engage the other Parties in informal dispute resolution among the Project Managers and/or their immediate supervisors. During this informal dispute

resolution period the Parties shall meet as many times as are necessary to discuss and attempt resolution of the dispute.

C. The Dispute Resolution Committee will serve as a forum for resolution of disputes for which agreement has not been reached through informal dispute resolution. The Parties shall each designate one individual and an alternate to serve on the DRC. The individuals designated to serve on the DRC shall be employed at the policy level (Senior Executive Service (SES) or equivalent) or be delegated the authority to participate on the DRC for the purposes of dispute resolution under this Agreement. The EPA representative on the DRC is the Waste Management Division Director of EPA's Region VII. The Army's designated member is the Commander, IAAP. Written notice of any delegation of authority from a Party's designated representative on the DRC shall be provided to all other Parties pursuant to the procedures of Part XVIII.

D. Following elevation of a dispute to the DRC, the DRC shall have twenty-one (21) days to unanimously resolve the dispute and issue a written decision signed by all Parties. If the DRC is unable to unanimously resolve the dispute within this twenty-one (21) day period the written statement of dispute shall be forwarded to the Senior Executive Committee (SEC) for resolution, within seven (7) days after the close of the twenty-one (21) day resolution period.

E. The SEC will serve as the forum for resolution of disputes for which agreement has not been reached by the DRC.

The EPA representative on the SEC is the Regional Administrator of EPA's Region VII. The Army's representative on the SEC is the Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) OASA (I, L & E). The SEC members shall, as appropriate, confer, meet and exert their best efforts to resolve the dispute and issue a written decision signed by all Parties. If unanimous resolution of the dispute is not reached within twenty-one (21) days, EPA's Regional Administrator shall issue a written position on the dispute. The Army may, within fourteen (14) days of the Regional Administrator's issuance of EPA's position, issue a written notice elevating the dispute to the Administrator of EPA for resolution in accordance with all applicable laws and procedures. In the event that the Army elects not to elevate the dispute to the Administrator within the designated fourteen (14) day escalation period, the Army shall be deemed to have agreed with the Regional Administrator's written position with respect to the dispute.

F. Upon escalation of a dispute to the Administrator of EPA pursuant to Subpart E, the Administrator will review and resolve the dispute within twenty-one (21) days. Upon request, and prior to resolving the dispute, the EPA Administrator shall meet and confer with the Army Secretariat Representative to discuss the issue(s) under dispute. Upon resolution, the Administrator shall provide the Army with a written final decision setting forth resolution of the dispute. The duties of the Administrator set forth in this Part shall not be delegated.

G. The pendency of any dispute under this Part shall not affect the Army's responsibility for timely performance of the work required by this Agreement, except that the time period for completion of work affected by such dispute shall be extended for a period of time usually not to exceed the actual time taken to resolve any good faith dispute in accordance with the procedures specified herein. All elements of the work required by this Agreement which are not affected by the dispute shall continue and be completed in accordance with the applicable schedule.

H. When dispute resolution is in progress, work affected by the dispute will immediately be discontinued if the Hazardous Waste Division Director for EPA's, Region VII, requests in writing, that work related to the dispute be stopped because, in EPA's opinion, such work is inadequate or defective, and such inadequacy or defect is likely to yield an adverse effect on human health or the environment, or is likely to have a substantial adverse effect on the remedy selection or implementation process. To the extent possible, the EPA shall consult with the Army prior to initiating a work stoppage request. After stoppage of work, if the Army believes that the work stoppage is inappropriate or may have potential significant adverse impacts, the Army may meet with the EPA Division Director to discuss the work stoppage. Following this meeting, and further consideration of the issues, the EPA Division Director will issue, in writing, a final decision with respect to the work stoppage. The final written decision of the EPA Division

Director may immediately be subjected to formal dispute resolution. Such dispute may be brought directly to either the DRC or the SEC, at the discretion of the Army.

I. Within twenty-one (21) days of resolution of a dispute, pursuant to the procedures specified in this Part, the Army shall incorporate the resolution and final determination into the appropriate plan, schedule or procedures and proceed to implement this Agreement according to the amended plan, schedule or procedures.

J. Resolution of the dispute pursuant to this Part of the Agreement constitutes a final resolution of the dispute arising under this Agreement. All Parties shall abide by all terms and conditions of any final resolution of dispute obtained pursuant to this Part of this Agreement.

XII. EXTENSIONS

A. Either a timetable and deadline or a schedule shall be extended upon receipt of a timely request for extension and when good cause exists for the requested extension. Any request for extension by the Army shall be submitted in writing and shall specify:

1. The timetable and deadline or the schedule that is sought to be extended;
2. The length of the extension sought;
3. The good cause(s) for the extension; and
4. Any related timetable and deadline or schedule that would be affected if the extension were granted.

B. Good cause exists for an extension when sought in regard to:

1. An event of force majeure, as defined in Part XXXII of this Agreement;

2. A delay caused by another Party's failure to meet any requirement of this agreement;

3. A delay caused by the good faith invocation of dispute resolution or the initiation of judicial action;

4. A delay caused, or which is likely to be caused, by the grant of an extension in regard to another timetable and deadline or schedule; and

5. Any other event or series of events mutually agreed to by the Parties as constituting good cause.

C. Absent agreement of the Parties with respect to the existence of good cause, the Army may seek and obtain a determination through the dispute resolution process that good cause exists.

D. Within seven (7) days of receipt of a request for an extension of a timetable and deadline or a schedule, the EPA shall advise the Army in writing of its respective position on the request. Any failure by the EPA to respond within the seven (7)-day period shall be deemed to constitute concurrence in the request for extension. If the EPA does not concur in the requested extension, it shall include in its statement of nonconcurrence an explanation of the basis for its position.

E. If there is consensus among the Parties that the

requested extension is warranted, the Army shall extend the affected timetable and deadline or schedule accordingly and submit the extended timetable or schedule in writing. If there is no consensus among the Parties as to whether all or part of the requested extension is warranted, the timetable and deadline or schedule shall not be extended except in accordance with determination resulting from the dispute resolution process.

F. Within seven (7) days of receipt of a statement of nonconcurrence with the requested extension, the Army may invoke dispute resolution.

G. A timely and good faith request for an extension shall toll any assessment of stipulated penalties or application for judicial enforcement of the affected timetable and deadline or schedule until a decision is reached on whether the requested extension will be approved. If dispute resolution is invoked and the requested extension is denied, stipulated penalties may be assessed and may accrue from the date of the original timetable, deadline or schedule. Following the grant of an extension, an assessment of stipulated penalties or an application for judicial enforcement may be sought only to compel compliance with the timetable and deadline or schedule as most recently extended.

XIII. CREATION OF DANGER

A. In the event the EPA determines that activities conducted pursuant to this Agreement, or any other circumstance or activity, are creating an imminent and substantial endangerment to the health or welfare of the people on the Site or in the

surrounding area or to the environment, the EPA may direct the Army to cease further implementation of work under this Agreement for such period of time as necessary to abate the endangerment.

B. If directed by the EPA to cease work pursuant to this Part, the Army shall immediately comply without regard to the invocation of the Dispute Resolution provisions of this Agreement. The EPA may direct the Army to cease further implementation of this Agreement for such period of time as needed to abate the endangerment.

C. The EPA within 24 hours of directing the Army to cease work pursuant to this provision shall provide a written statement of the basis for its directing the cessation of work.

D. Within three (3) business days from the date of receipt of this written statement the Army may request a review of the work cessation. This request shall include a statement as to the Army's basis for recommending that the work stoppage cease and as to possible measures to abate or mitigate the endangerment. Within seventy two (72) hours of an Army request for review, the EPA Division Director shall determine in writing whether continued work cessation is necessary. This final decision shall be subject Dispute Resolution as set forth in Part XI.

E. Any such work ceased as directed by the EPA under this Part may be a basis for modifying the schedule of activities affected by such work cessation.

XIV. REPORTING

A. Throughout the course of the activities required by this Agreement, the Army shall submit to the EPA written quarterly progress reports, which shall include, but are not limited to, the following:

1. A description of the actions completed during the quarter towards compliance with this Agreement;

2. A description of all actions scheduled for completion during the quarter which were not completed, along with a statement indicating why such actions were not completed and an anticipated completion date;

3. Copies of all data and sampling and test results and all other laboratory deliverables received by the Army and completed pursuant to this Agreement during the quarter, if not previously provided; and

4. A description of the actions which are scheduled for the following quarter.

B. These quarterly reports shall be due on or before the fifteenth (15th) day of the month following the quarter for which the report is submitted.

C. The EPA reserves the right to make reasonable requests for raw data and all other laboratory deliverables at any time.

XV. MONITORING AND QUALITY ASSURANCE

A. In accordance with Part X of this Agreement, the Army shall develop a Quality Assurance Project Plan (QAPP) for each

Remedial Investigation, including investigations conducted for an Operable Unit, for review and comment by the EPA. The QAPPs shall be prepared in accordance with the EPA Document QAMS-005/80 and applicable guidance as developed and provided by the EPA and shall include, but not be limited to, sampling methodology, sample storage and shipping methods, documentation, sampling and chain-of-custody procedures, calibration procedures, and laboratory quality control/quality assurance procedures and frequency. The Army shall use the quality assurance/quality control and chain of custody procedures specified in the QAPPs throughout all field investigation, sample collection and laboratory analysis activities. The Army shall inform and obtain the approval of the EPA in planning all sampling and analysis.

B. The Army shall submit all methods and protocols used for sampling and analysis to the EPA for review/comment and approval. The Army shall ensure that the laboratory(s) utilized for sample analysis participate in the U.S. Army Toxic and Hazardous Materials Agency quality assurance/quality control program. All laboratories analyzing samples pursuant to this Agreement shall perform analyses of samples provided by the EPA to demonstrate the quality of analytical data from each laboratory used by the Army.

C. The Army shall allow the EPA and their authorized representatives access to the laboratory(s) and personnel utilized by the Army for sample collection and analysis and other field work.

XVI. SAMPLING AND DATA/DOCUMENT AVAILABILITY

A. The Army shall make available to the EPA all results of sampling, tests and other data collection, including quality assurance documentation obtained by it, or on its behalf, with respect to the implementation of this Agreement, within thirty (30) days of receipt of such results. This includes, but is not limited to, sampling of all areas known or suspected to have been contaminated by hazardous substances, and any water supply wells and systems, included in the remedial investigation. If quality assurance is not completed within thirty (30) days of the receipt of results, summarized raw data or results shall be submitted within the thirty (30) day period and quality assured data or results shall be submitted immediately upon receipt by IAAP.

B. At the request of the EPA, the Army shall allow the EPA to collect split or duplicate samples of all samples collected pursuant to this Agreement. The Army shall notify the EPA at least fourteen (14) days prior to any sample collection. If it is not possible to provide fourteen (14) days advance notice, the Army shall provide as much notice as possible of the date and time that samples will be collected. The EPA will make the quality assured results of all sampling, tests, or other data available to the Army within thirty (30) days of receipt of such results.

XVII. CONFIDENTIAL BUSINESS INFORMATION

A. The Army may assert a business confidentiality claim covering all or part of the information submitted pursuant to

this Agreement, in accordance with Section 104(e)(7) of CERCLA. Results of environmental analysis shall not be claimed as confidential by the Army. The information covered by such a claim will be disclosed by the EPA only to the extent and by the procedures specified in 40 C.F.R. Part 2, Subpart B. Such a claim may be made by placing on or attaching to the information, at the time it is submitted to the EPA, a cover sheet, stamped or typed legend or other suitable form of notice employing language such as "trade secret", "proprietary", or "company confidential". Allegedly confidential portions of otherwise non-confidential documents should be clearly identified and may be submitted separately to facilitate identification and handling by the EPA. If confidential treatment is sought only until a certain date or occurrence of a certain event, the notice should so state. If no such claim accompanies the information when it is received by the EPA, the information may be made available to the public without further notice to the Army. The EPA will, to the extent practical, honor claims of confidentiality received after the submittal of the information.

B. Information determined to be confidential by the EPA pursuant to 40 C.F.R. Part 2 shall be afforded the protection specified therein.

XVIII. PROJECT MANAGERS

A. The following individuals are designated as Project

Manager for the respective parties:

For the EPA:

Cecilia Tapia
Waste Management Division
U.S. Environmental Protection Agency
Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101
Telephone Number: 913/551-7733

For the Army:

Leon D. Baxter
Attn: SMCIO-EN
Iowa Army Ammunition Plant
Middletown, Iowa 52638-5000
Telephone Number: 319/753-7130

B. All verbal notices and written documents, including, but not limited to, written notices, reports, plans, and schedules, requested or required to be submitted pursuant to this Agreement shall be directed to the designated Project Managers. To the maximum extent possible, all communications between the Parties concerning the terms and conditions of this Agreement shall be directed through the Project Managers. Each Project Manager shall be responsible for assuring that all communications from the other Project Managers are appropriately disseminated and processed by the entities which the Project Managers represent.

C. The EPA Project Manager shall have the authority to:

1. Take samples, request split samples of the Army samples and ensure that work is performed properly, pursuant to the EPA protocols as well as pursuant to the Attachments and plans incorporated into this Agreement;

2. Observe all activities performed pursuant to this

Agreement, take photographs or have photographs taken, and make such other reports on the progress of the work as the Project Manager deems appropriate, subject to the limitations set forth in Part XIX, Access, of this Agreement;

3. Review records, files and documents relevant to this agreement; and

4. Recommend and request minor field modifications to the work to be performed pursuant to this Agreement, or in techniques, procedures or design utilized in carrying out this Agreement, which are necessary to the completion of the final remedial action.

D. The Army Project Manager may recommend and request minor field modifications to the work to be performed pursuant to this Agreement, or in techniques, procedures or design utilized in carrying out this Agreement, which are necessary to the completion of the final remedial action.

E. Any field modifications proposed under this Part by any Party must be approved orally by both the EPA and Army Project Managers to be effective. If agreement cannot be reached on the proposed additional work or modification to work, dispute resolution as set forth in Part XI may be used in addition to this Part.

F. Within five (5) business days following a modification made pursuant to this Part, the Project Manager who requested the modification, shall prepare a memorandum detailing the modification and the reasons therefore, and shall provide

a copy of the memorandum to the other Project Manager. The Parties recognize that modifications and corresponding changes to remedial investigation and response action contracts may necessitate extensions of timetables and deadlines.

G. The Project Manager for the Army, or the authorized designated representative, shall be physically present on the site, or reasonably available, to supervise work performed at the site during implementation of the work performed pursuant to this Agreement and shall be available to the EPA for the pendency of this Agreement. The EPA Project Manager need not be present at the Site and his/her absence from the Site shall not be cause for work cessation.

H. Any party may change its designated Project Manager by notifying the other Party, in writing, within five (5) days of the change.

XIX. ACCESS

A. Subject to any statutory and regulatory requirements as may be necessary to protect national security, the Army shall provide access to the EPA to all property upon which any activities are being conducted or have been conducted pursuant to this Agreement. The EPA and its authorized representatives shall be able to enter and move freely about such property at all reasonable times for the purposes related to activities conducted pursuant to this Agreement, including, inter alia, the following:

1. Inspecting and copying records, files, photographs, operating logs, contracts and other documents relative to the

implementation of this Agreement;

2. Reviewing the status of activities being conducted pursuant to this Agreement;

3. Collecting such samples or conducting such tests as the EPA determines are necessary or desirable to monitor compliance with the terms of this Agreement or to protect the public health, welfare, or the environment;

4. Using sound, optical or other types of recording equipment to record activities which have been or are being conducted pursuant to this Agreement; and

5. Verifying data and other information submitted by the Army pursuant to this Agreement.

B. The Army shall provide an escort whenever the EPA requires access to restricted areas of IAAP for purposes consistent with the provisions of this Agreement. The EPA shall provide reasonable notice to the Army Project Manager of dates of proposed site inspections. The EPA shall not use any camera, sound recording or other electronic recording device at IAAP without the permission of the Army Project Manager. The Army shall not unreasonably withhold such permission.

C. The rights to access by the EPA granted in Paragraph A. of this section, shall be subject to those regulations as may be necessary to protect national security. Upon denying any aspect of access the Army shall provide an explanation within forty eight (48) hours of the reason for the denial and provide a recommendation for accommodating the requested access in an

alternate manner. The Parties agree that this Agreement is subject to CERCLA § 120(j), 42 U.S.C. § 9620(j), regarding the issuance of Site Specific Presidential Orders as may be necessary to protect national security.

D. All Parties with access to IAAP pursuant to this section shall comply with all applicable health and safety plans.

E. To the extent that activities pursuant to this Agreement must be carried out on other than Army property, the Army shall use its best efforts to obtain access agreements from the owners which shall provide reasonable access for the Army, the EPA, and their representatives. In the event that the Army is unable to obtain such access agreements, the Army shall promptly notify the EPA.

XX. RECORD PRESERVATION

The Army shall, without regard to any document retention policy to the contrary, preserve during the pendency of this Agreement and for a minimum of seven (7) years after its termination, all records and documents in its possession, custody or control which relate in any way to hazardous substances generated, stored, treated or disposed of on the Site, the release or threatened release of hazardous substances from the Site or work performed pursuant to this Agreement. After this seven (7)-year period has lapsed, the Army shall notify the EPA at least sixty (60) days prior to the destruction of any such document. The Army shall make available the documents or copies

of such documents.

XXI. RESERVATION OF RIGHTS

A. Notwithstanding compliance with the terms of this Agreement, the Army is not released from liability, if any, for any actions beyond the terms of this Agreement with respect to the Site. With respect to actions beyond the terms of this Agreement, the EPA reserves the right to take any enforcement action pursuant to RCRA, CERCLA and/or any other available legal authority for relief including, but not limited to, injunctive relief, monetary penalties, and punitive damages for any violation of law. However, nothing in this Agreement shall preclude the EPA from exercising any administrative, legal, or equitable remedies available to it in the event that:

1. Either conditions previously unknown or undetected by the EPA arise or are discovered at the Site or the EPA receives information not previously available concerning the premises it employed in reaching this Agreement; and

2. The implementation of the requirements of this Agreement are no longer protective of public health and the environment.

B. The EPA reserves such rights as it may have to undertake response action(s) to address the release or threat of release of hazardous substances from the Site at any time and, to the extent permitted by law, to seek reimbursement from the Army thereafter for the costs incurred.

C. The Army reserves the right to raise or assert any

defense, whether procedural or substantive, in law or equity, or to raise any issue as to jurisdiction, or standing of any Party, or any other matter in any proceeding related or not related to this Agreement, which the Army might otherwise be entitled to raise or assert.

XXII. OTHER APPLICABLE LAWS

A. Except as otherwise provided in Part XXIII, below, with regard to permits, all actions required to be taken pursuant to this Agreement shall be undertaken in accordance with the requirements of all applicable local, state and federal laws and regulations, including, but not limited to, any permitting or licensing requirements.

B. All reports, plans, specifications, and schedules submitted pursuant to this Agreement are, upon approval by the EPA, incorporated into this Agreement. Any noncompliance with such approved reports, plans, specifications or schedules shall be considered a failure to achieve compliance with the requirements of this Agreement.

XXIII. PERMITS

A. As provided in Section 121(e)(1) of CERCLA, 42 U.S.C. § 9621(e)(1), no Federal, State, or local permit shall be required for those portions of the response actions undertaken pursuant to this Agreement which are conducted entirely on-site. Such on-site response actions must satisfy all applicable or relevant and appropriate Federal and State standards, requirements, criteria,

or limitations which would have been included in any such permit. For each response action proposed by the Army which in the absence of § 121(e)(1) of CERCLA would require a permit, the Army shall include the following information in the Feasibility Study report:

1. The identity of each permit which would otherwise be required;

2. The standards, requirements, criteria, or limitations which have to be met to obtain each such permit, including input received from IDNR in accordance with Section 121(d)(2)(A)(ii) of CERCLA; and

3. A description of how the proposed response action will meet the standards, requirements, criteria or limitations which would be included in each such permit.

B. The Army shall make timely and complete application or request for all permits, licenses or other authorizations necessary to implement those portions of any response actions required by this Agreement which are not conducted entirely on-site. Each work plan shall identify each such permit, license or authorization addressed therein by providing the following information:

1. The agency or instrumentality from whom the permit, license or authorization must be sought and the agency or instrumentality which would grant or issue the permit, license or authorization, if not the same as the one from which it must be sought;

2. The activity which would be the subject of the permit, license or authorization; and

3. A description of the procedure to be followed in securing such permit, license or authorization, including the date by which an application must be filed and the anticipated duration of the permit, license or authorization.

C. If a permit which is necessary for implementation of this Agreement is not issued, or is issued or renewed in a manner which is materially inconsistent with the requirements of this Agreement, the Army shall notify the EPA in writing of its intention to propose modifications to primary documents thereby affected in accordance with Paragraph X.J. of this Agreement. Notification by the Army of its intention to propose modifications shall be submitted within seven (7) calendar days of receipt by the Army of notification that: (1) a permit will not be issued; (2) a permit has been issued or reissued in a manner which is materially inconsistent with a remedy selected pursuant to this Agreement; or (3) a final determination with respect to any appeal related to the issuance or reissuance of such a permit has been entered, whichever is later. Whenever such an appeal is filed, Army shall notify the EPA of such appeal within seven (7) calendar days. Within thirty (30) days from the date the Army submits its notice of intention to propose modifications, the Army shall submit to the EPA its proposed modifications with an explanation of its reasons in support thereof. Such proposed modifications will be reviewed in

accordance with Part X of this Agreement.

D. If the Army submits proposed modifications prior to a final determination of any appeal taken on a permit needed to implement this Agreement, the EPA may elect to delay review of the proposed modifications until after such final determination is entered.

E. During appeal of any permit required to implement this Agreement or during review of proposed modifications as provided in Subpart D above, the Army shall continue to implement those portions of this Agreement which can be reasonably implemented pending final resolution of the permit issue(s).

F. Except as otherwise provided in this Agreement and Federal law or doctrine of sovereign immunity, the Army shall comply with applicable State and Federal hazardous waste management requirements at the Site.

XXIV. FIVE YEAR REVIEW

If a remedy is selected for the Site which results in any hazardous substances, pollutants or contaminants remaining at the Site, the EPA shall, consistent with Section 121(c) of CERCLA, review the remedial action no less than every five years after the initiation of the final remedial action to assure that human health and the environment are being protected by the remedial action being implemented. If upon such review it is the judgment of the EPA that additional action or modification of the remedial action is appropriate in accordance with Section 104

or 106 of CERCLA, then the EPA shall require the Army to implement such additional or modified action.

XXV. OTHER CLAIMS

A. Nothing in this Agreement shall constitute or be construed as a bar or release from any claim, cause of action or demand in law or equity by or against any person, firm, partnership or corporation not a signatory to this Agreement for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Site.

B. The EPA shall not be held as a party to any contract entered into by the Army to implement the requirements of this Agreement.

C. Subject to Part VI, Statutory Compliance, this Agreement shall not restrict the EPA from taking any legal or response action for any matter not specifically part of the work covered by this Agreement.

XXVI. AMENDMENT OF THE AGREEMENT

This Agreement may be amended by the written agreement of all Parties hereto. No such amendment shall be final until signed by the Parties. Each such amendment shall be effective on the last date such written agreement is signed by the Parties.

XXVII. PUBLIC PARTICIPATION

A. In accordance with Section 117 of CERCLA, 42 U.S.C. § 9617, before adoption of any plan for remedial action pursuant to this Agreement, the Army shall:

1. Publish in a local newspaper, or newspapers of general circulation, a notice and brief analysis of the proposed plan, including an explanation of the proposed plan and alternatives considered;

2. Make such plan available to the public; and

3. Provide a reasonable opportunity for submission of written and oral comments and an opportunity for a public meeting at or near the facility regarding the proposed plan and any proposed findings under Section 121(d)(4) of CERCLA, 42 U.S.C. § 9621(d)(4).

B. Before commencement of any remedial action, the Army shall publish a notice of the Record of Decision adopted and shall make available to the public, the plan, a discussion of any significant changes and the reasons for the changes in the proposed plan, a response to each significant comment, criticism, and new data submitted during the public comment on the proposed plan.

C. The Army shall develop and implement a Community Relations Plan (CRP) which responds to the need for an interactive relationship with all interested community elements, regarding activities and elements of work undertaken by the Army. The CRP shall recognize the need for public information meetings to be

held during RI/FS and RD/RA activities. The EPA may request that the Army hold a public information meeting at any time during the RI/FS and RD/RA activities. The Army agrees to develop and implement a CRP in a manner consistent with Section 117 of CERCLA, the NCP, EPA guidelines set forth in EPA's Community Relations Handbook, and any modifications thereto.

D. As part of its Community Relations activities, the Army shall maintain a mailing list of interested and affected individuals. The EPA will submit the name of the requester of a request for site information to the Army. The Army shall add the name of the requester to the mailing list. The Army shall provide the EPA with annual updates of the mailing list.

E. Any Party issuing a formal press release to the media regarding any of the work required by this Agreement shall advise the other Party of such press release and the contents thereof, at least two (2) business days before the issuance of such press release and of any subsequent changes prior to release.

F. Within thirty (30) days of the effective date of this Agreement, the Army shall establish and maintain an Administrative Record, which will include an index of all documents contained therein. The Administrative Record shall be maintained at or near the Site in accordance with Section 113(k) of CERCLA, 42 U.S.C § 9613(k). The Administrative Record shall be established and maintained in accordance with current and future EPA policy and guidelines. A copy of each document placed in the Administrative Record will be provided to the EPA. The

Administrative Record developed by the Army shall be routinely updated and copies of documents included within the Administrative Record shall be made available to the EPA on at least a quarterly basis beginning with the first quarter following the effective date of this Agreement. The Army shall maintain a current index of the documents in the Administrative Record and shall provide the EPA copies of the current index on at least a quarterly basis beginning with the first quarter following the effective date of this Agreement. The EPA shall make the final determination on whether a document is appropriate for inclusion in the Administrative Record.

G. The Army shall follow the public participation requirements of Section 113(k) of CERCLA and comply with any guidance and/or regulations promulgated by the EPA.

XXVIII. PUBLIC COMMENT ON AGREEMENT

A. Within fifteen (15) days of the date the EPA receives a fully executed copy of this Agreement, the EPA shall announce the availability of the Agreement to the public for review and comment and shall accept comments from the public for a period of forty-five (45) days after such announcement. Upon completion of the public comment period, the EPA shall provide copies of all comments received to the Army.

B. Upon completion of the public comment period, each of the Parties shall review the comments and shall determine either that:

1. The Agreement should be made effective in its

present form; or

2. Modification of the Agreement is necessary.

C. Any Party that determines modification of the Agreement is necessary shall provide a written request for modification to each of the other Parties. This request for modification shall be made within twenty (20) days of the date that Party received copies of the comments from the EPA, or, in the event the EPA requests modification, within twenty (20) days of the date copies of the comments were provided to the other Party. The request for modification shall include:

1. A statement of the basis for determining the modification is necessary; and

2. Proposed revisions to the Agreement addressing the modification.

D. If no request for modification is made within the time period specified above, this Agreement shall be made effective in its present form in accordance with Part XXXVI hereof.

E. If any Party requests modification of the Agreement as provided above, the Parties shall meet to discuss the proposed modification. If the Parties agree on the modification, the Agreement shall be revised, in writing, in accordance with the agreed upon modification. The revised Agreement shall be signed by representatives of each Party and shall be made effective in accordance with Part XXXVI hereof. If the Parties are unable to agree upon such modification, any Party reserves the right to withdraw from the Agreement. Before any Party exercises its

right to withdraw from the Agreement, it shall make its SEC representative, as identified in Paragraph XI.E. hereof, available to meet with the other Party's SEC representative to discuss the withdrawal.

F. In the event of a significant modification to the Agreement after public comment, notice procedures of Sections 117 of CERCLA and 211 of SARA shall be followed and a responsiveness summary published by the EPA.

XXIX. DEADLINES

A. The following primary documents have been previously submitted to the EPA for technical review and comment. Review, comment, and response to comments on the documents shall be in accordance with the provisions of Part X of this Agreement. Review by the EPA shall be completed within ninety (90) days following the effective date of this Agreement.

a. Installation Assessment of the Iowa Army Ammunition Plant, Report No. 127, U.S. Army Toxic and Hazardous Materials Agency. Dated: January 1980.

b. Contamination Survey Iowa Army Ammunition Plant, DRXTH-AS-CR-82137, Environmental Research Group. Dated: September 17, 1982.

c. Follow-on Study of Environmental Contamination at the Iowa Army Ammunition Plant, DRXTH-AS-CR-84297, Battelle. Dated: August 29, 1984.

d. Midwest Site Confirmatory Survey, Sampling Report for the Iowa Army Ammunition Plant, AMXTH-IR-FR-86083, Dames & Moore. Dated: August 29, 1986.

e. Endangerment Assessment Iowa Army Ammunition Plant: Former Line 1 Impoundment and Line 800 Pink Water Lagoon, CETHA-IR-CR-89163, Dames & Moore. Dated: July 1989.

f. Feasibility Study Army Ammunition Plant: Former Line 1 Impoundment and Line 800 Pink Water Lagoon, CETHA-IR-CR-89221, Dames & Moore. Dated: August 1989.

g. Final Assessment Report (Petroleum Leak/ Spill Area) Iowa Army Ammunition Plant, Iowa, CETHA-IR-CR-90050, Dames & Moore. Dated: March 1990.

B. Within twenty-one (21) days of the effective date of this Agreement, the Army shall propose deadlines for completion of the following draft primary documents:

a. Conceptual Program Plan

b. Potential Areas of Concern Supplemental Report

c. Remedial Investigation Work Plan(s), including Sampling and Analysis Plan(s) and QAPP(s)

d. Remedial Investigation Report(s)

e. Baseline Risk Assessment(s)

f. Feasibility Study Work Plan(s)

g. Feasibility Study Report(s)

h. Proposed Plan(s)

i. Record(s) of Decision

j. Operable Unit Work Plan(s) and Report(s)

k. Community Relations Plan(s)

Within fifteen (15) days of receipt the EPA shall review and provide comments to the Army regarding the proposed deadlines. Within fifteen (15) days following receipt of the comments the Army shall, as appropriate, make revisions and reissue the proposal. The Parties shall meet as necessary to discuss and

finalize the proposed deadlines. If the Parties agree on proposed deadlines, the finalized deadlines shall be incorporated into the appropriate Work Plans. If the Parties fail to agree on the proposed deadlines within thirty (30) days of the Army's receipt of the comments, the matter shall immediately be submitted for dispute resolution pursuant to Part XI of this Agreement. The final deadlines established pursuant to this Paragraph shall be published by the EPA.

C. Within twenty-one (21) days of issuance of the Record of Decision, the Army shall propose deadlines for completion of the following draft primary documents:

1. Remedial Design Work Plan(s)
2. Final Remedial Design(s)
3. Construction QA/QC Plan(s)
4. Remedial Action Work Plan(s), and
5. Remedial Action Report(s)

These deadlines shall be proposed, finalized and published utilizing the same procedures set forth in Paragraph A. above.

D. The deadlines set forth in this Part, or to be established as set forth in this Part, may be extended pursuant to Part XII of this Agreement. The Parties recognize that one possible basis for extension of the deadlines for completion of the Remedial Investigation and Feasibility Study Reports is the identification of significant new Site conditions during the performance of the Remedial Investigation.

E. Within twenty-one (21) days of the effective date of

this Agreement, the Army shall provide target completion dates for secondary documents required pursuant to Part X.D. during the RI and FS process. Within Twenty-one (21) days of issuance of the Record of Decision, the Army shall provide target completion dates for the secondary documents required pursuant to Part X.D. during the RD and RA process. Target dates for secondary documents are not subject to Parts XI, XII, XXX and XXXI of this Agreement and may be adjusted by the Army after consultation with the EPA.

XXX. ENFORCEABILITY

A. The Parties agree that:

1. Upon the effective date of this Agreement, any standard, regulation, condition, requirement or order which has become effective under CERCLA and is incorporated into this Agreement is enforceable by any person pursuant to Section 310 of CERCLA, and any violation of such standard, regulation, condition, requirement or order will be subject to civil penalties under Sections 310(c) and 109 of CERCLA; and,

2. All timetables or deadlines associated with the RI/FS shall be enforceable by any person pursuant to Section 310 of CERCLA, and any violation of such timetables or deadlines will be subject to civil penalties under Sections 310(c) and 109 of CERCLA;

3. All terms and conditions of this Agreement which relate to operable units or final remedial actions, including

corresponding timetables, deadlines or schedules, and all work associated with the operable units or final remedial actions, shall be enforceable by any person pursuant to Section 310(c) of CERCLA, and any violation of such terms or conditions will be subject to civil penalties under Sections 310(c) and 109 of CERCLA; and

4. Any final resolution of a dispute pursuant to Part XI of this Agreement which establishes a term, condition, timetable, deadline or schedule shall be enforceable by any person pursuant to Section 310(c) of CERCLA, and any violation of such term, condition, timetable, deadline or schedule will be subject to civil penalties under Sections 310(c) and 109 of CERCLA.

B. Nothing in this Agreement shall be construed as authorizing any person to seek judicial review of any action or work where review is barred by any provision of CERCLA, including Section 113(h) of CERCLA.

C. Nothing in this Agreement shall be construed as a restriction or waiver of any rights the EPA may have under CERCLA, including but not limited to any rights under Sections 113 and 310, 42 U.S.C. § 9613 and 9659. The Army does not waive any rights it may have under CERCLA Section 120, SARA Section 211 and Executive Order 12580.

D. The Parties agree that all Parties shall have the right to enforce the terms of this Agreement.

E. The Parties agree to exhaust their rights under Part XI,

Resolution of Disputes, prior to exercising any rights to judicial review that they may have.

XXXI. STIPULATED PENALTIES

A. In the event that the Army fails to submit a primary document to the EPA pursuant to the appropriate timetable or deadline in accordance with the requirements of this Agreement, or fails to comply with a term or condition of this Agreement which relates to an operable unit or final remedial action, the EPA may assess a stipulated penalty against the Army. A stipulated penalty may be assessed in an amount not to exceed $5,000 for the first week (or part thereof), and $10,000 for each additional week (or part thereof) for which a failure set forth in this Paragraph occurs.

B. Upon determining that the Army has failed in a manner set forth in paragraph A, the EPA shall so notify the Army in writing. If the failure in question is not already subject to dispute resolution at the time such notice is received, the Army shall have fifteen (15) days after receipt of the notice to invoke dispute resolution on the question of whether the failure did in fact occur. The Army shall not be liable for the stipulated penalty assessed by EPA if the failure is determined, through the dispute resolution process, not to have occurred. No assessment of a stipulated penalty shall be final until the conclusion of dispute resolution procedures related to the assessment of the stipulated penalty.

C. The annual reports required by Section 120(e)(5) of

CERCLA shall include, with respect to each final assessment of a stipulated penalty against the Army under this Agreement, each of the following:

1. The facility responsible for the failure;

2. A statement of the facts and circumstances giving rise to the failure;

3. A statement of any administrative or other corrective action taken at the relevant facility, or a statement of why such measures were determined to be inappropriate;

4. A statement of any additional action taken by or at the facility to prevent recurrence of the same type of failure; and

5. The total dollar amount of the stipulated penalty assessed for the particular failure.

D. Stipulated penalties assessed pursuant to this Part shall be payable to The Hazardous Substances Response Trust Fund only in the manner and to the extent expressly provided for in Acts authorizing funds for, and appropriations to, the DOD.

E. In no event shall this Part give rise to a stipulated penalty in excess of the amount set forth in Section 109 of CERCLA.

F. This Part shall not affect the Army's ability to obtain an extension of a timetable, deadline or schedule pursuant to Part XII of this Agreement.

G. Nothing in this Agreement shall be construed to render any officer or employee of the Army personally liable for the

payment of any stipulated penalty assessed pursuant to this Part.

H. In the event that the Army fails to pay any stipulated penalty as provided hereunder based upon the lack of appropriated or authorized funds, the Army shall do the following:

1. Inform the EPA of the specific basis for failure to pay; and

2. Request funding for such stipulated penalties by submitting requests for appropriation and authorization of funds for the payment of the penalties in the first annual budget request following the assessment through the Department of Defense budgetary process.

XXXII. FORCE MAJEURE

A Force Majeure shall mean any event arising from causes beyond the control of a Party that causes a delay in or prevents the performance of any obligation under this Agreement, including, but not limited to, acts of God; fire; war; insurrection; civil disturbance; explosion; unanticipated breakage or accident to machinery, equipment or lines of pipe despite reasonably diligent maintenance; adverse weather conditions that could not be reasonably anticipated; unusual delay in transportation; restraint by court order or order of public authority; inability to obtain, at reasonable cost and after exercise of reasonable diligence, any necessary authorizations, approvals, permits or licenses due to action or inaction of any governmental agency or authority other than the

Army; delays caused by compliance with applicable statutes or regulations governing contracting, procurement or acquisition procedures, despite the exercise of reasonable diligence; and insufficient availability of appropriated funds, if the Army shall have made timely request for such funds as part of the budgetary process as set forth in Part XXXIII of this Agreement. A Force Majeure shall also include any strike or other labor dispute, whether or not within the control of the Parties affected thereby. Force Majeure shall not include increased costs or expenses of Response Actions, whether or not anticipated at the time such Response Actions were initiated.

XXXIII. FUNDING

A. It is the expectation of the Parties to this Agreement that all obligations of the Army arising under this Agreement will be fully funded. The Army agrees to seek sufficient funding through the DOD budgetary process to fulfill its obligations under this Agreement.

B. In accordance with Section 120(e)(5)(B) of CERCLA, 42 U.S.C. § 9620(e)(5)(B), the DOD shall include in its annual report to Congress the specific cost estimates and budgetary proposals associated with the implementation of this Agreement.

C. Any requirement for the payment or obligation of funds, including stipulated penalties, by the Army established by the terms of this Agreement shall be subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligation or payment of funds in violation of the

Anti-Deficiency Act, 31 U.S.C. § 1341. In cases where payment or obligation of funds would constitute a violation of the Anti-Deficiency Act, the dates established requiring the payment or obligation of such funds shall be appropriately adjusted.

D. If appropriated funds are not available to fulfill the Army's obligations under this Agreement, the EPA reserves the right to initiate an action against any other person, or to take any response action, which would be appropriate absent this Agreement.

E. Funds authorized and appropriated annually by Congress under the "Environmental Restoration, Defense" appropriation in the Department of Defense Appropriation Act and allocated by the Deputy Assistant Secretary of Defense (Environment) to the Army will be the source of funds for activities required by this Agreement consistent with Section 211 of SARA, 10 U.S.C. Chapter 160. However, should the Environmental Restoration, Defense appropriation be inadequate in any year to meet the total Army CERCLA implementation requirements, the DOD shall employ and the Army shall follow a standardized DOD prioritization process which allocates that year's appropriations in a manner which maximizes the protection of human health and the environment. A standardized DOD prioritization model shall be developed and utilized with the assistance of EPA and the states.

XXXIV. REIMBURSEMENT OF EXPENSES

A. Reimbursement of EPA Expenses

The Parties agree to amend this Agreement at a later date in accordance with any subsequent national resolution of the issue of EPA cost reimbursement.

XXXV. TERMINATION

The provisions of this Agreement shall be deemed satisfied and terminated upon receipt by the Army of written notice from the EPA that the Army has demonstrated, to the satisfaction of the EPA, that all the terms of this Agreement have been completed.

XXXVI. EFFECTIVE DATE

This Agreement is effective upon issuance of a notice to the Army by the EPA following implementation of Part XXVIII of this Agreement.

IN WITNESS WHEREOF, the parties have affixed their signatures below:

For the United States Department of the Army:

17 Sept 1990
Date

Commander
Iowa Army Ammunition Plant

9/12/90
Date

Deputy Assistant Secretary of the Army
(Environment, Safety and Occupational Health) OASA (I, L & E).

For the U.S. Environmental Protection Agency

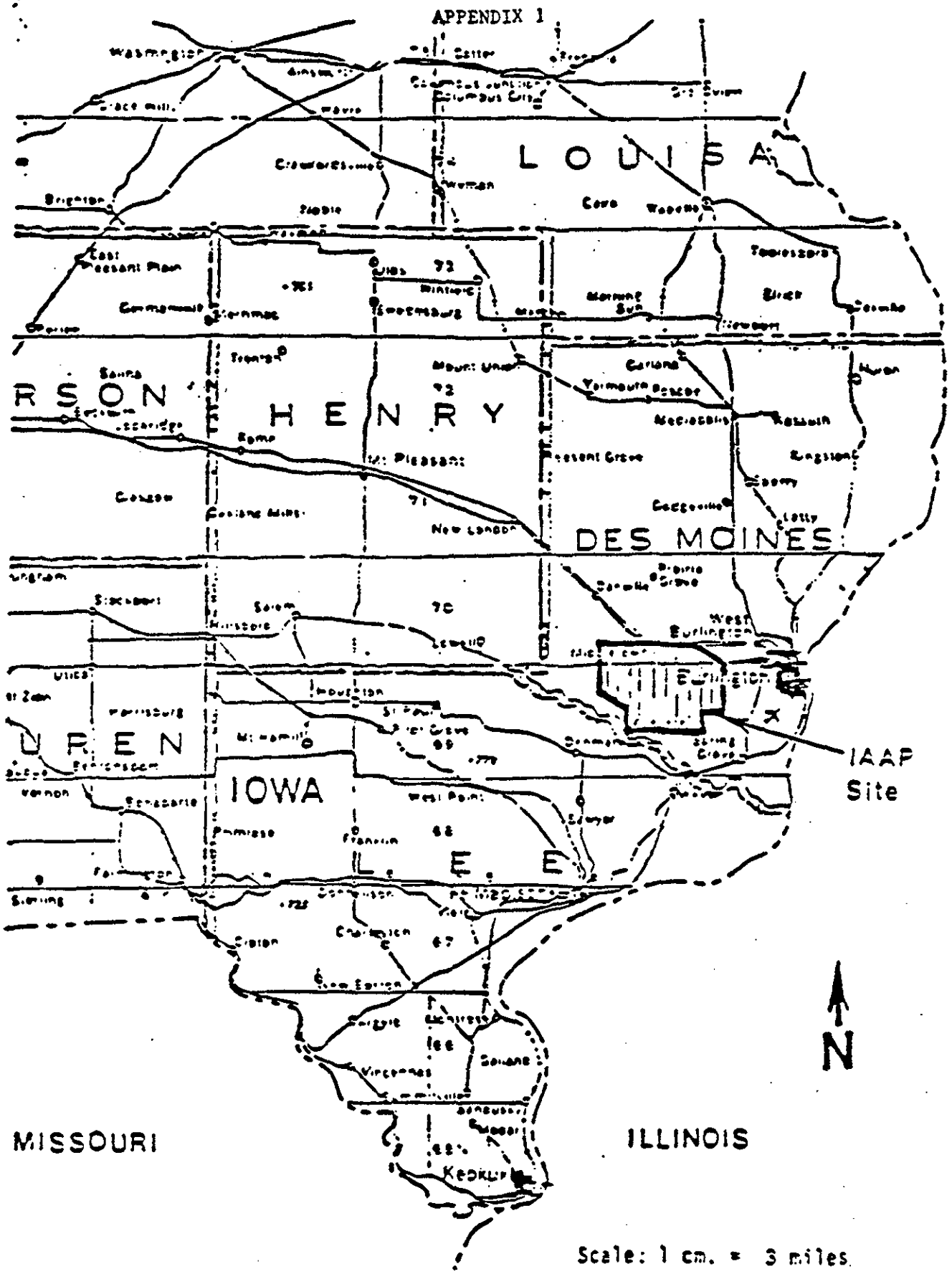
9/20/90
Date

for Morris Kay
Regional Administrator
EPA, Region VII

APPENDIX 1

SITE LOCATION MAP

APPENDIX 1



Location of the Iowa Army Ammunition Plant Site, Middleton, Des Moines County, Iowa

APPENDIX 2

SOLID WASTE MANAGEMENT UNITS

The following has been altered to include the addition of site IAAP-30:
Page X-17, Table X-1, and Figure X-1.

INVENTORY OF SOLID WASTE MANAGEMENT UNITS

A. GENERAL.

Three inventories of Solid Waste Management Units (SWMU) have been conducted at IAAP. They are:

1. "RCRA Facility Assessment, Final Report, Iowa Army Ammunition Plant, Middletown, Iowa, September 28, 1987."

2. Department of Army, Form 2028 commenting on above report dated September 28, 1987. Comments prepared by USAEHA, ATTN: HSHB-ME-SC.

3. Installation Assessment of Iowa Army Ammunition Plant, Record Evaluation Report No. 127, September, 1978.

Some of the information presented in this section has been extracted from the above reports. The remainder of the information is from interviews with Mason Hanger, Silas Mason Co. personnel; operators of the Government-owned facility.

In an effort to standardize the numbering system of SWMU at Department of Defense installations, a standard numbering system has been established. This system uses the installation letter, abbreviated, followed by a sequential numbering system. This number is given (in parenthesis) at the beginning of the description of each SWMU. The general location of each unit is given on Figure X-1.

B. LINE 1 (LAAP-1).

Line 1 production facility is roughly 1700 x 4900 feet encompassing an area of approximately 194 acres, situated in the northeast portion of LAAP. This facility was constructed in 1941 and was in operation from late 1941 until September, 1945. From 1948 to June 1975, this line was operated by the Atomic Energy Commission as the Burlington AEC/ERDA Plant. During this period boratol and boracitol were used. This line is currently a missile warhead, cartridge and grenade load, assemble and pack (LAP) facility. The principal feedstocks are TNT, composition B, PBX and RDX. Additional wastes include LX-14, octal, sump scrap, explosive contaminated carbon, acetone, xylene, explosive contaminated solvents, 1,1,1-trichloroethane, stoddard solvent, methyl ethyl ketone and toluene.

C. LINE 2 (LAAP-2).

Line 2 is a production line located in the central part of LAAP. It is an area of approximately 141 acres encompassed by a security fence. Line 2 was constructed in 1941 and was in operation from late 1941 until 1947. The site was dormant from 1947 until 1949. Currently it is used as a conventional LAP facility for heavy artillery projectiles and shaped charges. TNT, composition B and RDX are the principal explosives used. Additional wastes include sump scrap, explosive contaminated carbon, toluene, acetone and xylene.

D. LINE 3 (LAAP-3).

Line 3 is a production line located in central LAAP. Its dimensions are approximately 1550 x 4180 feet encompassing an area of 149 acres. It is surrounded by a security fence. Line 3 was constructed in 1941 and operated until 1945. It was dormant from 1945-1949. Presently it is a conventional LAP facility for heavy artillary projectiles and also a metal (brass) treatment facility. Metal plating may have occurred on this line in the past. Wastes generated at this site include TNT, RDX, composition B, sump scrap and explosive contaminated carbon.

E. LINE 3A (LAAP-4).

Line 3A is a production line located in western LAAP. It is a trapezoidal shaped area of approximately 119 acres encompassed by a security fence. The production facility was constructed in 1941 and operated from 1943-1945 and again from 1949 to present. Line 3A is a LAP facility for artillery ammunition. TNT, RDX and composition B are used to fill 155mm artillery rounds. Additional wastes have included sump scrap and explosive contaminated carbon.

F. LINES 4A and 4B (LAAP-5).

Lines 4A and 4B are situated in north-central LAAP. Both lines are included in a larger area encompassed by a security fence. Line 4A dimensions are approximately 900 x 1000 feet covering an area of approximately 21 acres. Line 4B dimensions are 700 x 1000 feet covering an approximate area of 16 acres. Both lines were constructed in 1941 as

component assembly facilities. Line 4A operated from 1942-1945 and again from 1982-present. Line 4B operated from 1941-1945 and again from 1962-present.

Line 4A is currently a detonator production area. The primary materials related to production of detonators include the following:

1. Lead azide
2. Lead styphnate
3. Tetracene
4. RDX
5. Barium nitrate
6. Antimony sulfide

Materials introduced during the treatment process of wastewater include:

1. Acetic acid
2. Sodium sulfate
3. Sodium nitrite
4. Sodium hydroxide

Wastewaters are treated in tanks at line 4A which are addressed in the RCRA Part B Permit Application as a hazardous waste treatment unit.

Line 4B is still an active assembly facility of components manufactured elsewhere. In the late 1960's line 4B was leased to Missile Command for missile assembly with warheads loaded on Line 2. Hazardous wastes included TNT, RDX, composition B and lacquer thinner.

G. LINES 5A and 5B (IAAP-6).

Lines 5A and 5B are situated in north-central IAAP. Both lines are included in a larger area encompassed by a security fence. Line 5A dimensions are approximately 1200 x 1200 feet encompassing an area of approximately 33 acres. Line 5B dimensions are 1200 x 1500 feet occupying an area of approximately 141 acres. Both lines were constructed in 1941, operated from 1942-1945 and again from 1949-present. Both lines currently are component lines for the pelletizing and assembly of explosive components. TNT and RDX are the principal explosives used on these lines. Other wastes include acetone and stoddard solvent.

H. LINE 6 (IAAP-7).

Line 6 is an approximately 30 acre site located near the center of IAAP. Dimensions of the facility are approximately 800 x 1600 feet. Line 6 was constructed in 1941. The facility has been used on a limited basis to produce detonators, but has not been in operation since 1981. Materials related to the production of detonators includes:

1. Lead Azide
2. Lead Styphnate
3. Tetracene
4. RDX
5. Barium Nitrate
6. Antimony Sulfide

Prior to 1981, wastewaters were treated in unlined, gravel-filled pits for pH adjustment prior to discharge to the surface drainage system. Use of these pits has been discontinued. A closure plan for the pits and associated drainage pathways has been prepared, approved and implemented.

I. LINE 7 (LAAP-8).

Line 7 is an approximate 9 acre site located in the central part of LAAP. It's dimensions are approximately 500 x 800 feet. It is situated within a larger area encompassed by a security fence. The facility was constructed in 1941 and became inactive in 1970. Formerly, Line 7 was a fuze and blank LAP facility. TNT, RDX, and composition B were the primary materials used.

J. Line 8 (LAAP-9).

Past activities at Line 8 encompassed an area of approximately 1200 x 2500 feet in central LAAP. This line was constructed in 1941. It was used during World War II to produce Amatol ($NH_4 NO_3$/TNT). Under government contract after World War II, the Emergency Export Company used the ammonium nitrate crystallization equipment to produce fertilizer for the Marshall Plan. Crystallized material was transferred to Line 3 for blending with bentonite clay. Subsequent activities were fuze and rocket igniter LAP operations. This line is no longer used and has been partially dismantled.

K. LINE 9 (IAAP-10).

Line 9, situated in central IAAP, encompasses an area approximately 500 x 800 feet. It was built in 1941. Line 9 was a components production facility during World War II. During the Vietnam era, the line produced mines and mine fuzes. Currently, the line is an ammunition LAP facility. The principal explosives used are Composition B and PBX. Additional wastes include sump scrap, acetone, xylene, lacquer thinner, and 1,1,1-trichloroethane.

L. LINE 800 (IAAP-11).

Line 800, located in central IAAP, measures approximately 450 x 1700 feet. It is encompassed by a security fence. Built in 1941, this line is used as an ammunition renovation and metal treatment facility. Explosive filler is washed from projectiles and blank salute ammunition is loaded. Composition B, TNT and black powder are the principal components used on this line. Additional wastes include sump scrap, contaminated carbon, acetone, xylene and 1,1,1-trichloroethane.

Adjacent to Line 800 is a 5 acre lagoon identified as the Line 800 Pink Water Lagoon. The lagoon was dug in 1943 and used by Day and Zimmerman until 1945. It was reopened in 1951 by the present contractor. The lagoon received effluent wastewaters from Line 800 explosive and metal cleaning operations. It also received sludges contaminated with heavy metals including hexavalent chromium. Use of the lagoon ceased in 1970. There is no discharge from the lagoon to the creek.

M. EXPLOSIVE DISPOSAL AREA (IAAP-12).

The explosive disposal area (EDA) is located in the northeast part of IAAP approximately one mile from the installation boundary. It is a secure area approximately 12 acres in size and measuring 500 x 1000 feet. Open burning of explosive contaminated materials and flashing of explosive contaminated metals takes place at the EDA in eight raised earthen burning pads. Each pad is berned on three sides to restrict the horizontal movement of metal projectiles. Propellant, explosive and pyrotechnic (PEP) contaminated materials are burned or flashed at the EDA. This unit is a RCRA regulated unit and is addressed in the RCRA Part B Permit Application as a treatment unit. A complete list of wastes treated is given in that document.

N. INCENDIARY DISPOSAL AREA (IAAP-13).

Based upon the recollection of a former installation employee, incendiary material was possibly buried in a small area east of Yard D during the mid 1940's. The former employee stated that the area was fenced and warning signs were placed on the fence. However, the above claim cannot be substantiated because there are no records of this activity being performed. In addition, present and other former installation employees who were familiar with disposal operations in the 1940's do not recall this activity being performed. The size of the area believed to be small cannot be determined. The fence that was supposedly placed around the area cannot be located. A single length of

fence consisting of wood posts and several strands of barb wire exist in the vicinity near the possible area. Based upon the recollection of a former installation employee the operations were performed once or perhaps several times in the mid 1940's. The wastes in the allegedly buried incendiary material are unknown.

O. BOXCAR UNLOADING AREA (IAAP-14).

Dunnage lumber from boxcars transporting materials on to the installation are unloaded at this location. The boxcars at sometime transported boxes of explosives. Minute amounts of explosives may have come into contatt with the dunnage. The boxcar unloading area is located east of Yard B. The area is approximately 300 feet by 3,000 feet. It was operated from the 1940's to present (although in recent years explosives have been transported primarily by trucks). Possible minute amounts of TNT, RDX, and Composition B may have come into contact with the soil in this area.

P. OLD FLY ASH WASTE PILE (IAAP-15).

The fly ash waste generated by the Main Heating Plant and the 1-62 Heating Plant from the 1940's until 1976 was placed in this area. The old fly ash waste pile is located between Yards E and D on the west side of Brush Creek measuring approximately 1000 feet by 2000 feet. The fly ash probably contains copper, iron, zinc, sulfur and minute amounts of the 8 Ep toxic metals well below the maximum limits.

Q. FORMER WASTEWATER IMPOUNDMENT ON BRUSH CREEK (IAAP-16).

Upper Brush Creek near Line 1 was used as an impoundment for process wastewater since 1948. A concrete dam had been constructed containing the impoundment. The impoundment area under conditions of normal precipitation measured approximately 250 feet wide by 700 feet in length. This impoundment received untreated contaminated wash waters from operations at Line 1. Considerable amounts of particulate material, much of which was explosives, were deposited in the impoundment. This treatment method was discontinued and the dam and its accumulated sediment were removed in 1957. Consequently, the stream eroded a channel through the remaining sediments to a depth approximating its previous gradient. However, significant quantities of explosives may remain in the sediments deposited during the operation of the dam, and these sediments are subject to erosion and scour during periods of high stream flow. Explosive wastes including TNT, composition B, cyclotol, PBX, barium, and other materials were discharged to this impoundment.

R. PESTICIDE PIT (IAAP-17).

This pit is situated in central IAAP, located west of Building 500-30-6. It was for treatment and disposal of residual amounts of pesticides and herbicides from 1968 to 1974. Dimensions of the pit are 8 feet square by 2-3 feet deep. It is lined with plastic and filled with crushed limestone. Lindane, heptachlor, DDT, strychnine and 2, 4, 5-T were among the materials disposed of in the pit.

S. POSSIBLE DEMOLITION SITE (South of Yard G) (LAAP-18).

The demolition of ammunition items apparently was performed at this site during the 1940's and possibly into the early 1950's. There are no records to confirm this activity or the items treated by demolition. The demolition area was apparently located south of Plant Road K directly across the road from the Pistol Range. The dimensions are unknown. Specification of wastes is unknown.

T. CONTAMINATED CLOTHING LAUNDRY (LAAP-19).

The installation laundry washes coveralls, underwear and towels used by production and maintenance workers. A minute amount of explosives may be present on coveralls worn by workers in areas where explosives are present. The laundry is in Building No. 500-125 which is located north of the Main Heating Plant, Building No. 500-139 and west of Line 6 on Plant Road A. Laundry operations have occurred from the 1940's through the present. Building No. 500-125 measures 51 feet by 82 feet. The laundry wash water is discharged into the main sewage treatment plant sanitary sewer system and may contain minute amounts of TNT, RDX, Composition B, black powder and PBX-0280.

U. INERT DISPOSAL AREA (LAAP-20).

The inert disposal area is comprised of a sanitary landfill, a metal salvage operation and a storage area for blue sludge removed during the clean-up of a waste treatment lagoon. The inert disposal area is located near the center of LAAP on an approximately 10-acre site.

The inert landfill has been used as a sanitary landfill since the installation opened in 1941 receiving materials such as plastic, tin cans, scrap lumber, waxed cardboard, and installation-generated household and cafeteria garbage. The average annual quantity of materials placed in the landfill has been estimated at 3,170 tons. From November 1980 until October 1983, a portion of Trench 5 also received other wastes such as ash from the incineration of open burning of explosives and explosive contaminated waste, the contaminated waste processor, and the explosive waste incinerator. Trench 5 was filled and closed in accordance with IAAP standard procedures for closure of a sanitary landfill. Subsequently, a closure plan and post-closure plan for that portion of trench 5 used from November 1980 until October 1983, containing the ash, has been prepared, approved and implemented in accordance with RCRA standards.

Adjoining the landfill is a scrap metal storage area. This area stores scrap metal until sufficient quantities are available for rail shipment. All metals are flashed in one of the on-site incinerators or in the open burning area at the EDA to remove explosive residues prior to storage.

V. DEMOLITION AREA (IAAP-21).

The Demolition Area, where open detonation is conducted, is located on approximately 10 acres of land in the southwest portion of the installation. The area consists of an open field with 12 shallow craters.

Open detonation of ammunition reject items is required for items that cannot be processed or disposed of safely in any other manner. These are larger caliber ammunition items that cannot be safely dismantled or disassembled for the removal of the explosive filler. In addition, there is no containment vessel available for the detonation of large caliber ammunition items. They cannot be safely treated by incineration. All metals and collectable residues remaining after a detonation episode will be collected and treated in the contaminated waste processor to remove any remaining explosive contamination. The metals will be sold as salvage material. This unit is a RCRA regulated unit and is addressed in the RCRA Part B Permit Application as a treatment unit. A complete list of wastes treated is given in that document.

W. UNIDENTIFIED SUBSTANCE (OIL-BASED) WASTE SITE (IAAP-22).

An unidentified oil-base substance thought to be road surfacing oil was discovered on 16 July 1986. The substance covers an area 20 feet by 20 feet at a depth of less than 12 inches. The site is located northwest of Yard O along the south side of the railroad running track approximately 150 yards west of Plant Road 1.

X. DEACTIVATION FURNACE (IAAP-23).

The deactivation furnace (DF) is located near the demolition area in the southwestern portion of the plant. The facility has been in use since 1971; however, the DF facility is used only when required, and recent requirements have been limited. Dimensions of the DF are 98 x 26

feet. The adjoining air pollution control system measures 20 x 27 feet. The deactivation furnace is used to demilitarize small explosive loaded components such as detonators, primers and fuses. These materials are generated from non-specific plant production lines and include excess and off-specification components. The principle of operation for the deactivation furnace is to feed material to the furnace where it is thermally treated and transported by means of spiral flights within the retort. The metal residue is ejected from the furnace discharge assembly and salvaged. This unit is a RCRA regulated unit and is addressed in the RCRA Part B Permit Application as a treatment unit. A complete list of wastes treated is given in that document.

Y. CONTAMINATED WASTE PROCESSOR (IAAP-24).

The contaminated waste processor (CWP) is located in the explosive disposal area in the northeast part of IAAP, approximately one mile from the installation boundary. The CWP is in Building BG-199-2 whose dimensions are approximately 40 x 100 feet. The CWP will be used to flash or burn materials which have come in contact with TNT or other energetic substances. Such materials will include equipment, pipe, steel, empty cartridge cases, empty projectiles, lumber, shipping cartons, wrapping paper, etc. The CWP has been used from 1982 through the present. On October 4, 1983 EPA exempted the CWP from RCRA requirements. However, ash from the CWP may be EP toxic and must be managed as a hazardous waste. Metal items are made available for sale as salvageable metals after flashing by fire.

Z. EXPLOSIVE WASTE INCINERATOR (LAAP-25).

The explosive waste incinerator (EWI) is an incineration system designed to thermally treat bulk propellant and explosive wastes generated during the process of manufacture and assembly. The EWI is located in the northeast part of LAAP at the explosive disposal area in Building BG-199-1. Dimensions of the EWI are 28 x 110 feet. The adjoining air pollution control system measures 32 x 47 feet. Waste fed to the furnace moves toward a flame by means of spiral flights within the retort. Detonation or free-burning, depending on waste characteristics, is initiated by the furnace flame.

The EWI treats explosive wastes, explosive contaminated carbon, sump scrap and explosive contaminated waste solvents. Resultant ash is collected and managed as a hazardous waste. The EWI was operated on a trial basis from November, 1981 to April, 1982. This unit is a RCRA regulated unit and is addressed in the RCRA Part B Permit Application as a treatment unit. A complete list of wastes treated is given in that document.

AA. SEWAGE TREATMENT PLANT/SLUDGE DRYING BEDS (LAAP-26).

This unit is located in east-central LAAP. The wastewater influent consists of facility domestic wastes, car wash rack wastes and x-ray film processing wastes, boiler blowdown waste from the steam generating plant near Process Line 1, and blowdown from the oilfired heating plant near Line 2 (when in use). The treatment facility consists of an imhoff tank, a trickling filter, two secondary clarifiers, a chlorine

contact chamber and sludge drying beds. These facilities are contained in an area approximately 1 acre in size. The discharge is monitored immediately following the final treatment unit at Building No. 500-216-1 for NPDES compliance. Discharge is to Brush Creek. Dried sludge is taken to the old Fly Ash Waste Pile. An analysis of the sludge is included as Figure X-2.

BB. FLY ASH LANDFILL (LAAP-27).

This 9.5 acre landfill, located in west-central LAAP, northwest of Building No. 400-139 is approximately 590 x 708 feet. The landfill accepts only fly ash from the coal-fired heating plants. An analysis of the fly ash is furnished as Figures X-3 and X-4. This landfill has operated from 1985 through the present. It is part of a group of sites which includes the runoff pond for the coal storage pile located adjacent to the Main Heating Plant, Building No. 500-139. Samples will be collected at the runoff discharge point for NPDES compliance. Upon completion of the proposed treatment system, the discharge shall also include low volume wastes from the main power plant and leachate from the fly ash landfill and shall be monitored immediately following the final treatment unit. Discharge is to Long Creek.

CC. CONSTRUCTION DEBRIS LANDFILL (LAAP-28).

This 3-acre landfill in central LAAP is located in a ravine northwest of Yard O between Plant Road I and south railroad running track. Wastes placed in the landfill include brick, stone and concrete. It has operated from the 1940's through the present.

DD. SEWAGE TREATMENT PLANT/SLUDGE DRYING BED-LINE 3A (IAAP-29).

This unit is located in western IAAP. The wastewater influent consists of domestic wastes from the Process Line 3A and blowdown water from the steam generating plant near Line 3A (Building No. 3A-02). The treatment facility consists of an Imhoff tank, a trickling filter, a secondary clarifier, a chlorine contact chamber, and a sludge drying bed. These facilities are contained in an area approximately one-half acre in size. It has operated from 1943-1945 and again from 1949 through the present. The discharge shall be monitored immediately following the final treatment unit at Building No. 500-216-2 for NPDES compliance. Discharge is to an unnamed tributary of the Skunk River. Dried sludge is taken to the old Fly Ash Waste Pile. An alysis of the sludge is furnished as Figure X-5.

EE. GENERAL DESCRIPTION OF TEST FIRE (FS) AREA (IAAP-30)

The test fire (FS) area is used on a routine basis to perform static testing of warheads produced at the IAAP. The test fire area has been in operation since the 1940's and was used for atomic energy commission activities from 1948 until 1974. The test fire area measures approximately 4,000 feet by 5,000 feet and is characterized by hilly terrain which acts to prevent the horizontal movement of sound waves. The nearest installation boundary is approximately 1 mile away and the land adjoining the installation on the east side is agricultural. The test fire sites are primarily grouped into three areas: the north test fire site consists of F.S.-9, F.S.-10, F.S.-11 and F.S.-12; the south test fire site consists of F.S.-6 and F.S.-15; and the third area Consists of F.S.-3, F.S.-4, and F.S.-5, F.S.-14 is counted independently of the other areas and F.S.-1 and F.S.-2 are used for offices.

TABLE X-1

SOLID WASTE MANAGEMENT UNITS

SWMU SITE NUMBER	SWMU SITE NAME	FIGURE X-1 KEY
IAAP-1	Line 1	
IAAP-2	Line 2	
IAAP-3	Line 3	
IAAP-4	Line 3A	
IAAP-5	Lines 4A and 4B	
IAAP-6	Lines 5A and 5B	
IAAP-7	Line 6	
IAAP-8	Line 7	
IAAP-9	Line 8	
IAAP-10	Line 9	
IAAP-11	Line 800	
IAAP-12	Explosive Disposal Area	
IAAP-13	Incendiary Disposal Area (east of Yard D)	A
IAAP-14	Boxcar Unloading Area (east of Yard B)	B
IAAP-15	Old Fly Ash Waste Pile	C
IAAP-16	Former Wastewater Impoundment (Line 1) on Brush Creek	D
IAAP-17	Pesticide Pit	E
IAAP-18	Possible Demolition Site (south of Yard G)	F
IAAP-19	Contaminated Clothing Laundry	G
IAAP-20	Inert Disposal Area (Landfill)	
IAAP-21	Demolition Area	
IAAP-22	Unidentified Substance (oil-based) Waste Site	H
IAAP-23	Deactivation Furnace	I
IAAP-24	Contaminated Waste Processor	J
IAAP-25	Explosive Waste Incinerator	K
IAAP-26	Sewage Treatment Plant/Sludge Drying Beds	L
IAAP-27	Fly Ash Landfill	M
IAAP-28	Construction Debris Landfill (near Yard O)	N
IAAP-29	Sewage Treatment Plant/Sludge Drying Bed - Line 3A	O
IAAP-30	Firing Site Area	P

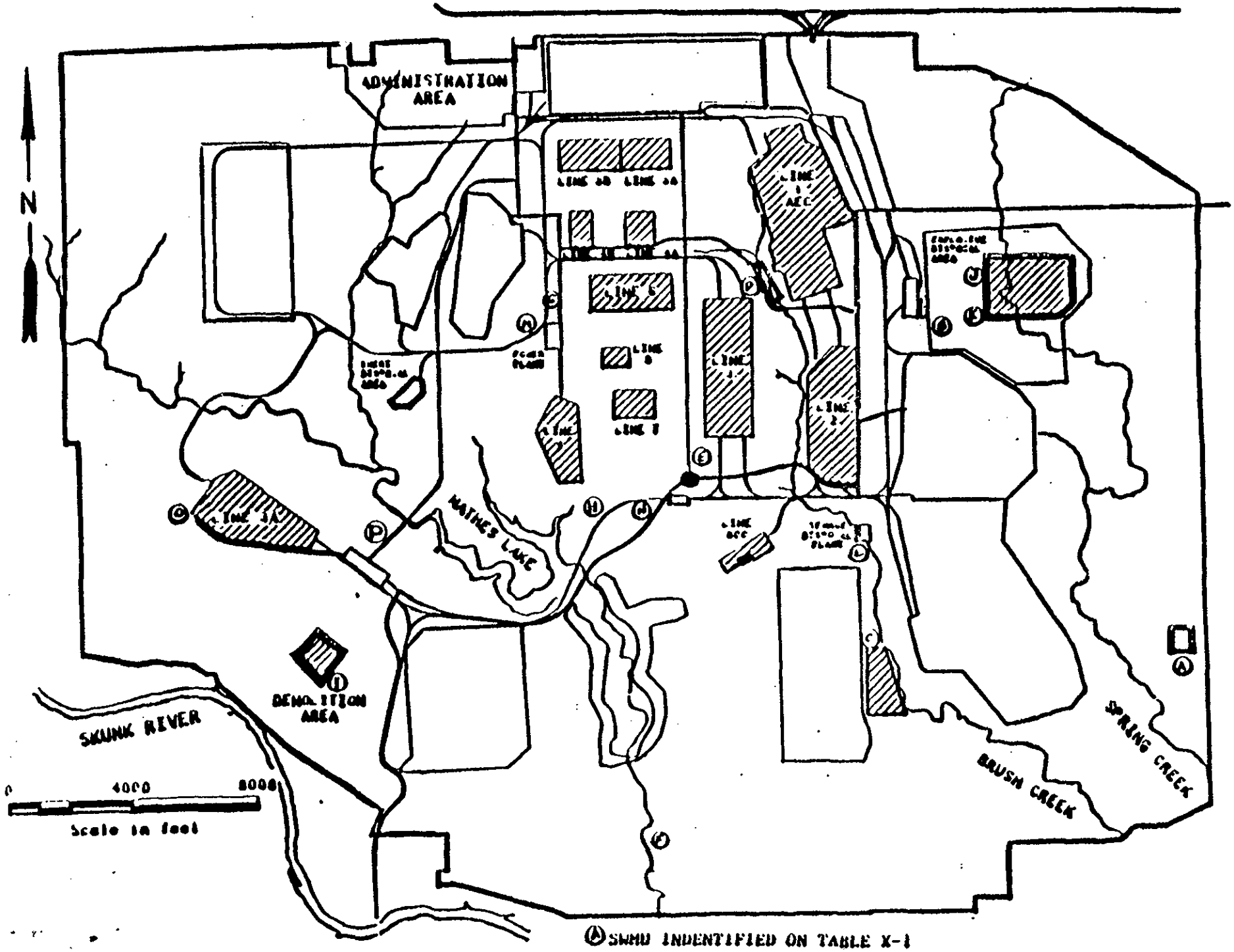


FIGURE X-1. LOCATION OF SWMUs

Ⓐ SWMU INDENTIFIED ON TABLE X-1

Analytical Report for Sample Number 8804001

Iowa City Laboratory
Oakdale Hall
Iowa City, IA 52242
(319) 335-4500

Des Moines Branch
900 East Grand
M.A. Wallace Building
Des Moines, IA 50319
(515) 281-5371

Date Received: 04/15/88 Date of Report: 05/16/88

Submitter: MASON & HANGER
Address: IOWA ARMY AMMO PLANT
City: MIDDLETON, IA 52638

Sample Location: MIDDLETOWN Sample Description: SLUDGE
Date Collected: Client Reference:

Comments

DRYING BED SLUDGE SAMPLE FROM MAIN SLUDGE TREATMENT PLANT.
SAMPLE ID:890347-179. CHC86-700-B90347

--- Listing of Analyses Performed and Results ---

TEST	CONCENTRATION		METHOD USED	ANALYST
KJELDAHL NITROGEN	<1	% BY DRY WT	SM16 420	RVD
TOTAL PHOSPHORUS (P)	<1	% BY DRY WT	SM16 424	RVD
POTASSIUM	0.21	% BY DRY WT	EPA 258.1	ML
ARSENIC	8.9	MG/KG BY DRY WT	EPA 206.2	ML
CADMIUM	9.5	MG/KG BY DRY WT	EPA 200.7	SR
CHROMIUM	220	MG/KG BY DRY WT	EPA 200.7	SR
COPPER	330	MG/KG BY DRY WT	EPA 200.7	SR
MERCURY	16	MG/KG BY DRY WT	EPA 245.1	ML
NICKEL	23	MG/KG BY DRY WT	EPA 200.7	SR
LEAD	160	MG/KG BY DRY WT	EPA 200.7	SR
ZINC	770	MG/KG BY DRY WT	EPA 200.7	SR
TOTAL RESIDUE	44	PERCENT	SM16 209	TL

Verified:

PM - Parts/Million MG/L - Milligrams/Liter MG/KG - Milligrams/Kilogram
PPB - Parts/Billion UG/L - Micrograms/Liter UG/KG - Micrograms/Kilogram
< - Less than > - Greater than PCI/L - pico Curies/Liter

Figure X-2. Analysis of drying bed sludge

Analytical Report for Sample Number 8933611

Iowa City Laboratory
Oakdale Hall
Iowa City, IA 52242
(319) 335-4500

Des Moines Branch
900 East Grand
N.A. Wallace Building
Des Moines, IA 50319
(515) 281-5371

Date Received: 03/31/89 Date of Report: 04/27/89

Submitter: MASON & HANGER
Address: IOWA ARMY AMMO PLANT
City: MIDDLETON, IA 52638

Sample Location: MIDDLETOWN Sample Description: SOLID/FLYASH
Date Collected: Client Reference: B98367-222

Comments

FLYASH SAMPLE,COAL FIRED MAIN HEATING BLDG 8500-139
REPORT TO F.C.LAUE
CHARGE ACCT # 6-700-B98367

--- Listing of Analyses Performed and Results ---

Analyte	Concentration		Method Used	Analyst
COPPER	77	MG/KG BY DRY WT	EPA 6010	SR
NC	<1	MG/KG BY DRY WT	EPA 6010	SR
ON	8000	MG/KG BY DRY WT	EPA 6010	SR

Comments
SULFIDES COULD NOT BE DETECTED BY THE QUALITATIVE TEST. SULFATES WERE FOUND IN THE E.P. EXTRACT (110 MG/L). THE DISSOLVED SULFATES WERE 2,200 MG/KG. THE SULFUR CONTENT COULD NOT BE MEASURED AS NO PROCEDURE IS AVAILABLE IN OUR LABORATORY FOR THIS TEST.

Verified: [signature]

M - Parts/Million MG/L - Milligrams/Liter MG/KG - Milligrams/Kilogram
PPB - Parts/Billion UG/L - Micrograms/Liter UG/KG - Micrograms/Kilogram
< - Less than > - Greater than pCi/L - pico Curies/Liter

Figure X-3. Analysis of fly ash

Hazardous Waste Testing Report

Laboratory Number: 8953411 Date Received: 3/31/89

Extraction Procedure (EP) Toxicity Characteristics

Contaminant	mg/L EP Extract	mg/kg Extracted from Sample	Maximum Concentration of Contaminant Allowable in Extract (Ref: 40CRF261.24) (mg/L)
Arsenic	<0.50	<10	5.0
Barium	<10	<200	100.0
Cadmium	<0.10	<2.0	1.0
Chromium	<0.50	<10	5.0
Lead	<0.50	<10	5.0
Mercury	<0.02	<0.40	0.2
Selenium	<0.10	<2.0	1.0
Silver	<0.50	<10	5.0
Endrin			0.02
Lindane			0.4
Methoxychlor			10.0
Toxaphene			0.5
2,4,D			10.0
2,4,5-TP (Silvex)			1.0
Chromium (Hexavalent)*	<0.05	<1.0	
Copper*	0.10	2.0	
Zinc*	0.97	19	
Fluoride*			
Nitrate (as NO_3)*			
pH (Units)*	4.8		

*Analyses required by the Iowa Department of Natural Resources-Environmental Protection Division. All analyses in accordance with: Test Methods for Evaluating Solid Wastes. Physical Chemical Methods, EPA SW-846, Second Edition, 1982, or the EPA Approved Methods.

Total Cyanide in Sample* _____ mg/kg Total Phenols in Sample* _____ mg/kg

Analysts: SMV, DC, ESA, SR

Comments: _____

Review by: SSB Date Reported: 4/27/89

WJ Hausler, Jr., Ph.D.
Director

2/84

Figure X-4. Analysis of fly ash

Analytical Report for Sample Number 8856002

Iowa City Laboratory
Oakdale Hall
Iowa City, IA 52242
(319) 335-4500

Des Moines Branch
900 East Grand
N.A. Wallace Building
Des Moines, IA 50319
(515) 281-5371

Date Received: 06/15/88 Date of Report: 08/16/88

Submitter: MASON & HANGER
Address: IOWA ARMY AMMO PLANT
City: MIDDLETON, IA 52638

Sample Location: MIDDLETOWN Sample Description: SLUDGE
Date Collected: Client Reference:

Comments

DRYING BED SLUDGE SAMPLE FROM LINE 3-A,TREATMENT PLANT.
SAMPLE ID#870347-180. CHG86-700-870347.

--- Listing of Analyses Performed and Results ---

TEST	CONCENTRATION		METHOD USED	ANALYST
TLDAHL NITROGEN	1	% BY DRY WT	SM16 420	RVD
TAL PHOSPHORUS (P)	1.3	% BY DRY WT	SM16 424	RVD
POTASSIUM	0.15	% BY DRY WT	EPA 258.1	ML
ARSENIC	12	MG/KG BY DRY WT	EPA 206.2	ML
CADMIUM	7.4	MG/KG BY DRY WT	EPA 200.7	SR
CHROMIUM	360	MG/KG BY DRY WT	EPA 200.7	SR
COPPER	400	MG/KG BY DRY WT	EPA 200.7	SR
MERCURY	11	MG/KG BY DRY WT	EPA 245.1	DC
NICKEL	71	MG/KG BY DRY WT	EPA 200.7	SR
LEAD	300	MG/KG BY DRY WT	EPA 200.7	SR
ZINC	860	MG/KG BY DRY WT	EPA 200.7	SR
TOTAL RESIDUE	60	PERCENT	SM16 209	TL

Verified:

PPM - Parts/Million MG/L - Milligrams/Liter MG/KG - Milligrams/Kilogram
PPB - Parts/Billion UG/L - Micrograms/Liter UG/KG - Micrograms/Kilogram
< - less than

Figure X-5. Analysis of sewage sludge