September 2018

U. S. Environmental Protection Agency Region 7
Response to Comments on the Draft Hazardous Waste Management Permit for
Iowa Army Ammunition Plant
17571 Des Moines County Highway 79
Middletown, Iowa
EPA RCRA ID No. IA7213820445

The U. S. Environmental Protection Agency (EPA) Region 7 has decided to issue a final Hazardous Waste Management Permit to the U.S. Army and American Ordnance, LLC. for the Iowa Army Ammunition Plant (IAAP) located at 17571 Des Moines County Highway 79 in Middletown, Iowa. The EPA has made changes to the final Hazardous Waste Management Permit based on comments received on the draft Permit.

Public participation activities associated with the draft and final Permits have been conducted in accordance with 40 Code of Federal Regulations (CFR) Part 124. The EPA provided a draft Permit for public comment from August 6, 2018 through September 26, 2018. A public notice was issued in the *Hawk Eye* and radio announcements were made by the radio station announcing the availability of the draft Permit and the start of a 45-day public comment period. The Administrative Record for EPA's draft permit was available throughout the comment period at the Burlington Public Library, the Iowa Department of Natural Resources in Des Moines, Iowa and the EPA Region 7 Records Center in Lenexa, Kansas, during normal business hours. A public availability session was held on September 19, 2018.

Since comments were filed, any commenter may petition the Environmental Appeals Board (EAB), pursuant to 40 CFR § 124.19(a), to review any condition of the permit decision to the extent of their comments made during the comment period. Any person who failed to file comments may petition for administrative review only to the extent of the changes from the draft to the final permit. All petitions for review must be received by the EAB no later than thirty-three (33) days from the date of this notice.

Any petition for review shall include a statement of the reasons supporting the review, including a demonstration that any issues being raised during the public comment period were raised to the extent required by 40 CFR § 124.19 and when appropriate, a showing that the condition in question is based on: (1) a finding of fact or conclusion of law which is clearly erroneous, or (2) an exercise of discretion or an important policy consideration which the EAB should, in its discretion, review. Please see the web site at http://www.epa.gov/eab for Frequently Asked Questions and additional information regarding the EAB.

Submissions that are sent through the U.S. Postal Service (except by Express Mail) must be addressed to the following EAB's mailing address with sufficient time allowed for delivery so that it is received by the EAB no later than thirty-three (33) days from the date of this notice:

Clerk of the Board
U.S. Environmental Protection Agency
Environmental Appeals Board
1200 Pennsylvania Avenue, Northwest
Mail Code 1103M
Washington, DC 20460-0001

Submissions that are hand-carried, delivered via courier, mailed by Express Mail or delivered by a non-U.S. Postal Service commercial delivery service must be delivered to the following address:

Clerk of the Board
U. S. Environmental Protection Agency
Environmental Appeals Board
1201 Constitution Avenue, Northwest
U.S. EPA East Building, Room 3332
Washington, DC 20004

Information on how to electronically file documents may be obtained on the EAB's web site, under the heading "Electronic Filing." The EAB may be reached by telephone at (202) 233-0122.

This summary of comments, prepared according to the requirements of 40 CFR § 124.17, considers written comments received during the public comment period. The full text of comments is included in the Administrative Record. All comments were carefully reviewed. The following summarizes the written comments and sets out the EPA's responses:

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1. **Comment:** Never trust the polluting Armed Forces. Never trust the Army. 1) Poison Groundwater 2) Toxins into the Air and Soil.

   EPA Response: The EPA is issuing this Permit in accordance with the Regulations. The Permit authorizes the U.S. Army and American Ordnance, LLC. to conduct hazardous waste storage, conduct open burning and open detonation (OB/OD) operations, conduct post closure care for the Ash Disposal Cell in Trench 5 and perform corrective action for solid waste management units and areas of concern at the Facility. The Permit specifies waste codes that may be stored and materials that may and may not be treated in the OB/OD units. The Iowa Army Ammunition Plant is subject to regular inspections by the EPA to verify compliance with permit conditions. Investigations and clean-up for past releases at IAAP are being addressed through the EPA's Superfund Program.

2. **Comment:** Burn Pits (Open Burning). 1) Journey of Hell 2) The New Agent Orange

   EPA Response: The EPA reviewed the submitted magazine article related to this comment. The open burning operations authorized through this Permit are not similar in size or scope to the burn pits described in the article. The Permit describes design and operating requirements for the OB/OD units. Open burning is limited to 140 pounds per hour and open detonation is limited to 60 pounds per hour. Also, the Permit specifies what materials can and cannot be burned or detonated in the units. An OB/OD risk assessment was conducted in 2007, and a new risk assessment will be performed once funding through the U.S. Army is approved.

3. **Comment:** Camp Lejeune- Toxic Drinking Water Poisoning for Decades. Families.

   EPA Response: Investigations and clean-up for past releases at IAAP are being addressed through the EPA Superfund Program. Activities at Camp Lejeune are being overseen by EPA Region 4 and the North Carolina Department of Environmental Quality.

4. **Comment:** The Iowa DNR Air Quality Bureau is concerned that the open burning language in the Permit will give the Facility the impression that they will no longer have to follow the State of Iowa open burning regulations.

EPA Response: Permit Condition V.B.3.a. has been modified to remove the reference to operations that do not require case by case approval by Iowa Department of Natural Resources.

5. **Comment:** The U.S. Army and American Ordnance, LLC. provided revised versions of the following documents: Waste Analysis Plan, Security Plan, Inspection Schedule, Training Plan, Contingency Plan, Container Storage Area Closure Plan, Post Closure Plan and Open Burning Standard Operating Procedures.

   EPA Response: The EPA reviewed all received documents and accepted the revised Security Plan, Inspection Schedule, Training Plan, Contingency Plan and Open Burning Standard Operating Procedures. These documents have been incorporated into the Permit.

6. **Comment:** Attachment III-2, Security Plan: Section G; G-1(c) Means to Control Entry. All persons entering the IAAP facility must first be screened by AO security or DACP using NCIC III prior to issuance of any badge. Any questionable responses from the NCIC III enquiries must be approved or denied by government personnel.

   EPA Response: The Permit does not change facility-specific access requirements.

7. **Comment:** The 1997 amendment to the Trench 5 Post-Closure Plan was provided by the U.S. Army.

   EPA Response: The submitted document was an excerpt of Permit Attachment VIII-1, which was provided by the EPA in the Administrative Record at the start of the public comment period. No change was made to Permit Attachment VIII-1 since the document was identical to what was already included in the Administrative Record.

The following administrative changes were made to the Permit to correct typographical errors.

1. Permit Condition V.D.2.a was modified to reference Permit Condition V.B. rather than Permit Condition 0.

2. Permit Condition VI.A was modified to reference Permit Condition V rather than Permit Condition 0.

3. Permit Condition VI.E.3 was modified to reference Permit Condition V rather than Permit Condition 0.

4. Permit Condition IX.G.2 was modified to reference Permit Condition IX.U rather than Permit Condition I0.

END OF COMMENTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT

PERMITTEES: UNITED STATES ARMY and AMERICAN ORDNANCE, LLC.

FACILITY: IOWA ARMY AMMUNITION PLANT

RCRA IDENTIFICATION NUMBER: IA7213820445

Pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), as further amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. § 6901 et seq., and regulations promulgated thereunder by the United States Environmental Protection Agency (EPA) (codified and to be codified in Title 40 of the Code of Federal Regulations (C.F.R.)), a Permit is issued to the United States Army (the Owner) and American Ordnance LLC (the Operator) hereafter called the Permittees for the Iowa Army Ammunition Plant, to perform activities required by HSWA at their Facility located at 17571 Des Moines County (DMC) Highway 79, Middletown, Iowa.

Section 3004(u) of RCRA, 42 U.S.C. 6924(u), and 40 C.F.R. § 264.101, require that all Permits issued after November 8, 1984 address corrective action for releases of hazardous waste or hazardous constituents from any solid waste management unit (SWMU), regardless of when waste was placed in the unit or whether the unit is closed. Those sections further require that Permits issued under Section 3005 of RCRA contain a schedule of compliance for corrective action where corrective action cannot be completed prior to permit issuance. Section 3004(v) authorizes the EPA to require that corrective action be taken by the Facility Owner or Operator beyond the Facility boundary when necessary to protect human health and the environment, unless the Owner or Operator demonstrates that permission to undertake such action, despite the owner/operator's best efforts, was denied. Section 3005(c)(3) of RCRA requires that each Permit issued under Section 3005 of RCRA shall contain terms and conditions as the EPA determines necessary to protect human health and the environment.

The following description of regulated activities is based upon the Part B Permit Application: The Facility is a Federal government-owned military industrial installation. The United States Army owns the property; however, a contractor operates the Facility to load, assemble and pack military munitions. A facilities contract with American Ordnance LLC provides for the munitions manufacturing, site management, maintenance and security and is inclusive of hazardous waste management. Hazardous waste management occurs to manage waste generated from munitions manufacturing, site management, maintenance and security activities and from the burning or detonation of munitions. Hazardous waste management activities include storage, treatment and disposal as detailed in this Permit.

This Permit consists of the provisions (conditions) contained herein (including this Permit's Attachments) and the applicable regulations contained in 40 C.F.R. Parts 260 through 266, 268, 270 and 124, which are incorporated by reference. This Permit is based upon the applicable regulations, which are in effect on the date of the issuance of the Permit, in accordance with 40 C.F.R. § 270.32(c). The Permittees must comply with all terms and conditions of this Permit.

This Permit is based on the assumption that the information submitted in the Permit Application is accurate and that the Facility will be operated as specified in the Permit Application. Any inaccuracies found in the submitted information may be grounds for the termination, revocation and reissuance or modification of this Permit in accordance with 40 C.F.R. §§ 270.41, 270.42 and 270.43 and for enforcement action. The Permittees must inform the EPA of any deviation from or changes in the information in the Permit Application which would affect the Permittees' ability to comply with the applicable regulations or Permit conditions.

The Regional Administrator of EPA, Region 7, has delegated authority to perform all actions necessary to issue, deny, modify or revoke and reissue Permits for Owners and Operators of hazardous waste treatment, storage and disposal facilities pursuant to Section 3005 of RCRA to the Director of Region 7 Air and Waste Management Division (hereafter referred to as Director) or the Director's designated representative, by delegation No. R7-8-6; January 1, 1995 and revised on September 16, 2007.

This Permit shall be issued as of the date below and shall remain in effect for 10 years from the date of its issuance unless revoked and reissued under 40 C.F.R. § 270.41, terminated under 40 C.F.R. § 270.43 or continued in accordance with 40 C.F.R. § 270.51(a) or (d).

Done at Lenexa, Kansas, this 28th day of September, 2018.

Mark A. Smith
Acting Director
Air and Waste Management Division

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TABLE OF CONTENTS

PERMIT ATTACHMENTS

- Permit Attachment I-1 – Facility Figures
  - Figure 1 – Facility Location Map
  - Figure 2 – Waste Management Locations
  - Figure 3 – Trench 5 and the Inert Disposal Area
  - Figure 4 – SWMU/AOC Locations
  - Figure 5 – Open Detonation Area
- Permit Attachment III-1 – Waste Analysis Plan
- Permit Attachment III-2 – Security Plan
- Permit Attachment III-3 – Inspection Schedule
- Permit Attachment III-4 – Training Plan
- Permit Attachment III-5 – Contingency Plan
- Permit Attachment III-6 – Closure Plans
  - Container Storage Area
  - Open Burning Units/Open Detonation Units
- Permit Attachment V-1 – Open Burning Standard Operating Procedures
- Permit Attachment VI-1 – Open Detonation Standard Operating Procedures (to be incorporated through a permit modification request)
- Permit Attachment VII-1 – Open Detonation Standard Operating Procedures for 40mm Grenades (to be incorporated through a permit modification request)
- Permit Attachment VIII-1 – Post-Closure Plan
- Permit Attachment VIII-2 – Post-Closure Notices
- Permit Attachment VIII-3 – IDA Boundary Fence Plan

I. DEFINITIONS

For purposes of this Permit, terms used herein shall have the same meaning as those in 40 C.F.R. Parts 124, 260, 261, 264, 266, 268 and 270, unless this Permit specifically provides otherwise. Where terms are not defined in the regulations or the Permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

"Annually" means one time per calendar year such that at least 11 months and no more than 13 months have elapsed since the last annual event.

"Area of Concern" or "AOC" shall mean any area of the Facility under the control or ownership of the Owner or Operator where a release to the environment of hazardous waste(s) or hazardous constituents has occurred, is suspected to have occurred or may occur, regardless of the frequency or duration of the release.

"AWMD" shall mean the Air and Waste Management Division of Region 7 of the EPA, or subsequently renamed division of EPA Region 7 that includes the personnel that conduct oversight of RCRA.

"Business day" shall mean a day other than a Friday, Saturday, Sunday or a federal holiday.

"Class 1 modification" means a permit modification in accordance with 40 C.F.R. § 270.42.

"Closure Plan" shall mean the closure plans included as Permit Attachment III-6 to this Permit and any subsequent EPA-approved revisions or modifications to the Closure Plans.

"Contingency Plan" shall mean the Contingency Plan, Section H from the RCRA Hazardous Waste Management (Part B) Permit Application for Building No. BG-12 and Building No. C-13 (23-39-13), Volumes 1 and 2, October 1, 1999, included s Permit Attachment III-5 to this Permit and any subsequent EPA-approved revisions or modifications to the Contingency Plan.

"Daily" means once each calendar day.

"Data Quality Objectives (DQOs)" shall mean performance and acceptance criteria that clarify study objectives, define the appropriate type of data and specify tolerable levels of potential decision errors that will be used as the basis for establishing the quality and quantity of data needed to support decisions. The DQOs shall be prepared consistent with EPA Guidance documents; *Guidance on Systematic Planning Using the Data Quality Objectives Process,* EPA QA/G-4, EPA/240/B-06/001, February 2006; *Guidance for Developing Quality Systems for Environmental Programs*, EPA QA/G-1, EPA/240/R-008, November 2002 and any subsequent revisions or editions.

"Day" means calendar day, unless expressly stated to be a working day or business day. "Working day" or "business day" shall mean a day other than a Friday, Saturday, Sunday or a federal holiday. In computing any period of time under this Permit, where the last day (either calendar day or working day) would fall on a Friday, Saturday, Sunday or a federal holiday, the period shall run until the close of business of the next working day.

"Director" means the Division Director of AWMD, his or her designee or an authorized representative.

"Engineering Controls" means any mechanism used to contain, isolate or stabilize contamination that ensures the effectiveness of corrective action and acts as a physical barrier between the contamination and contact with humans or the environment.

"EPA" means the United States Environmental Protection Agency.

"Facility" means the Iowa Army Ammunition Plant Facility located at 17571 Des Moines County Highway 79, Middletown, Iowa, and all contiguous property at this location under the control of the Permittees.

"Hazardous Constituent" means any constituent identified in Appendix VIII of 40 C.F.R. Part 261 or any constituent identified in Appendix IX to 40 C.F.R. Part 264.

"Hazardous Waste" means any solid waste as defined at 42 U.S.C. § 6903 (27) and 40 C.F.R. § 261.2 which also meets any of the criteria of a hazardous waste as listed in 42 U.S.C. § 6903 (5) and 40 C.F.R. § 261.3.

"Inspection Schedule" shall mean the inspection schedule included as Permit Attachment III-3 to this Permit and any subsequent EPA-approved revision or modification to the Inspection Schedule.

"Institutional Controls" means administrative and/or legal mechanisms that help limit exposure to humans from contamination and/or protect the integrity of the remedy.

"Interim Measure" means those actions taken to immediately control or abate threats or potential threats to human health or the environment from releases or potential releases of hazardous wastes or hazardous constituents, which can be initiated before implementation of the final corrective measures for a Facility.

"Monthly" means 12 times per year (once per calendar month) such that at least 15 days and no more than 45 days have elapsed since the last monthly event.

"Military Munitions" means all ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of the Department of Defense. The term includes confined gaseous, liquid, and solid propellants, explosives, and incendiaries, including bulk explosives, warheads, mortar rounds, artillery ammunition, grenades, mines, cluster munitions and dispensers, demolition charges, and devices and components thereof.

"PDF format" means the Adobe Portable Document Format developed by Adobe Systems Incorporated.

"Permit Application" means the documents listed below, as modified by subsequent amendments, revisions or modifications approved by the EPA.

- Revised Part A Permit Application, December 11, 2003

- RCRA Hazardous Waste Management (Part B) Permit Application, Open Burn, Open Detonation, Volumes 1 and 2, December 21, 2006

- RCRA Hazardous Waste Management (Part B) Permit Application for Building No. BG-12 and Building No. C-13 (23-39-13), Volumes 1 and 2, October 1, 1999

- RCRA Post-Closure Permit Application for Trench No. 5 of the Inert Landfill, September 28, 1988

"Quality Assurance Project Plan" means a plan of the same name prepared consistent with the EPA's document titled *EPA Requirements for Quality Assurance Project Plans,* EPA QA/R-5 and any subsequent revisions or editions.

"Quarterly" means four times per calendar year such that at least two months and no more than four months have elapsed since the last quarterly event.

"*RCRA Corrective Action Plan*" means the document of the same name dated May 1994 and given the OSWER Directive Number 9902.3-2A and EPA Document Number 520-R-94-004 and any subsequent revisions or editions.

"*RCRA Facility Investigation Guidance*" means the document of the same name dated May 1989 and given the OSWER Directive Number 9502.00-6D and the EPA Document Number 530/SW-89-031.

"Regional Administrator" means the Regional Administrator of EPA, Region 7, or his or her designee.

"Release" means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping or disposing of hazardous wastes (including hazardous constituents) into the environment, including the abandonment or discarding of barrels, containers and other closed receptacles containing hazardous wastes and/or hazardous constituents.

"Semi-Annually" means two times per calendar year such that at least five months and no more than seven months have elapsed since the last semi-annual event.

"Solid Waste Management Unit" or "SWMU" means any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous wastes. Such units include any area at a Facility at which solid wastes have been routinely and systematically released.

"Stabilization" means actions taken to control or abate threats to human health and/or the environment from releases at the Facility, and/or to prevent or minimize the further spread of contamination while long-term remedies are pursued.

"Standard Operating Procedure" or "SOP" means a document that is a set of written instructions that document a routine or repetitive activity. An SOP required by this Permit documents the way activities are to be performed to facilitate consistent conformance to RCRA and this Permit.

"Waste Analysis Plan" shall mean the waste analysis plan included as Permit Attachment III-1 to this

Permit and any subsequent EPA-approved revisions or modifications to the Waste Analysis Plan.

"Weekly" means 52 times per calendar year such that no fewer than five days and no more than 10 days have elapsed since the last weekly event.

"Working day" shall mean a day other than a Friday, Saturday, Sunday or a federal holiday.

II. GENERAL CONDITIONS

II.A. FACILITY INFORMATION

II.A.1. Owner

The Facility Owner is the United States Army, which is part of the Department of Defense of the United States of America, hereinafter referred to as the Permittee.

II.A.2. Operator

The Facility Operator is American Ordnance, LLC, registered to do business in the State of Iowa, hereinafter referred to as the Permittee.

II.A.3. Location

The Facility is located in Des Moines County at 17571 DMC Highway 79, Middletown, Iowa. A Facility location map is provided in Figure 1, Permit Attachment I-1.

II.A.4. Description

The Permittees load, assemble and pack military munitions and demilitarize military munitions. Hazardous waste that requires storage, treatment and disposal is generated in the course of such activities. The wastes include hazardous wastes listed in 40 C.F.R. Part 261, Subpart D or characteristic wastes identified in 40 C.F.R. Part 261, Subpart C, or both.

II.B. EFFECT OF PERMIT

II.B.1. The Permittees are authorized to treat, store and/or dispose of hazardous waste in the hazardous waste management unit(s) authorized by and operated in accordance with this Permit, subject to the requirements of this Permit. Any storage, treatment and/or disposal of hazardous waste not authorized in this Permit is prohibited. This Permit consists of the conditions contained herein, including those in Permit Attachments hereto; the Permit Application and the applicable regulations contained in 40 C.F.R. Parts 124, 260 through 264, 268 and 270. Applicable regulations are those which are in effect on the date of issuance of this Permit and those identified in Permit Condition II.B.2 below. The Permittees remain subject to any regulations governing activities not covered by this Permit, for example, those regulations to which hazardous waste generators are subject.

II.B.2. Subject to 40 C.F.R. § 270.4, compliance with this Permit during its term constitutes compliance, for purposes of enforcement, with those portions of Subtitle C of RCRA as amended by HSWA included in this Permit, except for those requirements not included in the Permit which:

a. Become effective by statute;

b. Are promulgated under 40 C.F.R. Part 268 restricting the placement of hazardous wastes in or on the land;

c. Are promulgated under 40 C.F.R. Part 264 regarding leak detection systems for new and replacement surface impoundments, waste piles and landfill units, and lateral expansions of surface impoundments, waste piles and landfill units. The leak detection system requirements include double liners, construction quality assurance programs, monitoring, action leakage rates and response action plans and will be implemented through the procedures of 40 C.F.R. §270.42 Class 1 Permit modifications; or

d. Are promulgated under 40 C.F.R. Part 265, Subparts AA, BB or CC limiting air emissions.

II.B.3. The issuance of a Permit does not convey any property rights of any sort or any exclusive privilege.

II.B.4. The issuance of a Permit does not authorize any injury to persons or property or invasion of other private rights or any infringement of State or local law or regulations.

II.B.5. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under Sections 3008(a), 3008(h), 3013 or 7003 of RCRA, 42 U.S.C. §§ 6928(a), 6928(h), 6934 and 6973, Sections 106(a), 104 or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. § 9601 et seq., commonly known as CERCLA); or any other law providing for protection of public health or the environment.

II.C. PERMIT ACTIONS

II.C.1. Permit Modification, Revocation and Reissuance and Termination by the EPA

If at any time the Director determines that modification, revocation and reissuance or termination of the Permit is necessary, the Director may initiate a modification to the Permit, revocation and reissuance of the Permit or termination of the Permit in accordance with 40 C.F.R. §§ 270.41 and 270.43. The initiation of a modification to the Permit, revocation or reissuance of the Permit or termination of the Permit does not stay the applicability or enforceability of any Permit Condition.

II.C.2. Modification of the Permit by the Permittees

a. As set forth at 40 C.F.R. § 270.42, the Permittees may request a modification of the Permit at any time. The filing of a request for a Permit

modification or the notification of planned changes or anticipated noncompliance on the part of the Permittees does not stay the applicability or enforceability of any Permit Condition. Modifications to the Permit do not constitute a reissuance of the Permit.

b. The Permittees shall number all permit modifications each calendar year as follows: year-class-number, e.g., 2018-CL2-001. The modification number shall appear on all correspondence relating to the permit modification.

II.C.3. **Permit Modification Correspondence File**

a. The Permittees shall maintain a file that contains all correspondence relating to this Permit, including all modifications made pursuant to Permit Conditions II.C.1 and II.C.2. This correspondence file shall be available for review by the Director or the Director's designated representative(s) and the public. The file shall be made available during normal business hours.

b. The Permittees shall reference the availability of this file in all notices made regarding Permit modifications and include a contact person in order to view the file.

c. The Permittees shall include in the correspondence file all correspondence concerning this Permit, all modification requests, all modifications, all supporting or related information, copies of all Permit modification notices sent out, the current Permit modification mailing list and all correspondence from the EPA regarding modification requests.

II.C.4. **Permit Modification Report**

The Permittees shall submit annually, on the effective date of the Permit, a summary report of the permit modifications submitted in the previous calendar year. The report shall be formatted as in the following example:

MOD#: 2014-CL2-001
Submitted: 03-01-2014
Approved: 6-1-2014
Notice: 6-14-2014
Summary: Changes to Contingency Plan – emergency equipment

II.C.5. **Transfer of Permits**

a. As set forth at 40 C.F.R. § 264.12(c), before transferring ownership or operation of the Facility or any part of the Facility, the Permittees shall notify the new Owner or Operator in writing of the requirements of 40 C.F.R. Parts 264 and 270 and this Permit. At least 90 days prior to the anticipated date of transfer, the new Owner and/or Operator shall submit

to the Director a certification, in accordance with Permit Condition II.F., that the new Owner or Operator has read this Permit, understand its requirements and will comply with the terms and conditions herein. If the property transfer involves subdividing the property to more than one owner or operator, a map and legal description shall be provided to the Director that identifies the properties to be occupied by each new Owner.

b. The Permittees' failure to notify the new Owner or Operator of the requirements of this Permit in no way relieves the new Owner or Operator of the new Permittee's obligation to comply with all applicable requirements.

c. This Permit is not transferable to any person except after notice to the Director. To transfer the Permit, the Director may modify or revoke and reissue the Permit in accordance with 40 C.F.R. § 270.30(l)(3), 40 C.F.R. § 270.40(b) or 40 C.F.R. § 270.41(b)(2). The Director may also incorporate such other requirements as may be necessary under RCRA as part of the modification to this Permit.

d. The new Owner and/or Operator shall submit a revised Permit Application no later than 90 days prior to the scheduled change in ownership and/or operational control. A written agreement containing a specific date for transfer of Permit responsibility between the Permittees and new Permittee(s) must also be submitted no later than 90 days prior to the scheduled change in ownership and/or operational control as set forth at 40 C.F.R. § 270.40(b).

II.C.6. **Permit Duration**

As set forth at 40 C.F.R. § 270.50, this Permit shall be issued for a fixed term not to exceed 10 years. Except as provided in Permit Condition II.C.7 below, the term of a Permit shall not be extended by modification beyond the maximum term of 10 years. The Director may issue a Permit for durations of less than 10 years or may grant a Permit modification to allow earlier Permit termination.

II.C.7. **Continuation of Expiring Permits**

This Permit, and all conditions herein, will remain in effect and continue in force under 5 U.S.C. § 558(c) until the effective date of a new Permit (see 40 C.F.R. § 124.15) if:

a. The Permittees have submitted a timely, complete application under 40 C.F.R. § 270.14 and the applicable sections in 40 C.F.R. §§ 270.15 through 270.29 and 40 C.F.R. § 270.10(c); and

b. The Director, through no fault of the Permittees, does not issue a new Permit with an effective date under 40 C.F.R. § 124.15 on or before the expiration date of the previous Permit.

Permits continued under this Permit Condition remain fully effective and enforceable.

II.C.8. **Enforcement**

If the Permittees are not in compliance with the conditions of the expiring or expired Permit, the Director may choose to do any or all of the following:

a. Initiate enforcement action based upon the Permit which has been continued;

b. Issue a notice of intent to deny the new Permit under 40 C.F.R. § 124.6. If the new Permit is denied, the Permittees shall cease the activities authorized by the continued Permit or be subject to enforcement action for operating without a Permit;

c. Issue a new Permit under 40 C.F.R. Part 124 with appropriate conditions; or

d. Take other actions authorized by RCRA.

II.C.9. **Transfer of Permit upon State Authorization**

In the event that the State of Iowa receives authorization under 40 C.F.R. Part 271 to administer the corrective action program under 40 C.F.R. § 264.101 and 40 C.F.R. §§ 264.100(e) 1 and 2, after the effective date of this Permit and if the Permittees submit a timely and complete application under applicable State law and regulations, the terms and conditions of this Permit shall continue in force during the term of this Permit and beyond the expiration date of this Permit, but only until the effective date of the State's issuance or denial of a State RCRA Permit containing requirements for corrective action.

II.C.10. **Permit Renewal**

This Permit may be renewed as specified in 40 C.F.R. § 270.30(b) and Permit Condition II.E.2. Review of any application for a Permit renewal shall consider improvements in the state of control and measurement technology, as well as changes in applicable regulations.

II.C.11. **Permit Appeal**

This Permit may be appealed pursuant to the provisions of 40 C.F.R. § 124.19(a), which provides as follows:

Within 30 days after a RCRA final Permit decision has been issued under 40 C.F.R. § 124.15, any person who filed comments on that draft Permit or participated in the public hearing may petition the Environmental Appeals Board (EAB), in writing, to review any condition of the Permit decision. Any person who failed to file comments or failed to participate in the public hearing on the draft Permit may petition for administrative review only to the extent of the changes from the draft to the final Permit decision. The 30-day period within which a person may request review under this section begins with the service of notice of the Director's action unless a later date is specified in that notice. The petition shall include a statement of the reasons supporting that review, including a demonstration that any issues being raised were raised during the public comment period (including any public hearing) to the extent required by these regulations and when appropriate, a showing that the condition in question is based on:

a. A finding of fact or conclusion of law which is clearly erroneous, or

b. An exercise of discretion or an important policy consideration which the EAB should, in its discretion, review.

II.D. SEVERABILITY

The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby as set forth at 40 C.F.R. § 124.16.

II.E. DUTIES AND REQUIREMENTS

II.E.1. **Duty to Comply**

As set forth at 40 C.F.R. § 270.30(a), the Permittees shall comply with all conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an emergency Permit. Any Permit noncompliance, other than noncompliance authorized by an emergency Permit, constitutes a violation of RCRA and is grounds for enforcement action; for Permit termination, revocation and reissuance, or modification; and/or for denial of a Permit renewal application.

II.E.2. **Duty to Reapply**

The Permittees shall submit a complete Permit Application for a new Permit at least 180 days prior to the expiration of this Permit, as specified in 40

C.F.R. § 270.30(b). This Permit Application shall include information required to continue operations in permitted units, post-closure care, groundwater monitoring, corrective action, investigation, interim measures and/or corrective measures specified in this Permit, and as required in 40 C.F.R. §§ 270.13, 270.14 and 270.28. If the Permittees have not completed any required activities under the existing Permit and fail to timely submit a Permit Application pursuant to this Permit Condition, the Permittees shall be deemed to be in violation of this Permit. If any activities required by this Permit must be continued by the Permittees after the expiration date of this Permit, such activities must be included in the Permit Application.

II.E.3. **Permit Expiration**

As set forth in 40 C.F.R. § 270.51(a), unless revoked or terminated, this Permit shall be issued for a fixed term not to exceed 10 years, except that, as long as the EPA is the Permit-issuing authority, this Permit and all conditions herein will remain in effect beyond the Permit's expiration date and until the effective date of the new Permit, if the Permittees have submitted a timely, complete application and, through no fault of the Permittees, the Director has not issued a new Permit.

II.E.4. **Need to Halt or Reduce Activity Not a Defense**

As set forth at 40 C.F.R. § 270.30(c), it shall not be a defense for the Permittees, in an enforcement action, that it would have been necessary to halt or reduce the Permitted activity in order to maintain compliance with the conditions of this Permit.

II.E.5. **Duty to Mitigate**

As set forth at 40 C.F.R. § 270.30(d), in the event of noncompliance with this Permit, the Permittees shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

II.E.6. **Proper Operation and Maintenance**

As set forth at 40 C.F.R. § 270.30(e), the Permittees shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances), which are installed or used by the Permittees to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit.

II.E.7. **Duty to Provide Information**

As set forth at 40 C.F.R. § 270.30(h), within 30 days of a request for information from the Director, or such other time as approved by the Director, the Permittees shall furnish to the Director any relevant information which the Director may request to determine whether cause exists for modifying, revoking and reissuing or terminating this Permit, or to determine compliance with this Permit. The Permittees shall also furnish to the Director, within 30 days of request, copies of records required to be kept by this Permit.

II.E.8. **Inspection and Entry**

a. As set forth at 40 C.F.R. § 270.30(i), the Permittees shall allow the EPA, and/or an authorized representative, upon the presentation of credentials and other documents, as may be required by law, to:

   i. Enter at reasonable times upon the Permittees' premises where a regulated Facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;

   ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Permit;

   iii. Inspect, photograph and/or record (audio and/or visual), at reasonable times, any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this Permit; and

   iv. Sample or monitor, at reasonable times, for the purposes of assuring Permit compliance or as otherwise authorized by RCRA, any substances or parameters at any location.

b. Notwithstanding any provision of this Permit, the Director retains the inspection and access authority which the EPA has under RCRA and other applicable laws.

II.E.9. **Monitoring and Records**

a. As set forth at 40 C.F.R. § 270.30(j)(1), samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I of 40 C.F.R. Part 261 or an equivalent method approved by the EPA. Laboratory methods shall be in accordance with *Waste Management System; Testing and Monitoring Activities; Final Rule: Methods Innovation Rule and SW-846 Final Update IIIB*. [70 FR 34538, June 14, 2005].

b. As set forth at 40 C.F.R. § 264.74(b) and 40 C.F.R. § 270.(j)(2), the Permittees shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this Permit, the certification required by 40 C.F.R. § 264.73(b)(9), and records of all data used to complete the application for this Permit through the term of the Permit or for a period of at least three years from the date of the sample, measurement, report, record, certification or application; whichever is longer. These periods may be extended by request of the EPA at any time and are automatically extended during the course of any unresolved enforcement action regarding this Facility. The Permittees shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the Facility and for disposal facilities for the post-closure care period as well.

c. As set forth at 40 C.F.R. §§ 270.30(j)(2) and (3), records of monitoring information shall specify:

   i. The exact place and times of sampling or measurements;

   ii. The individuals who performed the sampling or measurements;

   iii. The dates analyses that were performed;

   iv. The individuals who performed the analyses;

   v. The analytical techniques or methods used; and

   vi. The results of such analyses.

d. The Permittees shall ensure its analytical data meet the Data Quality Objectives (DQOs) in the Quality Assurance Project Plan (QAPP).

II.E.10. **Reporting Planned Changes**

As set forth at 40 C.F.R. § 270.30(l)(1), the Permittees shall give 30 day's advance notice to the Director of any planned physical alterations or additions which may affect any Hazardous Waste Management Units (HWMUs), SWMUs, Areas of Concern (AOCs), contaminated media or debris or existing institutional or engineering controls.

II.E.11. **Reporting Anticipated Noncompliance**

a. As set forth at 40 C.F.R. § 270.30(l)(2), the Permittees shall give at least 30 day's advance notice to the Director prior to any planned changes in the Permitted Facility or other activity which may result in noncompliance with Permit requirements. Examples of such changes or activities include,

but are not limited to, shutdown, construction or modification of new or existing units for the treatment, storage or disposal of hazardous waste.

b. For a new unit, the Permittees may not treat, store or dispose of hazardous waste; and for a unit being modified, the Permittees may not treat, store or dispose of hazardous waste in the modified portion of the unit except as provided in 40 C.F.R. § 270.42, until the Permittees have submitted to the Director, by certified mail or hand delivery, a letter signed by the Permittees and a registered professional engineer stating that the Facility has been constructed or modified in compliance with the Permit; and

c. The Director has inspected the modified or newly constructed unit and finds it is in compliance with the conditions of the Permit; or

d. The Director has either waived the inspection or has not notified the Permittees within 15 days of the Director's intent to inspect.

II.E.12. **Monitoring Reports**

As set forth at 40 C.F.R. § 270.30(l)(4), if required, monitoring results shall be reported at the intervals specified elsewhere in this Permit.

II.E.13. **Reports of Compliance Schedules**

As set forth at 40 C.F.R. § 270.30(l)(5), reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted no later than 14 days following each scheduled completion date.

II.E.14. **Twenty-Four Hour Reporting**

a. The Permittees shall report to the Director any noncompliance which may endanger human health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittees become aware of the circumstances. Examples of such occurrences include, but are not limited to, fires, explosions, natural disasters, accidents, imminent or existing hazard from a release of hazardous waste or hazardous constituents, cracks or other breaches in the structure of any hazardous waste units, any fire or explosion at or near a Permitted unit or other hazardous waste management area, SWMU or AOC or any other occurrence which may cause the release or threatened release of hazardous waste or hazardous waste constituents from any area within the Permitted Facility. The report shall include the following:

i. Information concerning the release of any hazardous waste or hazardous constituents that may endanger public drinking water supplies; and

ii. Information concerning the release or discharge of any hazardous waste or hazardous constituents or a fire or explosion at the Facility, which could threaten the environment or human health outside the Facility.

b. The description of the occurrence and its cause shall include:

i. Name, address and telephone number of the Owner or Operator;

ii. Name, address and telephone number of the Facility;

iii. Date, time and type of incident;

iv. Name and quantity of materials involved;

v. The extent of injuries, if any;

vi. An assessment of actual or potential hazards to the environment and human health outside the Facility, where this is applicable; and

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

c. As set forth at 40 C.F.R. § 270.30(l)(6)(iii), a written submission shall also be provided to the Director within five days of the time the Permittees become aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period(s) of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and, if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the noncompliance. The Director may waive the five-day written notice requirement in favor of a written report within 15 days.

II.E.15. **Other Noncompliance**

a. As set forth at 40 C.F.R. § 270.30(l)(10), the Permittees shall report to the Director in writing all other instances of RCRA noncompliance not otherwise required to be reported in Permit Conditions II.E.10 - II.E.14, within 30 days of occurrence. The reports shall contain the information listed in Permit Condition II.E.14.

b. Examples of such instances include, but are not limited to, any noncompliance, no matter how minor, with waste handling and disposal requirements or requirements related to Facility safety, including noncompliance with contingency plan requirements. Repeated or chronic instances of noncompliance with recordkeeping requirements must also be

reported, although isolated or one-time instances of noncompliance with recordkeeping requirements need not be reported.

II.E.16. **Information Repository**

As set forth at 40 C.F.R. § 270.30(m), the Director may require the Permittees to establish and maintain an information repository at any time, based on the factors set forth in 40 C.F.R. § 124.33(b). The information repository will be governed by the provisions in 40 C.F.R. § 124.33 (c) through (f).

II.E.17. **Other Information**

As set forth at 40 C.F.R. § 270.30(l)(11), whenever the Permittees become aware that they failed to submit any relevant facts in the Permit Application, or submitted incorrect information in a Permit Application or in any report to the Director, the Permittees shall submit such facts or information to the Director in writing within seven days of discovery.

II.E.18. **Incorporations to the Permit**

a. All plans, work plans, procedures, schedules and other submittals required by the conditions of this Permit are, upon approval of the Director, incorporated into and enforceable under this Permit. Any noncompliance with such approved plans and schedules shall constitute noncompliance with this Permit.

b. All attachments to this Permit and any portion of the Permit Application referenced by this Permit is incorporated into and enforceable under this Permit. Any noncompliance with such portions of the Permit Application shall constitute noncompliance with this Permit.

c. Any changes necessary to items incorporated into the Permit shall be made in accordance with the review and approval procedures in Permit Condition II.H, except that any changes to the Permit Application referenced in Permit Condition I shall be made in accordance with the Permit modification procedures in Permit Condition II.C.

d. In the case of any conflicting provisions between this Permit and items incorporated by reference or in a Permit Attachment, the Permit shall be the prevailing requirement.

II.E.19. **Supplemental Data**

All raw data, such as laboratory reports, drilling logs, bench-scale or pilot-scale data and other supporting information gathered or generated during activities undertaken pursuant to this Permit shall be maintained at the Permitted Facility or other such location as approved by the Director during the term of this Permit, including the term of any reissued or continued

Permits. Such information shall be made available to the Director upon request.

II.E.20. **Signatory Requirement**

All applications, work plans or reports required by this Permit or requested by the Director shall be signed and certified in accordance with 40 C.F.R. §§ 270.11 and 270.30(k).

II.E.21. **Reports, Notifications and Submissions**

a. Failure to submit the information required by this Permit, or falsification of any submitted information, is subject to enforcement and/or termination of this Permit.

b. Extensions of the due dates specified in this Permit may be granted by the Director in accordance with the Permit modification procedures set forth in 40 C.F.R. § 270.42.

c. Unless otherwise specified, one complete paper copy of all plans, reports, notifications and other submissions required by this Permit to be submitted to the Director shall be sent by certified mail, delivery service or hand delivered to:

U.S. Environmental Protection Agency Region 7
Air and Waste Management Division
Waste Remediation and Permitting Branch
ATTN: Ruby Crysler
11201 Renner Boulevard
Lenexa, Kansas 66219
Crysler.ruby@epa.gov

d. In addition, one electronic copy of these plans, reports, notifications or other submissions shall be submitted to:

Iowa Department of Natural Resources
Solid Waste & Contaminated Sites Section
ATTN: Amie Davidson
502 E 9th Street
Des Moines, Iowa 50319-0034

e. The EPA may designate a new recipient for the EPA or IDNR without a Permit modification.

II.F. ELECTRONIC SUBMITTALS

II.F.1. The Permittees shall at the time of each submittal of a plan, report, notification or other submission required by this Permit submit one electronic

copy of the plan, report, notification or other submission. The Permittees shall submit a complete electronic copy in PDF format readable using Adobe PDF software by Adobe Systems Incorporated.

II.F.2. If requested, the Permittees shall provide editable electronic source files of all or a portion of a plan, report, notification or other submission within 30 days of the Director's request.

II.G. CONFIDENTIAL INFORMATION

II.G.1. As set forth at 40 C.F.R. § 270.12, the Permittees may claim as business confidential any information required to be submitted by this Permit.

II.G.2. The Permittees have submitted certain documents with pages marked "For Official Use Only" stating any requests from the public for such documents must be referred to the Army Security Officer at the IAAP who will determine if the document can be released to the public. The Permittees shall respond to any public requests for documents or information submitted in accordance with or required by this Permit that are marked "For Official Use Only" within 16 working days. The Permittees may request, and the Director may approve an extension to this date without a permit modification.

II.G.3. The Permittees shall copy the EPA Project Manager in Permit Condition II.E.21.c on all responses made pursuant to Permit Condition II.G.2.

II.H. REVIEW AND APPROVAL PROCEDURES

II.H.1. If the Director receives information or otherwise determines that a Permit Attachment, plan, work plan, procedure or other document is no longer adequate to ensure compliance with RCRA, this Permit or protection of human health and the environment, the Director may request a revision or a new submittal of a Permit Attachment, plan, work plan, procedure or other document.

II.H.2. The Permittees shall submit the requested revisions as specified by the Director. The revised or new Permit Attachment, plan, work plan, procedure or other document is subject to the procedures for review and approval in Permit Condition II.H.5.

II.H.3. After submission of any plan, work plan, procedure, report or other document, the Director may review the submittal, notify the Permittees of the deficiencies of the submittal, indicate required revisions and specify a due date to send a revised plan, work plan, report, procedure or other document.

II.H.4. If the Permittees fails to submit the document, the Permittees may be deemed to be in violation of this Permit and subject to an enforcement action, until the

revised plan, work plan, procedure, report or other document is received by the Director.

II.H.5. After submission of any plan, work plan, procedure, report or other document, the Director may either approve, conditionally approve, modify or disapprove the document as set forth below.

a. If the Director disapproves the plan, work plan, procedure, report or other document, the Director will notify the Permittees in writing of the deficiencies, indicate required revisions and specify a due date for submittal of a revised document.

b. If the Director disapproves the revised plan, work plan, procedure, report or other document, the Permittees may be deemed to be in violation of this Permit and subject to an enforcement action, until an approved plan, work plan, procedure, report or other document is in effect.

c. The Director may issue a conditional approval of a plan, work plan, procedure, report or other document, and notify the Permittees of the conditions of the approval. The plan, work plan, procedure, report or other document, as conditionally approved by the Director, is the EPA-approved document and shall become part of this Permit.

d. The Director may modify the revised plan, work plan, procedure, report or other document and notify the Permittees of the modifications. The plan, work plan, procedure, report or other document, as modified by the Director, is the EPA-approved document and shall become part of this Permit.

II.H.6. The Permittees shall immediately upon approval, conditional approval or EPA modification implement all plans, work plans, procedures or other documents according to the specifications and schedules contained in the approved, conditionally approved or EPA-modified plan, work plan, procedure or other document and this Permit.

II.H.7. The Permittees shall submit the appropriate class of permit modification request to modify the Permit to include the revised or new Permit Attachment, plan, work plan, procedure or other document within 14 days following the Director's approval of the document.

II.I. DISPUTE RESOLUTION

II.I.1. If the Permittees disagrees, in whole or in part, with any EPA disapproval, conditional approval or modification, the Permittees shall notify the Director in writing of the objections and basis of the objections within 10 calendar

days of receipt of Director's conditional approval, disapproval, decision or directive.

II.I.2. The notice shall set forth specific points of the dispute, the position the Permittees maintain should be adopted as consistent with the requirements of this Permit, the factual and legal basis for the Permittees' position and all matters the Permittees consider necessary for the Director's determination.

II.I.3. The Director and the Permittees shall then have an additional 20 days from the Director's receipt of the Permittees' objection to attempt to resolve the dispute. If agreement is reached, the resolution will be reduced to writing by the Director and shall become part of this Permit.

II.I.4. If the parties are unable to reach complete agreement within this 20-day period, the matter will be submitted to the Director or his/her designee who has not been previously involved in consideration or issuance of this Permit for resolution. This resolution shall become part of this Permit.

II.I.5. The Director at the Director's sole discretion may extend any of the deadlines in this Permit Condition II.I.

II.I.6. The existence of a dispute as defined herein and the Director's consideration of such matters as placed in dispute shall not excuse, toll or suspend any obligation or deadline required pursuant to this Permit, that is not the subject of dispute, during pendency of the dispute resolution process.

II.I.7. All disputes regarding the Director's review, approval, conditional approval, modification or disapproval of a work plan, report or other submittal shall be made in accordance with Permit Condition II.I.

II.J. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The Permittees shall maintain at the Facility, through the term of the Permit including any period of continuation of the Permit, the following documents and all amendments, revisions and modifications to these documents:

1. This Permit and all Permit Attachments;
2. The Permit Application and all data and information used to prepare the Permit Application;
3. The Waste Analysis Plan, as required by this Permit;
4. The Security Plan, as required by this Permit;
5. The Closure and Post-Closure Plans, as required by this Permit;

6. The Operating Record, as required by this Permit;

7. Corrective Action documents, including RCRA Facility Investigations, Corrective Measures Studies, etc.;

8. Permit Modification Correspondence File, as required by this Permit;

9. Personnel Training Documents and Records, as required by this Permit; and

10. All other documents required by Permit Condition II.E.12 for monitoring and Permit Conditions III through IX.

III. GENERAL FACILITY CONDITIONS

III.A. DESIGN AND OPERATION OF FACILITY

The Permittees shall maintain and operate the Facility to minimize the possibility of a fire, explosion or any unplanned, sudden or non-sudden release of hazardous waste constituents to air, soil, groundwater or surface water which could threaten human health or the environment, as required by 40 C.F.R. § 264.31.

III.B. REQUIRED NOTICES

III.B.1. Hazardous Waste Imports

The Permittees are prohibited from receiving hazardous waste from a foreign source.

III.B.2. Hazardous Waste from Off-Site Sources

The Permittees are prohibited from receiving hazardous waste from an off-site source except where the Permittees are also the generator.

III.C. GENERAL WASTE ANALYSIS

III.C.1. The Permittees shall follow the waste analysis requirements of 40 C.F.R. § 264.13, as described in the attached Waste Analysis Plan, Permit Attachment III-1.

III.C.2. The Permittees shall review the existing Waste Analysis Plan and determine if updates are needed. If so, the Permittees shall submit a new Waste Analysis Plan within 90 days of the issuance of this Permit. The new Waste Analysis Plan shall be consistent with *Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes – DRAFT*, EPA 530-R-12-001, January 2013.

III.C.3. The Director will review and approve, conditionally approve or modify the new Waste Analysis Plan in accordance with Permit Condition II.H.

III.C.4. If requested, the Permittees shall by method of Class 1 permit modification replace the Waste Analysis Plan, Permit Attachment III-1, with a new Waste Analysis Plan approved, conditionally approved or modified by the Director.

III.C.5. Laboratory methods shall be those specified in the Waste Analysis Plan, in accordance with *Waste Management System; Testing and Monitoring Activities; Final Rule: Methods Innovation Rule and SW-846 Final Update IIIB*, 70 FEDERAL REGISTER 113 (June 14, 2005) pp. 34537-34892, and the Correction Notice, 70 Federal Register 146 (August 1, 2005) pp. 44150-44151.

III.D. SECURITY

III.D.1. The Permittees shall prevent the unknowing entry and minimize the possibility of the unauthorized entry of persons or livestock on the active portion of the Facility.

III.D.2. The Permittees shall comply with the security requirements of 40 C.F.R. § 264.14 and Security Plan, Permit Attachment III-2.

III.E. GENERAL INSPECTION REQUIREMENTS

III.E.1. The Permittees shall inspect the Facility for malfunctions and deteriorations, operator errors, and discharges that may be causing-or may lead to: 1) release of hazardous waste or hazardous waste constituents to the environment, or 2) a threat to human health or the environment. The Permittees shall conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.

III.E.2. The Permittees shall develop and follow a written schedule for inspecting monitoring equipment, safety and emergency equipment, security devices and operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, or responding to environmental or human health hazards.

III.E.3. The Permittees shall follow the inspection schedule set out in Inspection Schedule, Permit Attachment III-3, and as specified in 40 C.F.R. § 264.15. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use.

III.E.4. The Permittees shall maintain records of inspections, as required by 40 C.F.R. § 264.15(d).

III.E.5. The Permittees shall immediately remedy any deterioration or malfunction discovered during an inspection, as required by 40 C.F.R. § 264.15(c).

III.F. PERSONNEL TRAINING

The Permittees shall conduct personnel training, as required by 40 C.F.R. § 264.16. This training program shall follow the outline in Training Plan, Permit Attachment III-4. The Permittees shall maintain training documents and records, as required by 40 C.F.R. §§ 264.16(d) and (e).

III.G. SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

The Permittees shall take precautions to prevent accidental ignition or reaction of ignitable or reactive waste in accordance with the requirements of 40 C.F.R. § 264.17. The waste must be separated and protected from sources of ignition or reaction

including but not limited to: open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat-producing chemical reactions) and radiant heat. While ignitable or reactive waste is being handled, the Permittees must confine smoking and open flame to specially designated locations. "No Smoking" signs must be conspicuously placed wherever there is a hazard from ignitable or reactive waste.

III.H. PREPAREDNESS AND PREVENTION

III.H.1. Design and Operation of Facility

Facilities must be designed, constructed, maintained and operated to minimize the possibility of a fire, explosion or any unplanned sudden or non-sudden release of a hazardous waste or hazardous waste constituents to air, soil, groundwater or surface water which could threaten human health or the environment.

III.H.2. Required Equipment

At a minimum, the Permittees shall maintain at the Facility the equipment set forth in 40 C.F.R. § 264.32 and the Contingency Plan, Permit Attachment III-5. The minimum equipment required are: 1) an internal communications or alarm system; 2) a device, such as a telephone available at the scene to summon emergency assistance; 3) portable fire extinguishers or control equipment; and 4) water at adequate volume and pressure or foam producing equipment.

III.H.3. Testing and Maintenance of Equipment

The Permittees shall test and maintain the equipment specified in Permit Condition III.H.2, as necessary, to assure its proper operation in time of emergency, and as required by 40 C.F.R. § 264.33.

III.H.4. Access to Communications or Alarm System

Whenever hazardous waste is being handled or treated, the Permittees shall maintain immediate access for all personnel to an emergency communication device or an internal alarm system as required by 40 C.F.R. §264.34 and the Contingency Plan, Permit Attachment III-5.

III.H.5. Required Aisle Space

The Permittees shall maintain aisle space to allow the unobstructed inspection, movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of Facility operation as required by 40 C.F.R. § 264.35. At a minimum the Permittees shall comply with the following:

a. Aisle spacing between rows of containers shall be a minimum of 24-30 inches or six inches wider than the largest dimension, width or depth, of the largest container in the rows adjoining the aisle;

b. Rows of containers holding free liquids shall be no more than two containers wide with a minimum of three inches between containers within the row;

c. Rows using one or more pallets shall not be more than one pallet wide. Rows with pallets shall have an adjoining aisle six inches wider than the largest pallet; and

d. No row of containers shall be more than five feet wide.

III.H.6. **Arrangements with Local Authorities**

The Permittees shall maintain arrangements with state and local authorities, as required by 40 C.F.R. § 264.37 and as described in the Contingency Plan, Permit Attachment III-5. If state or local officials refuse to enter into preparedness and prevention arrangements with the Permittees, the Permittees must document this refusal in the Operating Record and notify the Director in writing within five days of such refusal.

III.I. CONTINGENCY PLAN

III.I.1. **Requirement for Contingency Plan**

The Permittees shall have a Contingency Plan for the Facility designed to minimize hazards to human health or the environment from fires, explosions or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, groundwater or surface water. As applicable, the plan must cover the requirements of 40 C.F.R. §§ 264.50 through 264.56.

III.I.2. **Implementation of Plan**

The Permittees shall immediately carry out the provisions of the Contingency Plan, Permit Attachment III-5, whenever there is a fire, explosion or release of hazardous waste or constituents that could threaten human health or the environment.

III.I.3. **Copies of Plan**

In accordance with the requirements of 40 C.F.R. § 264.53, a copy of the Contingency Plan and all revisions to the plan must be maintained by the Permittees at the Facility and must be submitted by the Permittees to all local police departments, fire departments, hospitals and State and local emergency response teams that may be called upon to provide emergency services.

III.I.4. **Amendments to Plan**

The Permittees shall review and, if needed, immediately amend the Contingency Plan, as required by 40 C.F.R. § 264.54. Specifically, the plan shall be amended if the Permit is revised; if the plan fails in an emergency; if the Facility changes in a way that materially increases the potential for fires, explosions or releases of hazardous waste or hazardous waste constituents; if the list of emergency coordinators changes; or the list of emergency equipment changes.

III.I.5. **Emergency Coordinator**

The Permittees shall have a trained emergency coordinator available at all times in case of an emergency. The emergency coordinator and shall have the qualifications, responsibility and authority set forth in 40 C.F.R. § 264.55.

III.I.6. **Reporting**

The Permittees shall report within five days of each occurrence, all instances, no matter how minor, of fires, explosions or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, groundwater or surface water.

III.J. MANIFEST SYSTEM

The Permittees shall comply with the manifest requirements of 40 C.F.R. §§ 264.71, 264.72, and 264.76.

III.K. RECORDKEEPING AND REPORTING

In addition to the recordkeeping and reporting requirements specified elsewhere in this Permit, the Permittees shall do the following:

III.K.1. **Operating Record**

The Permittees shall maintain a written Operating Record at the Facility, in accordance with 40 C.F.R. §§ 264.73 and 264.74.

III.K.2. **Biennial Report**

The Permittees shall prepare and submit a single copy of a biennial report to the Director by March 1 of each even numbered year in accordance with 40 C.F.R. § 264.75.

III.L. GENERAL CLOSURE REQUIREMENTS

III.L.1. Performance Standard

The Permittees shall close the hazardous waste management unit(s) subject to this Permit to control, minimize or eliminate hazardous constituents, post-closure escape of hazardous waste, leachate, contaminated run-off, or hazardous waste decomposition products to the ground, surface waters or atmosphere to the extent necessary to protect human health and the environment. Closure shall be performed in accordance with the Closure Plan, Permit Attachment III-6.

III.L.2. Amendment to Closure Plan

The Permittees shall amend the Closure Plan in accordance with 40 C.F.R. § 264.112(c) whenever necessary. The Permittees shall request a modification of this Permit to include the amended, EPA-approved, Closure Plan in accordance with the procedures in Permit Condition II.C.

III.L.3. Notification of Closure

The Permittees shall notify the Director in writing at least 45 days prior to the date on which the Permittees expect to begin closure, or each partial closure, for any unit.

III.L.4. Time Allowed for Closure

After receiving the final volume of hazardous waste, the Permittees shall remove all hazardous waste from the unit or the Facility and shall complete closure activities, in accordance with 40 C.F.R. § 264.113 and the schedules specified in the Closure Plan, Permit Attachment III-6.

III.L.5. Disposal or Decontamination of Equipment, Structures, and Soils

The Permittees shall decontaminate and/or dispose of all contaminated equipment, structures, and soils as required by 40 C.F.R. § 264.114 and the Closure Plan, Permit Attachment III-6.

III.L.6. Certification of Closure

Upon closure of a hazardous waste management unit(s), the Permittees shall certify that the Facility has been closed in accordance with the specifications in the Closure Plan, Permit Attachment III-6, as required by 40 C.F.R. § 264.115.

III.M. LAND DISPOSAL RESTRICTIONS

III.M.1. The Permittees shall comply with 40 C.F.R. Part 268 - Land Disposal Restrictions regulations promulgated, including regulations which may be promulgated in the future, for the storage and treatment of hazardous waste authorized by this Permit.

III.M.2. The Permittees shall comply with 40 C.F.R. § 268.3 – Dilution Prohibited as A Substitute for Treatment.

III.M.3. The Permittees shall comply with 40 C.F.R. § 268.7 – Testing, Tracking and Recordkeeping Requirements for Generator, Treaters and Disposal Facilities.

III.M.4. The Permittees shall comply with 40 C.F.R. § 268.9 – Special Rules Regarding Wastes That Exhibit a Characteristic.

III.M.5. The Permittees shall comply with 40 C.F.R. § 268.50 – Prohibitions on Storage of Restricted Waste. 40 C.F.R. § 268.50(c) specifies that the Permittees bear the burden of proving that storage of restricted wastes beyond one year was solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment or disposal.

III.N. WASTE MINIMIZATION

III.N.1. Pursuant to 40 C.F.R. § 264.73(b)(9), and Section 3005(h) of RCRA, 42 U.S.C. § 6925(h), the Permittees must submit to the Director, at least annually, a waste minimization certification. This certification and all accompanying documentation shall be submitted annually on the anniversary of the effective date of this permit.

III.N.2. The Permittees must certify that:

a. A program is in place to reduce the volume and toxicity of hazardous waste generated to the degree determined by the Permittees to be economically practicable; and

b. The proposed method of treatment, storage or disposal is the practicable method currently available to the Permittees to minimize the present and future threat to human health and the environment.

IV. CONTAINER STORAGE

The Permittees may store hazardous waste for greater than 90 days in the following hazardous waste storage area:

Building C-13

IV.A. CONTAINER STORAGE AREA DESCRIPTION

Building C-13 (also known as Building 23-39-13) is located in the area of the Facility known as the C Yard or Yard C and is shown on Figure 2 in Permit Attachment I-1. C-13 is a concrete structure with interior measurements of 81 feet 2 inches by 26 feet 6 inches. The side walls (the long dimension of the structure) arch upward from the floor to form a ceiling with a height of 12 feet 9 inches along the center line. The ends of C-13 are vertical walls. Three sides are covered with two feet of soil. A 12-inch roof vent provides ventilation to the interior. Access into the interior is through a single steel security door in one end. C-13 has an explosive rating of 35,000 pounds of TNT (or its equivalent). The floor of the building is a minimum of six-inch thick reinforced concrete. Any container of hazardous waste liquids or hazardous waste containing free liquids managed in C-13 shall be stored within a leak-proof pan. Because the waste contains free liquid, containment platforms with a capacity (taking into account the displacement of the containers within it) equal to the higher volume of either the largest container within it or at least 10 percent of the volume of wastes within it will be used for secondary containment.

IV.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

IV.B.1. Storage of hazardous waste in Building C-13 is limited to the following hazardous wastes:

Waste Description	EPA Waste Code
Ignitable Waste	D001
Reactive (explosive) Waste	D003
Toxicity Characteristic Waste	D004, D005, D006, D007, D008, D009, D030
Listed Hazardous Waste Spent Solvents	F001, F002, F003, F004, F005
Listed Hazardous Waste from Explosive Operations	K044, K045, K046, K047

IV.B.2. The Permittees shall clearly mark on each container all the EPA waste codes applicable to the waste in the container.

IV.B.3. The Permittees shall not store more than 35,000 pounds of hazardous wastes. The Permittees shall clearly mark each container of hazardous waste with the gross weight of the container and its contents. All records of storage shall include the gross weight of each container of hazardous waste managed.

IV.B.4. The Permittees shall not store more than 35,000 pounds net of explosive weight (on a TNT basis) of reactive waste. The Permittees shall clearly mark each container of reactive hazardous waste with the net explosive weight (on a TNT basis). All records of storage shall include the explosive equivalent weight of each container of reactive hazardous waste managed.

IV.B.5. The Permittees shall clearly mark the capacity of each container containing liquids including waste that includes free liquids in gallons. All records of storage shall include the volume capacity of each container in gallons of hazardous waste managed.

IV.B.6. The Permittees are prohibited from storing hazardous waste that is not identified in the table above.

IV.C. CONDITION OF CONTAINERS

If a container holding hazardous waste is not in good condition (e.g., torn, broken, severe rusting, apparent structural defects) or if it begins to leak, the Permittees shall transfer the hazardous waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this Permit.

IV.D. COMPATIBILITY OF WASTE WITH CONTAINERS

As required by 40 C.F.R. § 264.172, the Permittees shall use containers made of or lined with materials which will not react with and are otherwise compatible with, the hazardous wastes to be stored, to assure that the ability of the container to contain the waste is not impaired.

IV.E. MANAGEMENT OF CONTAINERS

IV.E.1. As required by 40 C.F.R. § 264.173, the Permittees shall keep all containers closed during storage, except when it is necessary to add or remove waste, and shall not open, handle or store containers in a manner which may rupture the container or cause it to leak.

IV.E.2. The maximum stacking height of containers shall be a height such that the containers can be readily inspected.

IV.E.3. The maximum stacking height of containers shall be a height such that the stacked containers are stable (i.e., containers are not crushed by weight of containers stacked above).

IV.E.4. The maximum stacking height of containers shall be a height such that the stacked containers cannot fall over or topple by casual contact as may occur during inspection or the containers, movement of containers (i.e., stacking, unstacking or any other container handling).

IV.E.5. All containers of hazardous waste shall be marked with the accumulation start date and the words "HAZARDOUS WASTE," so that the accumulation start date and "HAZARDOUS WASTE" markings are readily visible to an inspector.

IV.F. CONTAINMENT SYSTEMS

IV.F.1. The Permittees shall maintain the containment system in accordance with the regulations in 40 C.F.R. § 264.175.

IV.F.2. The Permittees shall store containers of wastes containing free liquids in leak-proof pans with a minimum liquid capacity (after deducting the volume of the liquid capacity displaced by the containers stored within the pan) of the higher of either the capacity of the largest container within the pan or 10 percent of the total volume of the containers within the pan.

IV.F.3. Containers containing hazardous waste with one or more of the EPA waste codes D001, F001, F002, F003, F004 and F005 shall be managed as hazardous waste containing free liquids.

IV.F.4. Containers containing hazardous waste described in the Permit Application as "Spent Carbon from Explosive Wastewater," "Diatomaceous Earth from Explosive Wastewater Treatment" and "Sludge from Explosive Wastewater Treatment" (also sometimes known as "sump material") shall be managed as hazardous waste containing free liquids.

IV.F.5. Permittees shall inspect all pans for leaks. No pans with leaks may be used in the storage area. Any leaking pans shall be decontaminated in accordance with the section titled "Buildings BG-12 and C-13" in the Closure Plan, Permit Attachment III-6, and disposed of or repaired and returned to service after certification of leak-free conditions.

IV.G. SPECIAL CONTAINER PROVISIONS FOR IGNITABLE OR REACTIVE WASTE

IV.G.1. The Permittees shall not locate containers holding ignitable or reactive waste within 15 meters (50 feet) of the Facility's property line in accordance with 40 C.F.R. § 264.176.

IV.G.2. Containers holding flammable liquids shall not be stacked more than two high.

IV.G.3. 20-gallon stainless steel "spaghetti pots" shall not be stacked.

IV.H. SPECIAL CONTAINER PROVISIONS FOR INCOMPATIBLE WASTE

IV.H.1. The Permittees shall not place incompatible wastes or incompatible wastes and materials in the same container.

IV.H.2. The Permittees shall not place hazardous waste in an unwashed container that previously held an incompatible waste or material.

IV.H.3. The Permittees shall not store incompatible wastes in Building C-13.

IV.I. AIR EMISSION STANDARDS

IV.I.1. Container Emissions – 40 C.F.R. 264, subpart CC

a. Applicable Standards for Containers

i. Air emission controls are required for each container used to manage hazardous waste with one or more of the EPA waste codes: D001, F001, F002, F003, F004 and F005.

ii. Air emission controls are required for all hazardous wastes with total volatile organic concentration greater than 500 parts per million by weight at the point of generation. Total volatile organic concentration shall be determined using the procedures in 40 C.F.R. § 264.1083(a).

iii. Containers shall not be used for treatment of hazardous wastes stored in the container storage areas subject to this Permit Condition IV.

b. Containers – Capacity less than 0.1 m^3 (26.4 gallons)

The Permittees shall ensure that each container less than 0.1 m^3 (26.4 gallons) is kept tightly closed with a tightfitting lid such that liquids cannot be spilled or leaked from the container.

c. Containers – Capacity 0.1 m^3 (26.4 gallons) to 0.46 m^3 (121.5 gallons)

The Permittees shall ensure that each container 0.1 m^3 (26.4 gallons) to 0.46 m^3 (121.5 gallons) meets the following container Level 1 requirements:

i. The container meets the applicable United States Department of Transportation (DOT) requirements specified in 49 C.F.R. Part 178—Specifications for Packaging.

ii. Hazardous waste is managed in the container in accordance with the applicable DOT requirements specified in 49 C.F.R. Part 107, Subpart B—Exemptions; 49 C.F.R. Part 172—Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements; 49 C.F.R. Part 173—Shippers—General Requirements for Shipments and Packages; and 49 C.F.R. Part 180—Continuing Qualification and Maintenance of Packaging's. For the purpose of complying with this section, no exceptions to the 49 C.F.R. Part 178 or Part 179 regulations are allowed, except for a lab pack that is managed in accordance with the requirements of 49 C.F.R. Part 178. The Permittees may comply with the exceptions for combination packaging's specified in 49 C.F.R. § 173.12(b).

iii. Alternative to paragraphs IV.I.1.c (i) and (ii), a container shall be equipped with a cover and closure devices that form a continuous barrier over the container openings. The cover and closure devices should be secured in the closed position, and there should be no visible holes, gaps or other open spaces into the interior of the container. The cover may be a separate cover installed on the container (e.g., a lid on a drum) or may be an integral part of the container structural design (e.g., a container equipped with a screw-type cap).

iv. Whenever a hazardous waste is in a container with a capacity greater than 0.1 m^3 but less than 0.46 m^3, the Permittees shall install all covers and closure devices for the container, as applicable to the container, and secure and maintain each closure device in the closed position except as follows:

(1) Opening of a closure device or cover is allowed for the adding of discrete quantities or batches of material intermittently to the container over a period of time. The Permittees shall promptly secure the closure devices in the closed position and install covers, as applicable to the container.

(2) Opening of a closure device or cover is allowed for the purpose of removing discrete quantities or batches of material from the container. The Permittees shall promptly secure the closure devices in the closed position and install covers, as applicable to the container. The Permittees are not required to close empty containers that meet the conditions to be an empty container as defined in 40 C.F.R. § 261.7(b).

(3) Opening of a closure device or cover is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste (e.g., measuring the depth of or sampling the material in the container).

d. Containers - Capacity 0.46 m^3 (121.5 gallons) or larger

The Permittees shall ensure that each container 0.46 m^3 (121.5 gallons) or larger meets the following container Level 2 requirements:

i. The container meets the applicable DOT requirements specified in 49 C.F.R. Part 178—Specifications for Packaging or 49 C.F.R. Part 179—Specifications for Tank Cars.

ii. Hazardous waste is managed in the container in accordance with the applicable DOT requirements specified in 49 C.F.R. Part 107, Subpart B—Exemptions; 49 C.F.R. Part 172—Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements; 49 C.F.R. Part 173—Shippers—General Requirements for Shipments and Packages; and 49 C.F.R. Part 180—Continuing Qualification and Maintenance of Packaging's. For the purpose of complying with this section, no exceptions to the 49 C.F.R. Part 178 or Part 179 regulations are allowed, except for a lab pack that is managed in accordance with the requirements of 49 C.F.R. Part 178 the Permittees may comply with the exceptions for combination packaging's specified in 49 C.F.R. § 173.12(b).

iii. Alternative to paragraphs IV.I.1.d (i) and (ii), a container that operates with no detectable organic emissions determined in accordance with the following procedures:

(1) Each potential leak interface on the container, its cover and associated closure devices, as applicable to the container, shall be checked. Potential leak interfaces include, but are not limited to: the interface of the cover rim and the container wall; the periphery of any opening on the container or

container cover and its associated closure device; and the sealing seat interface on a spring-loaded pressure-relief valve.

(2) The test shall be conducted in accordance with the procedures specified in Method 21 of 40 C.F.R. Part 60, Appendix A. Each potential leak interface on the cover and associated closure devices shall be checked. Potential leak interfaces include, but are not limited to: the interface of the cover and its foundation mounting; the periphery of any opening on the cover and its associated closure device; and the sealing seat interface on a spring-loaded pressure relief valve.

(3) During the test, the cover and closure devices shall be secured in the closed position.

(4) The detection instrument shall meet the performance criteria of Method 21 of 40 C.F.R. Part 60, Appendix A, except the instrument response factor criteria in Section 3.1.2(a) of Method 21 shall be for the average composition of the organic constituents in the hazardous waste placed in the waste management unit, not for each individual organic constituent.

(5) The detection instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21 of 40 C.F.R. Part 60, Appendix A.

(6) Calibration gases shall be Zero air (less than 10 ppmv hydrocarbon in air) and a mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppmv of methane or of n-hexane.

(7) The background level shall be determined according to the procedures in Method 21 of 40 C.F.R. Part 60, Appendix A.

(8) Each potential leak interface shall be checked by traversing the instrument probe around the potential leak interface as close to the interface as possible, as described in Method 21 of 40 C.F.R. Part 60, Appendix A.

(9) The arithmetic difference between the maximum organic concentration indicated by the instrument and the background level shall be compared with the value of 500 ppmv. If the difference is less than 500 ppmv, then the potential leak interface is determined to operate with no detectable organic emissions.

iv. Alternative to paragraphs IV.I.1.d (i), (ii) and (iii), a container may be determined to be vapor tight by using 40 C.F.R. Part 60, Appendix A, Method 27 in accordance with the procedures specified below:

A pressure measurement device shall be used that has a precision of ±2.5 mm water and that is capable of measuring above the pressure at which the container is to be tested for vapor tightness.

If the test results determined by Method 27 indicate that the container sustains a pressure change less than or equal to 750 Pascals within five minutes after it is pressurized to a minimum of 4,500 Pascals, then the container is determined to be vapor-tight.

v. Whenever a hazardous waste is in a container with a capacity greater than 0.46 m^3, the Permittees shall install all covers and closure devices for the container, as applicable to the container, and secure and maintain each closure device in the closed position except as follows:

(1) Opening of a closure device or cover is allowed for the adding of discrete quantities or batches of material intermittently to the container over a period of time. The Permittees shall promptly secure the closure devices in the closed position and install covers, as applicable to the container.

(2) Opening of a closure device or cover is allowed for the purpose of removing discrete quantities or batches of material from the container. The Permittees shall promptly secure the closure devices in the closed position and install covers, as applicable to the container. The Permittees are not required to close empty containers that meet the conditions to be an empty container as defined in 40 C.F.R.§ 261.7(b).

(3) Opening of a closure device or cover is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste (e.g., measuring depth of the material, sampling material, accessing equipment in the container, etc.). Following completion of the activity, the Permittees shall promptly secure the closure device in the closed position or reinstall the cover, as applicable to the container.

IV.I.2. **Waste Transfer**

The Permittees shall transfer hazardous waste in or out of a container using Level 2 controls in a manner that minimizes exposure of the hazardous waste to the atmosphere, to the extent practical, considering the physical properties of the hazardous waste and good engineering and safety practices for handling flammable, ignitable, explosive, reactive or other hazardous materials.

IV.J. INSPECTION

IV.J.1. The Permittees shall inspect the container storage area, in accordance with 40 C.F.R. § 264.174 and in the section titled "Buildings BG-12 and C-13" in the Inspection Schedule, Permit Attachment III-3. Inspections shall be performed to document compliance with this Permit Condition IV and to detect leaking containers and deterioration of containers and the containment system caused by corrosion and other factors.

IV.J.2. The Permittees shall inspect each container to determine if such container is in compliance with the requirements in Permit Condition IV.I.1. The Permittees shall take the following actions:

a. Containers subject to Permit Condition IV.I.1.c, which are not closed, shall be closed, transferred to another DOT container and closed, over packed in a DOT container and closed or treated in the incinerator within 24 hours.

b. The Permittees shall inspect each container subject to Permit Condition IV.I.1.c within 24 hours after the container is accepted at the Facility to determine if such container is in compliance with the requirements in Permit Condition IV.I.1.c. The Permittees shall complete this inspection as part of the Facility waste-receiving procedures.

c. The Permittees shall inspect each container subject to Permit Condition IV.I.1.c. within 24 hours after first placing waste into the container at the Facility. Any container which is found to be not closed shall be closed, transferred to another container and that container closed or over packed into another container and closed.

d. The Permittees shall inspect each container subject to Permit Condition IV.I.1.c. once each month. Any container which is found to be not closed shall be closed, transferred to another container and that container closed or over packed into another container and closed.

e. The Permittees shall inspect each container subject to Permit Condition IV within 24 hours after first placing waste into the container. Any

container which is found to be not closed shall be closed, transferred to another DOT container and closed, over packed in a DOT container and closed or transferred to another container with no detectable emissions.

f. The Permittees shall inspect each container subject to Permit Condition IV.I.1. once each month. Any container which is found to be not closed shall be closed, transferred to another DOT container and closed, over packed in a DOT container and closed or transferred to another container with no detectable emissions.

IV.K. RECORDKEEPING

IV.K.1. The Permittees shall place a record of each inspection required by or performed according to Permit Condition IV in an inspection log or summary. The Permittees shall include the inspection log or summary in the Operating Record. A record of inspection shall include the following information:

a. Date and time the inspection was conducted;

b. The name of the inspector;

c. A record of the observations made; and

d. The date and nature of any repairs, corrective actions, cleanups or other actions taken to comply with this Permit.

IV.K.2. For each defect detected during the inspection with respect to Permit Condition IV.H.3, the following information shall be recorded: the location of the defect, a description of the defect, the date of detection and any corrective action(s) taken to repair the defect. In the event that repair of the defect is delayed in accordance with the requirements of 40 C.F.R. § 264.1084, the Permittees shall also record the reason for the delay and the date that completion of repair of the defect is expected.

IV.K.3. For each container meeting the requirements for vapor tightness pursuant to Permit Condition IV.I.1.d.iv, records shall be produced documenting the performance of vapor tightness testing and include certification of the container's compliance.

IV.L. REPORTING

The Permittees shall submit a report to the Director that describes each occurrence during the previous six-month period when a container is operated for 24 hours or longer in non-compliance with the requirements of Permit Conditions IV.I.1.a.iii, IV.I.1.c and IV.I.1.d. The written report shall include the Facility's EPA identification number, Facility name and address and an explanation of why the required controls

were not in place for a period longer than 24 hours and the actions taken to correct the non-compliance. The report shall be dated and signed as required by Permit Condition II.E.20.

IV.M. CLOSURE OF CONTAINER STORAGE AREA

At closure of the container storage area, the Permittees shall remove all hazardous waste and hazardous waste residues from the containment system and surrounding area, in accordance with 40 C.F.R. § 264.178, Permit Condition III.L and the procedures in the section titled "Buildings BG-12 and C-13" in the Closure Plan, Permit Attachment III-6.

V. OPEN BURNING SUBPART X TREATMENT IN PANS

V.A. GENERAL DESCRIPTION

The Open Burn Area is located in the area of the Facility known as the "Demolition Area" and is indicated on Figure 2 in Permit Attachment I-1. Open burning shall only be conducted for munitions that are unstable and small explosive loaded munition items which are unsafe for continued storage, unsafe for transport off-site or for which no off-site treatment method exists.

The burning of reactive waste occurs in two metal burn pans with dimensions of four feet width, 16 feet length and 18 inches' depth. Attached five-inch I-beams support the pans above the ground surface. Two-piece sloped aluminum lids are used to cover each pan in between open burning treatments. The demolition area is graded, spanning 100 feet in diameter.

V.B. OPEN BURNING AREA DESIGN

V.B.1. The Permittees shall design and maintain the unit to minimize the possibility of a fire, explosion or any unplanned, sudden or non-sudden release of hazardous waste constituents to air, soil, groundwater or surface water which could threaten human health or the environment.

V.B.2. The Permittees shall submit a package of design requirements, details and specifications for secondary containment for the burn pans within 24 months of the effective date of this Permit. The secondary containment shall be designed to:

a. Contain ejecta from open burning;

b. Contain rainwater in the secondary containment until it can be tested and removed; and

c. Be compatible with open burning operations.

V.B.3. The Permittees shall construct the secondary containment by whichever is the sooner of the following deadlines:

a. Prior to resumption of routine open burning;

b. Prior to performing open burning operations in a different location; or

c. Prior to submittal of an application to renew this Permit.

V.C. PROCESS SAFETY, COMPLIANCE AND CHANGE

The Permittees shall develop and implement a program and management practices for the Open Burn Unit consistent with OSHA-3132 *Process Safety Management* and OSHA-3133 *Process Safety Management Guidelines for Compliance* to ensure process safety and compliance with Permit requirements, prevent releases and minimize emissions. The program and management practices shall include review and evaluation of changes to procedures and processes, equipment and systems. The Permittees shall include all information regarding the program, management practices and implementation of the program in the Operating Record.

V.D. CONSTRUCTION CERTIFICATION

V.D.1. Within 24 months of the effective date of this Permit, the Permittees shall submit to the Director by certified mail, overnight mail service or hand delivery, a letter signed by the Permittees and a registered professional engineer stating the Open Burn Area is graded, spanning 100 feet in diameter. Five-inch I-beams support the pans above the ground surface. Two-piece sloped aluminum lids are used to cover each pan. A three-foot berm is constructed to surround the area for catchment of pitched materials.

V.D.2. Following construction of the secondary containment required in Permit Condition V.D.1:

a. The Permittees shall submit to the Director by certified mail, overnight mail service or hand delivery, a letter signed by the Permittees and a registered professional engineer stating that the secondary containment is constructed in compliance with the design and specifications submitted in accordance with Permit Condition V.B. and approved by the Director. The letter shall include an as-built report, which contains the specifications to which the unit was constructed (including final as-built dimensions), all material and vendor certifications, results of all material acceptance testing and operation and maintenance plans and requirements.

b. Within 15 days of the date of submission of the letter submitted to the Director, if the Permittees have not received notice from the Director of his intent to inspect, prior inspection is waived and the Permittees may commence hazardous waste treatment in accordance with the requirements of this Permit. [40 C.F.R. § 270.30(1)(2)]

V.E. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

V.E.1. Open burning of hazardous waste is prohibited except for the treatment of waste munitions. Waste munitions include propellants, explosives and pyrotechnics (PEP) waste, which has the potential to detonate and bulk military propellants, which cannot safely be disposed of through other modes of treatment or safely transported off-site for treatment. If the Permittees

perform open burning of waste explosive, it must be done in a manner that does not threaten human health or the environment.

V.E.2. The Permittees shall only treat reactive hazardous waste and reactive hazardous waste which may also exhibit the toxicity characteristics.

V.E.3. The Permittees are prohibited from treating any material containing, contaminated with or suspected of being contaminated with military chemical warfare agents such as choking agents, nerve agents, blood agents, blister agents, incapacitating agents, vomiting compounds, tear-producing compounds, herbicides, radioactive materials, smokes, incendiary devices or biological agents.

V.E.4. The Permittees shall submit a certification annually beginning one year after the date of issuance of this Permit that the reactive materials identified in the Permit Application to be treated by open burning are not treatable by any other more effective treatment technology and/or process operations and that no off-site transportation or treatment methods exist.

V.F. OPERATING REQUIREMENTS

V.F.1. The Permittees shall construct, maintain, and operate the unit to minimize the possibility of a fire, explosion or any unplanned, sudden or non-sudden release of hazardous waste constituents to air, soil, groundwater or surface water which could threaten human health or the environment.

V.F.2. The open burning of munitions in metal pans is limited to a maximum of 140 pounds per hour.

V.F.3. The Permittees shall follow the SOP No. IO-0000-H-013, dated June 14, 1989, as modified by Rev. No. 6, dated May 1, 2000 and Change No. 2, dated May 15, 2006, incorporated by reference and included in this Permit as Open Burning SOP, Permit Attachment V-1. The Permittees shall review, change, revise and/or update the SOP as necessary to ensure the safe management and treatment of reactive [explosive] hazardous waste. The SOP must be signed by a responsible corporate officer and include the certification in 40 C.F.R. § 270.11(d)(1). The responsible corporate officer shall be as defined in 40 C.F.R. § 270.11(a). Any change, revision or update shall require the Permittees to submit a Class 1 modification in accordance with Permit Condition II.C.2 within 14 days of the revision or update to modify the Open Burning SOP.

V.F.4. The Permittees shall follow all Facility-established or newly-established SOPs for handling and management of explosive materials being treated at the Open Burn Unit.

V.F.5. Open burning shall not be conducted during any of the following adverse meteorological conditions:

a. Precipitation or forecasted high probability of precipitation for the duration of operations;

b. When surface wind speed is less than one mph or more than 15 mph or from a direction that will carry the smoke or other byproducts over any publicly accessible area within one mile of the Facility;

c. Electrical storms or thunderstorms;

d. Dense fog, blowing snow/sand, dust storms, or other situations that restrict visibility to 1,000 feet;

e. Extremely cloudy days, defined as overcast (more than 80% cloud over) with a ceiling of less than 2,000 feet;

f. Dusk (30 minutes before sunset) to dawn (30 minutes after sunrise); or

g. During an inversion (air temperature increase with increasing altitude).

V.G. SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE OR INCOMPATIBLE WASTE

V.G.1. The Permittees shall comply with DOD and ATF requirements for quantity and distance for explosive storage including, but not limited to, the most recent version of DOD 4145.26M and 27 C.F.R. Part 55, Subpart K.

V.G.2. The Permittees shall take all necessary precautions to prevent accidental ignition or reaction of ignitable and/or reactive waste.

V.G.3. The Permittees shall not treat incompatible waste together in the Open Burn Unit.

V.G.4. The Permittees shall not store, handle or otherwise manage incompatible waste together at the Open Burn Area at the Demolition Area grounds.

V.H. OPERATION MONITORING AND RESPONSE ACTIONS

The Permittees shall conduct monitoring of the operations at the Open Burn Area, as necessary, to demonstrate that no releases to soil, surface water, groundwater, wetlands or air are occurring, which may have an adverse impact on human health or the environment. The Permittees shall implement response actions for releases, which may have an adverse impact on human health or the environment. The Director may require

the Permittees to conduct a risk assessment, in accordance with Permit Condition V.J., to determine whether operating modifications to the Open Burn Area are necessary.

V.H.1. **Release Detection Monitoring**

The Permittees shall submit an Open Burn Release Detection Monitoring work plan within six months of the effective date of this Permit to implement a monitoring program, in accordance with 40 C.F.R. § 264.602, to identify any hazardous wastes or hazardous constituents released from the Open Burn Area. The Permittees shall implement the Open Burn Release Detection Monitoring work plan at the Open Burn Area on a semi-annual basis, or at an alternate frequency approved by the Director. If no open burning was conducted during the six-month period, implementation of the release detection work plan is not required for that period. This work plan shall include the following:

a. A complete list of hazardous constituents identified in the Waste Analysis Plan as having been historically treated in the unit, or expected to be treated in the unit in the future and all hazardous degradation products of these constituents;

b. Procedures to remove debris and any visibly contaminated soil that could act as a source of groundwater contamination; and

c. Procedures for sampling soil and monitoring wells at and/or downgradient the Open Burn Area to verify that open burning operations are not contaminating groundwater in this portion of the Demolition Area.

The work plan shall be signed by a responsible corporate officer and include the certification in 40 C.F.R. § 270.11(d)(1). The responsible corporate officer shall be as defined in 40 C.F.R. § 270.11(a).

V.H.2. **Release Detection Sampling Event Report**

The Permittees shall submit a Release Detection Sampling Event Report to the Director within 60 days of sample collection. The Release Detection Sampling Event Report shall document the results of each sampling event, including:

a. Field collection activities and any variations from sampling plans;

b. Analytical results, presented in summary tables with those values exceeding any screening levels or background concentrations (for metals) in bold type or highlighting, and complete analytical documentation in the appendices;

c. A discussion of any QA/QC problems;

d. Maps depicting the location and distribution of any hazardous constituents detected (other than naturally occurring metals at concentrations at or below background levels);

e. Historical data trend analyses; and

f. Conclusions regarding whether releases have been detected (or metals detected above background levels) and whether implementation of release delineation is required.

V.H.3. **Air Monitoring**

Based on release detection monitoring and, if required by the Director, the Permittees shall submit an Air Monitoring Plan for the Open Burn Area within six months of a request from the Director. Upon the Director's approval of the Air Monitoring Plan, the Permittees shall implement the Air Monitoring Plan.

V.H.4. **Response Actions for Detected Release**

The Demolition Area has groundwater contamination migrating beyond area boundaries with releases to surface water. Known contamination at the Demolition Area is being addressed under corrective action in Permit Condition IX.

The Permittees shall submit a Release Detection Response Action Work Plan within six months of the effective date of this Permit for any releases detected at the Open Burn Area. The work plan shall describe procedures to remove any hazardous wastes and hazardous constituents from the affected media found during Release Detection Monitoring that exceeds screening levels. The Permittees shall implement the Release Detection Response Action work plan within 45 days following any determination(s) that a screening levels exceedance has occurred. This work plan shall include the following:

a. Detailed procedures to remove hazardous waste and hazardous constituents from soil, sediment and surface water;

b. Sampling and analysis plan to verify removal of hazardous waste and hazardous constituents from soil, sediment, groundwater and surface water; and

c. A QAPP, which documents the DQOs and procedures used to ensure sample collection, handling and analyses are performed in a technically sound manner, including SOPs describing anticipated sampling activities.

The work plan must be signed by a responsible corporate officer and include the certification in 40 C.F.R. § 270.11(d)(1). The responsible corporate officer shall be as defined in 40 C.F.R. § 270.11(a).

V.H.5. **Response Action for Detected Release Report**

The Permittees shall submit a Response Action for Detected Release Report to the Director within 60 days of completing a response action for a release. The Response Action for Detected Release Report shall document the response action, including:

a. Description of response activities and any variations from the SOP;

b. Analytical results, presented in summary tables with those constituents for whom the response was initiated in bold type or highlighting, and complete analytical documentation in the appendices;

c. A discussion of any QA/QC problems; and

d. Maps depicting the location and extent of the response action.

V.I. MANAGEMENT OF WASTE AND RESIDUES

V.I.1. The Permittees shall sample, analyze and characterize all waste and residues from treatment of hazardous waste as described in the Waste Analysis Plan, Permit Attachment III-1.

V.I.2. All wastes and residues generated from the handling or treatment of reactive waste are considered reactive waste until such time that waste analysis demonstrates the wastes and/or residues are not reactive.

V.I.3. Treatment wastes and residues are not considered to be newly-generated wastes.

V.I.4. Scrap metal separated from wastes and residues must meet the Land Disposal Restriction standards for contaminated debris in 40 C.F.R. § 268.45 prior to disposal or release as non-hazardous scrap metal.

V.J. RISK ASSESSMENT

V.J.1. Based on the results of release detection monitoring, the Director may require the Permittees to conduct a risk assessment to determine whether operating modifications to the Open Burn Area are necessary. The Permittees shall submit a work plan, within 90 days of a request from the Director, that describes all activities (including an emissions test plan, QAPP and an air dispersion modeling plan) to complete a human health risk assessment and screening level ecological risk assessment to evaluate risks from emissions from the Open Burn Area. The work plan shall be consistent with *Human Health Risk Assessment Protocol (HHRAP) for Hazardous Waste Combustion Facilities, Final,* EPA520-R-05-006 and *Screening Level Ecological Risk*

Assessment Protocol for Hazardous Waste Combustion Facilities Peer Review Draft, November 1999, EPA530-D-99-001A.

V.J.2. The Permittees shall determine and report if there are any new air emissions factors, revised air emission factors and other relevant emissions data for open burning of reactive wastes that become available as a result of current and future studies. The Permittees shall report this information annually from the date of this Permit.

V.K. TECHNOLOGY ASSESSMENT REPORT

Beginning four years after the issuance of this Permit, the Permittees shall submit to the Director on a five-year basis a Technology Assessment Report for alternative methods of treatment to replace the open burning of hazardous waste. The report shall document the Permittees' evaluation of the range of possible treatment technologies for waste that is authorized for treatment by open burning under this Permit. The assessment report shall include identification and discussion of the alternative treatment technologies. The report shall include models of air emissions, contaminant dispersal and risk to human and ecological receptors for each technology presented. Each alternative treatment technology, including open burning, shall be evaluated for cost and the technology's ability to protect human health and the environment to include, but not be limited to:

1. The ability of the technology to reduce or control emissions, and

2. The ability of the technology to monitor emissions.

V.L. INSPECTION

V.L.1. The Permittees shall develop a written inspection schedule for the Open Burn Unit. The Permittees shall submit a Class 1 permit modification request to the Director to incorporate the inspection schedule into the Permit as "Open Burn Unit Inspection Schedule," in the Inspection Schedule, Permit Attachment III-3, prior to any treatment of hazardous waste in the Open Burn Unit.

V.L.2. On each day of operation, the Permittees shall completely inspect the following areas for malfunction, signs of deterioration and releases: loading docks, waste holding areas, waste preparation areas, waste staging areas, treatment unit and appurtenant equipment, residue handling areas, residue treatment areas, safety systems and industrial hygiene systems. Inspections shall be completed before and after each use of the Open Burn Area. The Permittees shall ensure each inspection evaluates all visible portions of each of the burn pans to detect corrosion, fugitive emissions or releases of waste or treatment residues. All deficiencies shall be repaired prior to handling or treating hazardous wastes and operation of the Open Burn Area. All releases identified during inspections shall be cleaned up immediately.

V.L.3. The Permittees shall inspect each burn pan for cracks, holes or other deterioration which could lead to release of materials into the environment.

V.L.4. The Permittees shall inspect the Open Burn Area and within a 200-feet radius of each burn pan for dry grass, leaves or other combustible materials.

V.L.5. The Permittees shall inspect the Open Burn Area and within a 200-feet radius of each burn pan for well packed earth, examining the ground for large stones and deep cracks in which explosives could lodge.

V.L.6. The Permittees shall follow the "Open Burn Area Inspection Schedule" in the Inspection Schedule, Permit Attachment III-3, and document all the inspection results, all repairs, all clean ups and all other activities taken in response to inspections in the Operating Record.

V.M. OPEN BURNING OPERATION RECORD

The Permittees shall keep records of open burning operations including the following:

1. Description and quantity of munitions, munition components, bulk explosives or propellants (number and net explosive weight of each waste) received and treated at the Open Burn Area;

2. Date and hours of treatment;

3. Meteorological conditions during each treatment day;

4. Documentation of removal and disposition of treatment residues from Open Burn Area; and

5. An annual running total of the net explosive weights of all energetics treated at the Open Burn Area.

V.N. RECORDKEEPING

The Permittees shall maintain in the Operating Record all information required and generated to comply with Permit Condition V for a minimum of five years. The Permittees shall comply with 40 C.F.R. § 267.74(a) for the availability and 40 C.F.R. § 267.74(b) for the automatic extension of the five-year retention period.

V.O. CLOSURE OF OPEN BURN AREA

At closure of the Open Burn Area, the Permittees shall remove all hazardous wastes, hazardous waste residues and constituents, the components, equipment, appurtenances, containment system, the surrounding area and environmental media from the Open Burn Area, in accordance with 40 C.F.R. § 264.178, Permit Condition III.L and the procedures in the Closure Plan, Permit Attachment III-6.

VI. OPEN DETONATION SUBPART X TREATMENT IN PITS

VI.A. GENERAL DESCRIPTION

The Open Detonation Area is located in the area of the Facility known as the "Demolition Area" and is indicated on Figure 2 in Permit Attachment I-1. Open detonation shall only be conducted to treat reactive (explosive) hazardous waste munitions that cannot be safely transported off-site to a treatment Facility.

Open detonation in pits dug into the ground is authorized for large munition items that cannot be open burned in compliance with Permit Condition V. The reactive waste is placed in the pits with sufficient additional explosive charges to detonate the reactive waste item(s).

VI.B. OPEN DETONATION AREA DESIGN

VI.B.1. The Permittees shall design the area to minimize the possibility of a fire, explosion or any unplanned, sudden or non-sudden release of hazardous waste constituents to air, soil, groundwater or surface water, which could threaten human health or the environment.

VI.B.2. Open detonation is limited to the use of pits dug into the ground or use of a buried explosion module.

VI.C. PROCESS SAFETY, COMPLIANCE AND CHANGE

The Permittees shall develop and implement a program and management practices for the Open Detonation Area consistent with OSHA-3132 *Process Safety Management* and OSHA-3133 *Process Safety Management Guidelines for Compliance* to ensure process safety and compliance with Permit requirements, prevent releases and minimize emissions. The program and management practices shall include review and evaluation of changes to procedures and processes, equipment and systems. The Permittees shall include all information regarding the program, management practices and implementation of the program in the Operating Record.

VI.D. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

VI.D.1. The Permittees shall only treat munition items that are reactive hazardous waste and reactive hazardous wastes which may also exhibit the toxicity characteristics.

VI.D.2. The Permittees are prohibited from treating any material containing, contaminated with or suspected of being contaminated with military chemical warfare agents such as choking agents, nerve agents, blood agents, blister agents, incapacitating agents, vomiting compounds, tear-producing compounds, herbicides, radioactive materials, smokes, incendiary devices or biological agents.

VI.D.3. The Permittees shall submit a certification annually, beginning one year after the date of issuance of this Permit, that the reactive materials identified in the Permit Application to be treated by open detonation are not treatable by any other more effective treatment technologies and/or process operations and that no off-site transportation or treatment methods exist.

VI.E. OPERATING REQUIREMENTS

VI.E.1. The Permittees shall construct, maintain and operate the area to minimize the possibility of a fire, explosion or any unplanned, sudden or non-sudden release of hazardous waste constituents to air, soil, groundwater or surface water, which could threaten human health or the environment.

VI.E.2. The open detonation of munitions in pits dug into the ground or in a buried explosion module is limited to a maximum of 100 pounds per hour.

VI.E.3. Within 30 days of the effective date of this Permit, the Permittees shall submit an SOP for the detonation of large munitions that cannot be open burned in compliance with Permit Condition V. The SOP must be signed by a responsible corporate officer and include the certification in 40 C.F.R. § 270.11(d)(1). The responsible corporate officer shall be as defined in 40 C.F.R. § 270.11(a). Concurrent with the submittal of the SOP, the Permittees shall submit a Class 1 permit modification request to the Director to include the SOP for detonation of large munitions as Permit Attachment VI-1.

VI.E.4. The Permittees shall follow the SOP for detonation incorporated by reference and included in this Permit as Permit Attachment VI-1. The Permittees shall review, change, revise and/or update the SOP as necessary to ensure the safe management and treatment of reactive (explosive) hazardous waste. Any change, revision or update shall require the Permittees to submit a Class 1 modification in accordance with Permit Condition II.C.2 within 14 days of the revision or update.

VI.E.5. Open detonation shall not be conducted during any of the following adverse meteorological conditions:

a. Precipitation or forecasted high probability of precipitation for the duration of operations;

b. When surface wind speed is less than one mph or more than 15 mph or from a direction that will carry the smoke or other byproducts over any publicly accessible area within one mile of the site;

c. Electrical storms or thunderstorms;

d. Dense fog, blowing snow/sand, dust storms or other situations that restrict visibility to 1,000 feet;

e. Extremely cloudy days, defined as overcast (more than 80% cloud over) with a ceiling of less than 2,000 feet;

f. Dusk (30 minutes before sunset) to dawn (30 minutes after sunrise); or

g. During an inversion (air temperature increase with increasing altitude).

VI.E.6. The Permittees shall follow all Facility-established or newly-established SOPs for handling and management of explosive materials being treated at the Open Detonation Area.

VI.F. SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE OR INCOMPATIBLE WASTE

VI.F.1. The Permittees shall comply with DOD and ATF requirements for quantity and distance for explosives storage including, but not limited to, the most recent version of DOD 4145.26M and 27 C.F.R. Part 55, Subpart K.

VI.F.2. The Permittees shall take all necessary precautions to prevent accidental ignition or reaction of ignitable and/or reactive wastes.

VI.F.3. The Permittees shall not treat incompatible waste together in the Open Detonation Area.

VI.F.4. The Permittees shall not store, handle or otherwise manage incompatible wastes together at the Open Detonation Area at the Demolition Area grounds in any manner inconsistent with DOD 4145.26M.

VI.G. OPERATION MONITORING AND RESPONSE ACTIONS

The Permittees shall conduct monitoring of the operations at the Open Detonation Area, as necessary, to demonstrate that no releases to soil, surface water, groundwater, wetlands or air are occurring, which may have an adverse impact on human health or the environment. The Permittees shall implement response actions for releases, which may have an adverse impact on human health or the environment. The Director may require the Permittees to conduct a risk assessment, in accordance with Permit Condition VI.I., to determine whether operating modifications to the Open Detonation Area are necessary.

VI.G.1. Release Detection Monitoring

The Permittees shall submit an Open Detonation Release Detection Monitoring work plan within six months of the effective date of this Permit to implement a monitoring program, in accordance with 40 C.F.R. § 264.602, to characterize any new hazardous wastes or hazardous constituents released from the Open Detonation Area. The Permittees shall implement the Open Detonation Release Detection Monitoring work plan at the Open Detonation

Area on a semi-annual basis, or an alternate frequency approved by the Director. If no open detonation was conducted during the six-month period, implementation of the release detection work plan is not required for that period. This work plan shall include the following:

a. A complete list of hazardous constituents identified in the Waste Analysis Plan as having been historically treated in the area or expected to be treated in the area in the future and all hazardous degradation products of these constituents;

b. Procedures to remove debris and any visibly contaminated soil that could act as a contributing source of groundwater contamination; and

c. Procedures for sampling monitoring wells immediately downgradient of the Open Burn Area to verify that current open burning operations are contributing to groundwater contamination in this portion of the Demolition Area.

The work plan must be signed by a responsible corporate officer and include the certification in 40 C.F.R. § 270.11(d)(1). The responsible corporate officer shall be as defined in 40 C.F.R. § 270.11(a).

VI.G.2. **Release Detection Sampling Event Report**

If required, the Permittees shall submit a Release Detection Sampling Event Report to the Director within 60 days of completing a response action. The Release Detection Sampling Event Report shall document the results of each sampling event, including:

a. Field collection activities and any variations from sampling plans;

b. Analytical results, presented in summary tables with those values exceeding any screening levels, or background concentrations (for metals) in bold type or highlighting and complete analytical documentation in the appendices;

c. A discussion of any QA/QC problems;

d. Maps depicting the location and distribution of any hazardous constituents detected (other than naturally occurring metals at concentrations at or below background levels);

e. Historical data trend analyses; and

f. Conclusions regarding whether releases have been detected (or metals detected above background levels), whether implementation of release delineation is required, and if so, whether such detections exceed screening levels.

VI.G.3. **Air Monitoring**

Based on the results from release detection monitoring, the Director may require the Permittees to submit an Air Monitoring Plan for the Open Detonation Area within six months of a request from the Director. Upon the Director's approval of the Air Monitoring Plan, the Permittees shall implement the Air Monitoring Plan.

VI.G.4. **Response Action for Detected Release**

The Demolition Area has groundwater contamination migrating beyond area boundaries with releases to surface water. Known contamination at the Demolition Area is being addressed under corrective action in Permit Condition IX.

The Permittees shall submit a Release Detection Response Action work plan within six months of the effective date of this Permit to remove all hazardous wastes and hazardous constituents from the affected media found during Release Detection Monitoring that exceeds screening levels. The Permittees shall implement the Release Detection Response Action work plan within 45 days following a determination that any screening levels are exceeded. This work plan shall include the following:

a. Detailed procedures to remove hazardous waste and hazardous constituents from soil, sediment and surface water;

b. Sampling and analysis plan to verify removal of hazardous waste and hazardous constituents from soil, sediment and surface water; and

c. A QAPP, which documents the DQOs and procedures used to ensure sample collection, handling, and analyses are performed in a technically sound manner, including SOPs describing anticipated sampling activities.

VI.G.5. **Response Action for Detected Release Report**

The Permittees shall submit a Response Action for Detected Release Report to the Director within 60 days of completing a response action. The Response Action for Detected Release Report shall document response action, including:

a. Description of response activities and any variations from the SOP;

b. Analytical results, presented in summary tables with those constituents for whom the response was initiated in bold type or highlighting, and complete analytical documentation in the appendices;

c. A discussion of any QA/QC problems; and

d. Maps depicting the location and extent of the response action.

VI.H. MANAGEMENT OF WASTE AND RESIDUES

VI.H.1. The Permittees shall sample, analyze and characterize all wastes and residues from treatment of hazardous waste as described in the Waste Analysis Plan, Permit Attachment III-1.

VI.H.2. All wastes and residues generated from the handling of reactive wastes are considered to be reactive waste until such time that waste analysis demonstrates the waste and/or residue is not reactive.

VI.H.3. All wastes and residues generated from the treatment of reactive wastes are considered to be reactive waste until such time that waste analysis demonstrates that such waste and/or residue is not reactive.

VI.H.4. Treatment wastes and residues are not considered to be newly-generated wastes.

VI.H.5. Scrap metal separated from wastes and residues must meet the Land Disposal Restriction standards for contaminated debris in 40 C.F.R. § 268.45 prior to disposal or release as non-hazardous scrap metal.

VI.I. RISK ASSESSMENT

VI.I.1. Based on the results of release detection monitoring, the Directory may require the Permittees to submit a work plan within 90 days of a request from the Director that describes all activities (including an emissions test plan, a QAPP and an air dispersion modeling plan) to complete a human health risk assessment and screening level ecological risk assessment to evaluate risks from emissions from the Open Detonation Area. The work plan shall be consistent with *Human Health Risk Assessment Protocol (HHRAP) for Hazardous Waste Combustion Facilities, Final,* EPA520-R-05-006 and *Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities Peer Review Draft*, November 1999, EPA530-D-99-001A.

VI.I.2. The Permittees shall determine and report if there are any new air emissions factors, revised air emission factors and other relevant emissions data for open detonating of reactive wastes that become available as a result of current and future studies. The Permittees shall report this information annually from the date of this Permit.

VI.J. TECHNOLOGY ASSESSMENT REPORT

On a five-year basis, the Permittees shall submit to the Director a Technology Assessment Report for alternative methods of treatment to replace the open detonation of hazardous wastes. The first report shall be due no later than four years after the

effective date of this Permit. The report shall document the Permittees' evaluation of the range of possible treatment technologies for wastes that are authorized for treatment by open detonation under this Permit. The assessment report shall include identification and discussion of the alternative treatment technologies and shall include information on air emissions, contaminant dispersal and risk to human and ecological receptors for all technologies presented. Each alternative treatment technology, including open detonation, shall be evaluated for cost and the technology's ability to protect human health and the environment to include, but not be limited to the:

1. Ability of the technology to reduce or control emissions;

2. Ability of the technology to monitor emissions;

3. Ability of the technology to control noise; and

4. Ability of the technology to control ground vibrations.

VI.K. INSPECTION

VI.K.1. The Permittees shall each day of operation completely inspect the following areas for malfunction, signs of deterioration, and releases: loading docks, waste holding areas, waste preparation areas, waste staging areas, treatment area and appurtenant equipment, residue handling areas, residue treatment areas, safety systems and industrial hygiene systems. Inspections shall be completed before and after each use of the Open Detonation Area. The Permittees shall ensure each inspection evaluates all visible portions of each of the units to detect corrosion, fugitive emissions or releases of waste or treatment residues. All deficiencies shall be repaired prior to handling hazardous wastes and operation of the Open Detonation Area. All releases identified during inspections shall be cleaned up immediately.

VI.K.2. The Permittees shall follow the Inspection Schedule in Permit Attachment III-3 and document all the results, all repairs, all clean ups and all other activities taken in response to inspections.

VI.L. OPEN DETONATION OPERATION RECORD

The Permittees shall keep records of open detonation operation including the following:

1. Description and quantity of munitions, munition components, bulk explosives or propellants (number and net explosive weight of each waste) received and treated at the Open Detonation Area;

2. Date and hours of treatment;

3. Meteorological conditions during each treatment day;

4. Documentation of removal and disposition of treatment residues from Open Detonation Area; and

5. An annual running total of the net explosive weights of all explosives, munitions and munition components treated and used at the Open Detonation Area.

VI.M. RECORDKEEPING

The Permittees shall maintain in the Operating Record all information required and generated to comply with this Permit Condition VI for a minimum of five years. The Permittees shall comply with 40 C.F.R. § 267.74(a) for the availability and 40 C.F.R. § 267.74(b) for the automatic extension of the five-year retention period.

VI.N. CLOSURE OF OPEN DETONATION AREA

At closure of the Open Detonation Area, the Permittees shall remove all hazardous wastes, hazardous waste residues and constituents, components, equipment, appurtenances, the containment system, the surrounding area and environmental media from the Open Detonation Area, in accordance with 40 C.F.R. § 264.178, Permit Condition III.L and the procedures in the Closure Plan, Permit Attachment III-6.

VII. OPEN DETONATION SUBPART X 40MM GRENADE TREATMENT UNIT

VII.A. GENERAL DESCRIPTION

The 40MM Grenade Treatment Unit is located in the area of the Facility known as the "Demolition Area" and is shown on Figure 2 in Permit Attachment I-1. Open detonation shall only be conducted to treat reactive [explosive] hazardous waste munitions that cannot be safely transported off-site to a treatment Facility.

Open detonation is authorized for 40mm grenades in a large steel tank detonation chamber to reduce fragmentation and the kick-out of rounds. One or two grenade(s) are placed on a fixture within the tank with sufficient additional explosive charge to detonate the grenade(s).

VII.B. OPEN DETONATION UNIT DESIGN

VII.B.1. The Permittees shall design the unit to minimize the possibility of a fire, explosion or any unplanned, sudden or non-sudden release of hazardous waste constituents to air, soil, groundwater or surface water which could threaten human health or the environment.

VII.B.2. Open detonation of 40mm grenades is limited to the steel 40MM Grenade Treatment Unit. The steel tank detonation chamber is constructed of one-half inch steel, approximately 25 feet in diameter with a height of approximately eight feet. A fixture inside of the detonation chamber shall be used for the detonation of the grenades.

VII.B.3. A barricade is constructed within the tank in front of the manway to minimize release of fragmentation and residues from the tank from detonation events. A cover is constructed and used to close the manway on non-operating days and at the end of each operating day.

VII.B.4. Open detonation shall not be conducted during any of the following adverse meteorological conditions:

a. Precipitation or forecasted high probability of precipitation for the duration of operations;

b. When surface wind speed is less than one mph or more than 15 mph or from a direction that will carry the smoke or other byproducts over any publicly accessible area within one mile of the site;

c. Electrical storms or thunderstorms;

d. Dense fog, blowing snow/sand, dust storms, or other situations that restrict visibility to 1,000 feet;

e. Extremely cloudy days, defined as overcast (more than 80% cloud over) with a ceiling of less than 2,000 feet;

f. Dusk (30 minutes before sunset) to dawn (30 minutes after sunrise); or

g. During an inversion (air temperature increase with increasing altitude).

VII.C. PROCESS SAFETY, COMPLIANCE AND CHANGE

The Permittees shall develop and implement a program and management practices for the Open Detonation Area consistent with OSHA-3132 *Process Safety Management* and OSHA-3133 *Process Safety Management Guidelines for Compliance* to ensure process safety and compliance with Permit requirements, to prevent releases and to minimize emissions. The program and management practices shall include review and evaluation of changes to procedures and processes, equipment and systems. The Permittees shall include all information regarding the program, management practices and implementation of the program in the Operating Record.

VII.D. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

VII.D.1. The Permittees shall only treat munition items that are reactive hazardous waste and reactive hazardous waste, which may also exhibit the toxicity characteristics.

VII.D.2. The Permittees shall only treat 40mm family of grenades in the steel tank detonation chamber.

VII.D.3. The Permittees are prohibited from treating any material containing, contaminated with or suspected of being contaminated with, military chemical warfare agents such as choking agents, nerve agents, blood agents, blister agents, incapacitating agents, vomiting compounds, tear-producing compounds, herbicides, radioactive materials, smokes, incendiary devices or biological agents.

VII.D.4. Beginning one year after the date of issuance of this Permit, the Permittees shall submit a certification annually that that the reactive materials identified in the Permit Application to be treated by open detonation are not treatable by any other more effective treatment technology and/or process operations and that no off-site transportation or treatment methods exist.

VII.E. OPERATING REQUIREMENTS

VII.E.1. The Permittees shall construct, maintain and operate the unit to minimize the possibility of a fire, explosion or any unplanned, sudden or non-sudden release of hazardous waste constituents to air, soil, groundwater or surface water, which could threaten human health or the environment.

VII.E.2. Within 30 days of the issuance of this Permit, the Permittees shall submit a SOP for the detonation of 40mm grenades in the steel tank detonation chamber. The SOP must be signed by a responsible corporate officer and include the certification in 40 C.F.R. § 270.11(d)(1). The responsible corporate officer shall be as defined in 40 C.F.R. § 270.11(a). Concurrent with the submittal of the SOP, the Permittees shall submit a Class 1 permit modification request to include the SOP for detonation of 40mm grenades as Permit Attachment VII-1.

VII.E.3. The Permittees shall follow the SOP for the detonation of 40mm grenades incorporated by reference and included in this Permit as Permit Attachment VII-1. The Permittees shall review, change, revise and/or update the SOP as necessary to ensure the safe management and treatment of reactive (explosive) hazardous waste. Any change, revision or update shall require the Permittees to submit a Class 1 modification in accordance with Permit Condition II.C.2 within 14 days of the revision or update.

VII.E.4. The Permittees shall open detonate 40mm grenades in the steel tank detonation chamber. The open detonation of 40mm grenades is limited to a maximum of two grenades per detonation and 50 grenades per week.

VII.E.5. The Permittees shall close the manway with a cover at the end of each operating day and on non-operating days.

VII.E.6. The Permittees shall follow all Facility-established or newly-established SOPs for the handling and management of explosive materials being treated at the 40MM Grenade Treatment Unit.

VII.F. SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE OR INCOMPATIBLE WASTE

VII.F.1. The Permittees shall comply with DOD and ATF requirements for quantity and distance for explosive storage including, but not limited to, the most recent version of DOD 4145.26M and 27 C.F.R. Part 55, Subpart K.

VII.F.2. The Permittees shall take all necessary precautions to prevent accidental ignition or reaction of ignitable and/or reactive waste.

VII.F.3. The Permittees shall not treat incompatible waste together in the 40MM Grenade Treatment Unit.

VII.F.4. The Permittees shall not store, handle, or otherwise manage incompatible waste together at the 40MM Grenade Treatment Unit at the Demolition Area grounds in any manner inconsistent with DOD 4145.26M.

VII.G. OPERATION MONITORING AND RESPONSE ACTIONS

The Permittees shall conduct monitoring of the operations at the 40MM Grenade Treatment Unit as necessary to demonstrate that no releases to soil, surface water, groundwater, wetlands, or air are occurring which may have an adverse impact on human health or the environment. The Permittees shall implement response actions for releases, which may have an adverse impact on human health or the environment. The Director may require the Permittees to conduct a risk assessment in accordance with Permit Condition VII.I. to determine whether operating modifications to the 40MM Grenade Treatment Unit are necessary.

VII.G.1. Release Detection Monitoring

A Release Detection Monitoring work plan is required for open detonation of 40mm grenades in a large steel tank detonation chamber, in accordance with 40 C.F.R. § 264.602, to characterize any hazardous waste or hazardous constituents released from the 40MM Grenade Treatment Unit. The Permittees may combine detection monitoring requirements for this unit with the Open Burn Area Release Detection work plan since the steel detonation chamber is located in close proximity to the open burn pans. Requirements for the Release Detection Monitoring work plan are identified in Permit Condition V.H.1.

VII.G.2. Release Detection Sampling Event Report

The Permittees shall submit a Release Detection Sampling Event Report to the Director within 60 days of the sample collection. The Release Detection Sampling Event Report shall document the results of each sampling event, including:

a. Field collection activities and any variations from sampling plans;

b. Analytical results, presented in summary tables with those values exceeding any screening levels or background concentrations (for metals) in bold type or highlighting and complete analytical documentation in the appendices;

c. A discussion of any QA/QC problems;

d. Maps depicting the location and distribution of any hazardous constituents detected (other than naturally occurring metals at concentrations at or below background levels);

e. Historical data trend analyses; and

f. Conclusions regarding whether releases have been detected (or metals detected above background levels) and whether implementation of release delineation is required.

VII.G.3. **Air Monitoring**

Based on the results of release detection monitoring, the Director may require the Permittees to submit an Air Monitoring Plan for the 40MM Grenade Treatment Unit within six months of a request from the Director. Upon the Director's approval of the Air Monitoring Plan, the Permittees shall implement the Air Monitoring Plan.

VII.G.4. **Response Action for Detected Release**

The Demolition Area has groundwater contamination migrating beyond area boundaries with releases to surface water. Known contamination at the Demolition Area is being addressed under corrective action in Permit Condition IX.

The Permittees shall submit a Release Detection Response Action work plan within six months of the effective date of this Permit to remove all hazardous wastes and hazardous constituents from the affected media found during Release Detection Monitoring that exceeds screening levels. The Permittees shall implement the Release Detection Response Action Work Plan within 45 days following a determination that any screening levels are exceeded. This work plan shall include the following:

a. Detailed procedures to remove hazardous waste and hazardous constituents from soil, sediment, groundwater and surface water;

b. Sampling and analysis plan to verify removal of hazardous waste and hazardous constituents from soil, sediment, groundwater and surface water; and

c. A QAPP, which documents the DQOs and procedures used to ensure sample collection, handling and analyses are performed in a technically sound manner, including SOPs describing anticipated sampling activities.

VII.G.5. **Response Action for Detected Release Report**

The Permittees shall submit a Response Action for Detected Release Report to the Director within 60 days of the sample collection. The Response Action for Detected Release Report shall document response action, including:

a. Description of response activities and any work plan deviations;

b. Analytical results presented in summary tables with those constituents for whom the response was initiated in bold type or highlighting and complete analytical documentation in the appendices;

c. A discussion of any QA/QC problems; and

d. Maps depicting the location and extent of the response action.

VII.H. MANAGEMENT OF WASTE AND RESIDUES

VII.H.1. The Permittees shall sample, analyze and characterize all wastes and residues from treatment of hazardous waste as described in the Waste Analysis Plan, Permit Attachment III-1.

VII.H.2. All wastes and residues generated from the handling or treatment of reactive waste are considered reactive waste until such time that waste analysis demonstrates that such wastes and/or residues are not reactive.

VII.H.3. Treatment wastes and residues are not considered to be newly-generated wastes.

VII.H.4. Scrap metal separated from wastes and residues must meet the Land Disposal Restriction standards for contaminated debris in 40 C.F.R. § 268.45 prior to disposal or release as non-hazardous scrap metal.

VII.I. RISK ASSESSMENT

VII.I.1. Based on the results of release detection monitoring and within 90 days of a request from the Director, the Permittees shall submit a work plan that describes all activities (including an emissions test plan, QAPP and an air dispersion modeling plan) to complete a human health risk assessment and screening level ecological risk assessment to evaluate risks from emissions from the Open Detonation Unit. The work plan shall be consistent with *Human Health Risk Assessment Protocol (HHRAP) for Hazardous Waste Combustion Facilities, Final*, EPA520-R-05-006 and *Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities Peer Review Draft*, November 1999, EPA530-D-99-001A.

VII.I.2. The Permittees shall determine and report if there are any new air emissions factors, revised air emission factors and other relevant emissions data for open detonating reactive waste that become available as a result of current and future studies. The Permittees shall report this information annually from the date of this Permit

VII.J. TECHNOLOGY ASSESSMENT REPORT

On a five-year basis, the Permittees shall submit to the Director a Technology Assessment Report for alternative methods of treatment to replace the open detonation of hazardous waste. The first report shall be due no later than four years after the effective date of this Permit. The report shall document the Permittees' evaluation of the range of possible treatment technologies for waste that is authorized for treatment by open detonation under this Permit. The assessment report shall include identification and discussion of the alternative treatment technologies and shall include

information on air emissions, contaminant dispersal and risk to human and ecological receptors for all technologies presented. Each alternative treatment technology, including open detonation, shall be evaluated for cost and the technology's ability to protect human health and the environment to include, but not be limited to the:

1. Ability of the technology to reduce or control emissions;

2. Ability of the technology to monitor emissions;

3. Ability of the technology to control noise; and

4. Ability of the technology to control ground vibrations.

VII.K. INSPECTION

VII.K.1. The Permittees shall each day of operation completely inspect the following areas for malfunction, signs of deterioration and releases: loading docks, waste holding areas, waste preparation areas, waste staging areas, treatment unit and appurtenant equipment, residue handling areas, residue treatment areas, safety systems and industrial hygiene systems. Inspections shall be completed before and after each use of the 40MM Grenade Treatment Unit. The Permittees shall ensure each inspection evaluates all visible portions of each of the units to detect corrosion, fugitive emissions or releases of waste or treatment residues. All deficiencies shall be repaired prior to handling hazardous wastes and operation of the 40MM Grenade Treatment Unit. All releases identified during inspections shall be cleaned up immediately.

VII.K.2. The Permittees shall follow the Inspection Schedule in Permit Attachment III-3 and document all the results, all repairs, all clean ups, and all other activities taken in response to inspections.

VII.L. OPEN DETONATION OPERATION RECORD

The Permittees shall keep records of open detonation operations. The records shall include the following:

1. Description and quantity of munitions, munition components, bulk explosives or propellants (number and net explosive weight of each waste) received and treated at the Open Detonation Unit;

2. Date and hours of treatment;

3. Meteorological conditions during each treatment day;

4. Documentation of removal and disposition of treatment residues from the 40MM Grenade Treatment Unit; and

5. An annual running total of the net explosive weights of all propellants, explosives, munitions and munition components treated and used at the 40MM Grenade Treatment Unit.

VII.M. RECORDKEEPING

The Permittees shall maintain in the Operating Record all information required and generated to comply with Permit Condition VII for a minimum of five years. The Permittees shall comply with 40 C.F.R. § 267.74(a) for the availability and 40 C.F.R. § 267.74(b) for the automatic extension of the five-year retention period.

VII.N. CLOSURE OF 40MM GRENADE TREATMENT UNIT

At closure or partial closure of the 40MM Grenade Treatment Unit, the Permittees shall remove from the steel detonation chamber all hazardous wastes, hazardous waste residues and constituents, components, equipment, appurtenances, containment system, surrounding area and environmental media. Closure shall be performed in accordance with 40 C.F.R. § 264.178, Permit Condition III.L and the procedures in the Closure Plan, Permit Attachment III-6.

VIII. HAZARDOUS WASTE LANDFILL POST-CLOSURE CARE

VIII.A. GENERAL CONDITIONS AND UNIT IDENTIFICATION

The Inert Disposal Area (IDA) encompasses approximately 20 acres in the west-central part of the Facility as shown on Figure 3 in Permit Attachment I-1. The Facility conducted waste management operations including landfilling at the IDA from 1941 to 1992. Wastes disposed of in the units included sanitary landfill wastes (cardboard, food wastes, glass, office waste, paper, plastics and personnel care items), industrial waste from munitions manufacture and supporting activities, demolition debris, ash from thermal treatment of explosives and fly ash from coal combustion. For a period of time after November 8, 1980, hazardous waste [incinerator ash] was placed in the northern portion of Trench 5, currently known as the Ash Disposal Cell, in the topographically upgradient (northern) portion of the IDA. The ash, which was generated from burning explosives-contaminated wastes, was disposed of in a discrete area of approximately 16,700 square feet. Trench 5 is a linear, north-south trending, buried trench at the IDA was covered by a landfill cap in 1997.

Trench 5 was certified closed as a hazardous waste landfill by the Army on February 12, 1990, pursuant to the requirements of 40 C.F.R. Part 265, Subparts G and N. The unit is subject to the post-closure requirements of 40 C.F.R. Part 264, Subparts F, G and N. The Army has indicated that they will amend the OU4 Record of Decision (ROD) to incorporate all RCRA requirements for Trench 5 into the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) ROD as Applicable or Relevant and Appropriate Requirements to establish a RCRA to CERCLA integration for this Site. Trench 5 remains subject to the conditions of this Permit until such time as the ROD is amended and approved by the EPA, and a Permit modification is initiated by the Permittees and approved by the EPA to remove Trench 5 from the Permit.

VIII.B. POST-CLOSURE PERIOD

VIII.B.1. The Permittees shall conduct post-closure care for Trench 5. In accordance with 40 C.F.R. § 264.117(a)(2), the Director herein establishes that the post-closure period for Trench 5 shall continue for 30 years.

VIII.B.2. The Director may at any time shorten the post-closure period in accordance with 40 C.F.R. § 264.117(a)(2)(i). Pursuant to 40 C.F.R. § 264.117(a)(2)(ii), the Director may at any time extend the post-closure period if the Director finds that the extended period is necessary to protect human health and the environment. This includes, but is not limited to, if groundwater results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health and the environment.

VIII.C. POST-CLOSURE USE OF PROPERTY

VIII.C.1. In accordance with 40 C.F.R. § 264.117(c), the Permittees shall not allow any use of Trench 5 that will disturb the integrity of the final cover, liners, any

components of the containment system or the function of the Facility's security or monitoring systems.

VIII.C.2. The Permittees shall not use Trench 5 for any commercial, agricultural, operational, recreational, occupational or residential purpose. Any operation on top or around the landfill cells, beyond maintenance or repair required by this Permit, shall require prior approval by the Director and a permit modification.

VIII.C.3. The Permittees are implementing land use controls under the *Final Land Use Control Implementation Plan for the Inert Disposal Area* (April 2014).

VIII.C.4. The Permittees shall not transfer ownership of Trench 5 in whole or in part unless an environmental covenant is prepared, approved by the Director and recorded in accordance with the State of Iowa's Uniform Environmental Covenants Act (UECA), Iowa Code §§ 455I.1- 455I.12. The EPA shall be listed as an Agency in the covenant, and the covenant shall include the following use restrictions:

a. Development and use of the property for residential housing, elementary and secondary schools, child care facilities and playgrounds is prohibited;

b. Intrusive activity into or near the cap system must be prevented;

c. The integrity of cover/cap system must be maintained;

d. Property access is restricted to only authorized individuals for approved commercial, industrial and remedial operation and maintenance purposes; and

e. The integrity of any current or future remedial or monitoring systems shall be maintained.

VIII.D. POST-CLOSURE REQUIREMENTS

VIII.D.1. The Permittees shall maintain the integrity and effectiveness of the final covers of Trench 5, including making repairs to the cap, as necessary, to correct the effects of settling, subsidence, erosion or other events. The final cover shall be maintained as constructed and as set forth in the as-built reports: *Draft Final Report, Iowa Army Ammunition Plant Multiple Removal Action Middletown, Iowa,* dated January 11, 1999, *Draft Final, Operable Unit 4 (OU-4) Remedial Action Completion Report, Capping of the Cap Extension Area (CEA) for Iowa Army Ammunition Plant, Middletown, Iowa*, dated April 2011 and *Draft Final, Operable Unit 4 (OU-4) Remedial Action Completion Report, Volume 2, Capping of Trench 6, the Removal of Trench 7 for Iowa Army Ammunition Plant, Middletown, Iowa,* dated August 2012.

VIII.D.2. The Permittees shall install, implement and maintain the integrity and effectiveness of all security requirements for Trench 5.

VIII.D.3. The Permittees shall implement an inspection and maintenance program for the groundwater monitoring wells identified in Table VIII-1. This program shall be designed to verify the structural integrity of site monitoring wells and ability of these wells to provide representative groundwater samples during the post-closure period.

VIII.D.4. The Permittees shall maintain and provide adequate access to all wells in Table VIII-1 for groundwater monitoring and groundwater elevation measurements.

VIII.E. POST-CLOSURE PLAN AND AMENDMENTS

VIII.E.1. The Post-Closure Plan, dated September 28, 1988, and the Post-Closure Plan modification, dated February 24, 1997, are included as Permit Attachment VIII-1. The Permittees shall follow the Plans for the collection of samples from Trench 5. The Permit shall supersede if there are any discrepancies in activities, frequencies or other requirements of the Post-Closure Plan and this Permit.

VIII.E.2. In accordance with 40 C.F.R. § 264.118(d), the Permittees must submit a written notification of or request for a permit modification to authorize a change in the approved Post-Closure Plan in accordance with the applicable requirements in 40 C.F.R. Parts 124 and 270. The Permittees shall request a permit modification whenever changes in operating plans or Facility design affect the approved Post-Closure Plan, when there is a change in the expected year of final closure, if applicable, or other events which occur during the active life of the Facility, including partial and final closures that affect the approved Post-Closure Plan. The Permittees must submit a written request for a permit modification at least 60 days prior to the proposed change in Facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the Post-Closure Plan. Amendments or modified plans are subject to review and approval in accordance with Permit Condition II.H.

VIII.E.3. If the Director requests a modification, the Permittees shall submit the modified Post-Closure Plan for review and approval in accordance with Permit Condition II.C.2 no later than 60 days after the Director's request.

VIII.E.4. In accordance with 40 C.F.R. § 264.119(c), if the Permittees or any subsequent Owner or Operator of the land upon which the hazardous waste disposal unit is located wish to remove hazardous wastes and hazardous waste residues, the liner, if any; or contaminated soils, then the Permittees shall request a modification to this Permit in accordance with the applicable requirements in 40 C.F.R. Parts 124 and 270. The Permittees or any

subsequent Owner or Operator of the land shall demonstrate that the removal of hazardous wastes will satisfy the criteria of 40 C.F.R. § 264.117(c).

VIII.F. POST-CLOSURE NOTICES AND CERTIFICATIONS

VIII.F.1. A copy of the post-closure notices required by 40 C.F.R. §§ 264.119(a) and (b) are included in Permit Attachment VIII-2.

VIII.F.2. A notice of land use restriction was filed with Des Moines County Recorder on February 25, 1993. The notification states that Trench 5 managed hazardous waste and has been closed pursuant to RCRA. Use of Trench 5 is restricted under 40 C.F.R. Part 264 Subpart G regulations.

VIII.F.3. If the Permittees are granted a permit modification to conduct waste removal activities in accordance with Permit Condition VIII.E.3, and the removal has been completed to the Director's satisfaction, the Permittees may request that the Director approve either:

a. The removal of the notation on the deed to the Facility property or other instrument normally examined during title search; or

b. The addition of a notation to the deed or instrument indicating the removal of the hazardous waste.

VIII.G. INSPECTION AND MAINTENANCE OF TRENCH 5

The Permittees shall inspect Trench 5 annually in May and conduct the following:

1. The Permittees shall inspect cover system(s) for non-uniformity, drainage, signs of subsidence, evidence of erosion and imperfections. The soil based covers must be inspected for imperfections including lenses, cracks, channels, root holes or other structural anomalies that may cause an increase in the permeability of the cover and/or the performance and integrity of the cap.

2. The Permittees shall inspect, maintain and repair the fence, security measures and signs surrounding Trench 5 to limit access to the landfill covers. Any missing or damaged fence lock shall be replaced within one day of discovery. Any missing or damaged warning signs shall be replaced within 30 days of discovery.

3. The Permittees shall inspect all appurtenances, structures and features used to prevent run-on and run-off from eroding or otherwise damaging the final cover.

4. The Permittees shall inspect, protect, maintain and repair surveyed benchmarks used in complying with the surveying and recordkeeping requirements of 40 C.F.R. § 264.309.

5. The Permittees shall inspect all monitoring wells at least annually and maintain surface well integrity at each of the monitoring wells in Table VIII-1. The

Permittees shall also at any other time of groundwater monitoring inspect the monitoring wells. At a minimum, the evaluation shall include a visual inspection of the outer protective casing, inner casing riser, surface well seal, well cap and locking mechanism to document any damage or deterioration. The well pad and ground surface in the immediate vicinity of each monitoring well, the annular space between the outer protective casing and inner casing riser shall be inspected for visible anomalies (e.g., collection or ponding of water, ground subsidence, etc.). Any missing lock shall be replaced within one day of discovery.

6. Unless specified otherwise above, damage to monitoring wells identified during an inspection shall be repaired or, if not repairable, replaced within 90 days of discovery. A report detailing all repairs made shall be included in the annual report required by Permit Condition VIII.M. The Permittees may request from the Director an extension to the time frames specified in this paragraph as may be justified on a case-by-case basis. If a well has been abandoned in accordance with this Permit, the inspection and maintenance requirements of this Permit no longer apply to the abandoned well.

VIII.H. GROUNDWATER MONITORING PROGRAM

VIII.H.1. General Requirements

The Permittees must comply with the following requirements for the groundwater monitoring program at the post-closure unit:

a. The groundwater monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer described as the "unconsolidated overburden aquifer" or "shallow aquifer" and the "shallowest bedrock aquifer" or "bedrock aquifer" that:

   i. Represent the quality of background groundwater that has not been affected by leakage from Trench 5;

   ii. Represent the quality of groundwater passing the point of compliance; and

   iii. Allow for the detection of contamination when hazardous waste or hazardous constituents have migrated from Trench 5 to the uppermost aquifer or from the uppermost aquifer to the uppermost bedrock aquifer.

b. All monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

c. Monitoring wells shall be protected from damage by placement of protective bollards or other protective device. Flush mount installation of monitoring wells is acceptable where motor vehicle traffic is likely.

d. The Permittees shall survey and report the elevation of the monitoring wells to the nearest 0.01 foot when each well is installed. The total depth of the wells and elevation of the following shall be reported: top of casing reference mark, ground surface and/or concrete apron and the top and bottom of well screen, gravel pack and well seals.

e. Wells demonstrating screen occlusion equal to or in excess of 20% of the effective well screen length or 2.5 feet, whichever is less, shall be redeveloped prior to the next scheduled sampling event.

f. The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide a reliable indication of groundwater quality below the waste management area. At a minimum the program must include procedures and techniques for: sample collection; sample preservation and shipment; analytical procedures; and chain of custody control.

g. The groundwater monitoring program must include a determination of the following for each groundwater sampling event:

   i. Groundwater surface elevation;

   ii. A determination of the direction of groundwater flow in the shallow and bedrock aquifers;

   iii. The horizontal hydraulic gradient; and

   iv. A determination of the average linear ground-water flow velocity of the shallow and bedrock aquifers.

VIII.H.2. **Monitoring Well System**

a. The Permittees shall maintain the groundwater monitoring wells at the locations specified on Figure 3 in Permit Attachment I-1 and in conformance this Permit.

b. The Permittees shall record and maintain the as-built well depth and surveyed elevation of each monitoring well identified in Table VIII-1 for top of casing reference mark, ground surface and/or apron elevation and the protective casing. One surveyed elevation reference mark shall be designated at each well and used for consistent measurement of the groundwater elevations and of total well depth.

Table VIII-1 – Groundwater Monitoring System

		Analysis							
Location	**Water Level**	**VOCs**	**SVOCs**	**Explosives**	**Metals**	**Field**	**POC**	**Shallow Well**	**Deep Well**
IDA-TT-MW1	X	X	X	X	X	X	X	X	
ET-3	X	X	X	X	X	X		X	
T-1	X				X	X	X	X	
T-6	X								X
G-5	X	X	X	X	X	X	X	X	
G-6R	X				X	X	X	X	
G-7	X							X	
JAW-26	X			X	X	X	X	X	
JAW-27	X								X
JAW-65	X			X	X	X	X	X	
C95-1	X	X	X	X	X	X		X	
C95-2	X	X	X	X	X	X	X	X	
C-00-1	X	X	X	X	X	X	X	X	
C-00-2	X	X	X	X	X	X	X	X	
C-00-3	X	X	X	X	X	X	X	X	
G-4	X							X	
CAMU-99-1S	X							X	
CAMU-99-2S	X							X	
CAMU-99-3S	X							X	
CAMU-99-1D	X								X
CAMU-99-2D	X								X

VOCs volatile organic compounds SVOCs semi-volatile organic compounds
POC point of compliance

VIII.H.3. **Modifications to Monitoring System**

Any modifications in the number and/or location of the monitoring wells established in Permit Condition VIII shall require a Permit modification in accordance with 40 C.F.R. § 270.42 and Permit Condition II.C.2. The permit modification request at a minimum shall include the following requirements:

a. Any new groundwater monitoring well(s) installed by the Permittees to meet the requirements of this Permit shall be designed and installed in accordance with the requirements of Permit Condition VIII.H.1 and EPA-approved well-specific plans and specifications.

b. The Permittees shall provide the Director notice at least 30 days prior to conducting any field work associated with the construction or modification of the groundwater monitoring system required by this Permit. The EPA representative shall have the option of observing any portion of the system's construction or modification.

c. All new, additional or replacement wells shall be added to this Permit by submittal of a permit modification in accordance with Permit Condition II.C.2 within 60 days of completing any wells.

VIII.H.4. **Groundwater Monitoring Schedule**

Annual Groundwater Sampling Schedule shall mean the collection of groundwater data and samples in the month of May.

VIII.H.5. **Groundwater Sampling and Analysis Procedures**

The Permittees shall follow the procedures in the Facility Wide Work Plan for the collection, preservation, shipment, analysis, quality assurance and documentation, to obtain representative groundwater samples and to determine the concentration in groundwater of:

a. Volatile organic compounds (VOCs) using EPA SW-846 Method 8260 and include all the constituents listed therein.

b. Semi-volatile organic compounds (SVOCs) using EPA SW-846 Method 8270 and include all the constituents listed therein.

c. Explosives using EPA SW-846 Method 8330 and include all the constituents listed therein.

d. Metals using EPA SW-846 Method 6010 and include all the constituents listed therein. The Permittees shall use low flow sampling for collection of groundwater samples for metals analysis.

e. Field parameters shall include measurement of pH, conductivity, dissolved oxygen, temperature, redox potential and turbidity.

VIII.H.6. **Groundwater Elevation and Flow Rate**

The Permittees shall determine the elevation of the groundwater surface at each well identified with a letter in the column labeled "Water Level" in Table VIII-1 and the groundwater flow direction in the uppermost aquifer

during each groundwater sampling event at Trench 5 pursuant to Permit Condition VIII. The Permittees shall determine the groundwater flow rate at least annually at Trench 5.

VIII.H.7. **Statistical Evaluations**

a. Performance Standards for Statistical Methods

i. The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the Permittees to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

ii. The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Where practical quantification limits (PQL) are used to comply with this Permit Condition, the PQL must be proposed by the Permittees. Any PQL approved by the Director that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the Facility.

iii. As appropriate, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

b. Statistical Evaluation of Metals

i. The Permittees shall establish background concentrations in each background well for each metal and indicator parameter using data from same background well. The number and kinds of samples collected to establish background shall be appropriate for the form of statistical test employed and shall follow generally accepted statistical principles. The sample size shall be as large as necessary to ensure with reasonable confidence that a contaminant release to groundwater from Trench 5 will be detected.

ii. Analytical data for metals which have a detection frequency of 50 percent or more shall first be checked for statistical distribution. Non-detect values shall be included in the evaluation at ½ of the reporting limit. Raw and log-transformed data shall be checked for Normal Distribution using censored probability plots.

iii. The process for updating background for annual sample results comparisons shall include analysis for trends, outliers and comparing differences between the background pool and recently-collected monitoring data being considered for adding to the background pool.

iv. The Permittees shall complete the process for updating background at least every eight years for annual sampling or any combination of quarterly, semi-annual and annual sampling that results in eight additional background data points.

v. The Permittees shall use Shewart-CUSUM control charts for data with normal distributions to detect changes in metal concentrations in groundwater. The Shewart-CUSUM control chart procedure shall follow *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*, March 2009; EPA 530/R-09-007.

vi. The Permittees shall submit a permit modification within 30 days of notice from the Director of a required change to the wells designated for detection monitoring (all wells in Table VIII-1) or for a required change to the constituents designated for detection monitoring.

vii. The Permittees shall use the procedures for testing individual future values in *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*," March 2009; EPA 530/R-09-007, to determine if a metal constituent is being released from Trench 5.

c. For purposes of this Permit, during statistical evaluation of explosives, VOCs and SVOCs, a statistically significant increase occurs if any explosive, VOC or SVOC exhibits quantified measurements (i.e., at or above the reporting limit) in two consecutive sampling (including resample) events.

VIII.I. GROUNDWATER DETECTION MONITORING PROGRAM

VIII.I.1. **Performance Standard**

The Permittees shall conduct detection monitoring to ensure the earliest possible detection of any contaminant releases from Trench 5. Detection monitoring is required to detect and characterize a release and to determine what further action is warranted. Detection monitoring shall:

1. Monitor groundwater for a list of site-specific groundwater indicator parameters and constituents used to indicate a release;

2. Establish sampling and statistical analysis requirements to determine if a release has occurred; and

3. Establish additional requirements if a statistically significant release occurs.

VIII.I.2. **Monitoring Locations**

The Permittees shall collect representative groundwater samples from the monitoring wells in Table VIII-1 identified with any X's in the "Analysis" columns and shall analyze the collected representative sample for the parameters and constituents in Permit Condition VIII.I.3 below.

VIII.I.3. **Parameters and Frequency**

a. The Permittees shall collect representative samples from the monitoring wells in Table VIII-1 with an "X" in the column "VOCs" and analyze the samples for the parameters in Permit Condition VIII.H.5.a in accordance with the Annual Groundwater Sampling Schedule in Permit Condition VIII.H.4.

b. The Permittees shall collect representative samples from the monitoring wells in Table VIII-1 with an "X" in the column "SVOCs" and analyze the samples for the parameters in Permit Condition VIII.H.5.b in accordance with the Annual Groundwater Sampling Schedule in Permit Condition VIII.H.4.

c. The Permittees shall collect representative samples from the monitoring wells in Table VIII-1 with an "X" in the column "Explosives" and analyze the samples for the parameters in Permit Condition VIII.H.5.c in accordance with the Annual Groundwater Sampling Schedule in Permit Condition VIII.H.4.

d. The Permittees shall collect representative samples from the monitoring wells in Table VIII-1 with an "X" in the column "Metals" and analyze the samples for the parameters in Permit Condition VIII.H.5.d in accordance with the Annual Groundwater Sampling Schedule in Permit Condition VIII.H.4.

e. The Permittees shall collect representative samples from the monitoring wells in Table VIII-1 with an "X" in the column "Field" and analyze the samples for the parameters in Permit Condition VIII.H.5.e each time the monitoring well is sampled.

f. The Permittees shall report the results of the groundwater analyses from each of the monitoring wells in a form necessary and appropriate for the determination of statistically significant increases in using the statistical procedures in Permit Condition VIII.H.7.

g. The Permittees shall continue to monitor in accordance with the Detection Monitoring Program established by this Permit unless and until any changes to the Detection Monitoring Program are approved by the Director through permit modification procedures.

VIII.I.4. **Statistical Evaluation**

a. The Permittees shall determine if a statistically significant increase of one or more VOCs or Explosives constituents has occurred in accordance with Permit Condition VIII.H.7.

b. If the Permittees determine there is a statistically significant increase for one or more constituents, the Permittees shall immediately take the actions in Permit Condition VIII.I.6.

VIII.I.5. **Appendix IX Sampling**

a. In accordance with 40 C.F.R. § 264.98(g), the Permittees shall determine whether additional hazardous constituents from Appendix IX of 40 C.F.R. Part 264, which may not be on the detection monitoring list, are actually present in the uppermost aquifer. If so, the Permittees shall determine at what concentrations these constituents are present.

b. If Appendix IX sampling is required, and upon notice from the Director, the Permittees shall collect representative groundwater samples from all the monitoring wells in Table VIII-1 and analyze the samples for all the parameters in Permit Condition VIII.H.5. The Director may specify additional Appendix IX sampling events or additional parameters to be analyzed for.

c. If during Appendix IX sampling, additional constituents are detected beyond those listed in Permit Condition VIII.H.5, the Permittees may resample within one month or another timeframe approved by the Director.

d. The Permittees shall report the results of these additional constituents to the Director within 14 days of the initial sampling or, if a resample was conducted, seven days after completion of the second analysis.

e. If the results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring under Permit Condition VIII.J.

VIII.I.6. **Action Required for Detection or Statistically Significant Increase**

a. The Permittees shall notify the Director in writing within seven days of a determination of a statistically significant increase in concentrations of groundwater parameters under this Permit Condition VIII. The

notification must indicate what chemical parameters or hazardous constituents have shown a statistically significant increase.

b. The Permittees shall submit a Permit modification request to the Director within 30 days to add the monitoring wells and constituents detected to the Compliance Monitoring Program in Permit Condition VIII.J. The permit modification submittal shall include the following information:

   i. An identification of the concentration of all constituents detected in the groundwater at each monitoring well at the compliance point;

   ii. Proposed changes to the groundwater monitoring system at the Facility necessary to meet the requirements of compliance monitoring as described in 40 C.F.R. § 264.99; and

   iii. Proposed additions or changes to the monitoring frequency, sampling and analysis procedures or methods or statistical methods used at the Facility necessary to meet the requirements of compliance monitoring as described in 40 C.F.R. § 264.99.

c. The Permittees may demonstrate that the detection is an artifact caused by an error in sampling, analysis or statistical evaluation or natural variation in the groundwater. The Permittees may make a demonstration in addition to or in lieu of submitting a permit modification; however, the Permittees are not relieved of the requirement to submit a permit modification within the specified timeframe, unless the demonstration successfully shows that the detection resulted from error in sampling, analysis or evaluation. If the Permittees choose to make such demonstration, the Permittees shall:

   i. Notify the Director in writing within seven days of a determination of a statistical increase that the Permittees intends to make a demonstration in accordance with 40 C.F.R. § 264.98(g)(6)(i).

   ii. Within 90 days of the notification above, submit a report to the Director which demonstrates that the contamination resulted from error in sampling, analysis or evaluation.

   iii. Within 90 days, of the notification above, submit to the Director a permit modification in accordance with Permit Condition II.C.2 to make any appropriate changes to the Detection Monitoring Program at the Facility.

VIII.I.7. **Duty to Adequately Monitor**

If the Permittees determine at any time that the Detection Monitoring Program no longer satisfies the requirements of Permit Condition VIII.I, the Permittees shall, within 90 days of such determination, submit a permit modification in accordance with Permit Condition II.C.2 to make all

appropriate and/or necessary changes to the program. The Permittees shall continue to monitor in accordance with the Detection Monitoring Program established by this Permit unless and until any changes to the Detection Monitoring Program are approved by the Director through permit modification procedures.

VIII.J. GROUNDWATER COMPLIANCE MONITORING

If required, the Permittees shall establish a Compliance Monitoring Program to determine if and when a release of hazardous waste or hazardous constituents into the groundwater exceeds specified concentration limits. Compliance monitoring shall:

1. Monitor groundwater for a list of site-specific groundwater constituents, which have a statistically significant increase over background;

2. Establish groundwater protection standards at the compliance point;

3. Establish sampling and statistical analysis requirements to determine if a groundwater protection standard has been exceeded; and

4. Establish corrective action requirements if a groundwater protection standard has been exceeded.

VIII.J.1. Monitoring Locations

If a Groundwater Compliance Monitoring Program is required, the Permittees shall collect representative groundwater samples from the monitoring wells identified as "POC" in Table VIII-1 and shall analyze the representative samples collected at the frequency and for the parameters and constituents in Permit Condition VIII.J.2. During the Groundwater Compliance Monitoring Program, the Director may require sampling for additional constituents.

VIII.J.2. Parameters and Frequency

a. The Permittees shall collect representative groundwater samples from the monitoring wells in Table VIII-1 with an "X" in the column "POC" and analyze the samples for the parameters in Permit Condition VIII.H.5.

b. The Permittees shall report the results of analyses of the groundwater samples from each monitoring well in a form necessary and appropriate for the determination of an exceedance of a groundwater protection standard in accordance with the statistical procedures in Permit Condition VIII.J.4.

c. The Permittees shall continue to monitor in accordance with the Compliance Monitoring Program established by this Permit unless and

until any changes to the Compliance Monitoring Program are approved by the Director through a permit modification.

VIII.J.3. **Groundwater Protection Standard**

a. The Permittees shall monitor the groundwater to determine whether Trench 5 is in compliance with the groundwater protection standard under 40 C.F.R. § 264.92. The groundwater protection standards shall be the EPA's Primary Drinking Water Regulations (EPA Maximum Contaminant Levels (MCLs)) or the values listed in the "Tap water" column in the EPA's Regional Screening Levels tables for constituents that do not have MCLs.

b. The compliance period, during which the groundwater protection standard applies, is equal to at least 70 years. The compliance period shall begin from closure of Trench 5 and initiation of post-closure groundwater monitoring at the unit.

c. If the Permittees are engaged in a corrective action program at the end of the compliance period above, the compliance period shall be extended until the Permittees can demonstrate that the groundwater protection standard has not been exceeded for a period of at least three consecutive years.

VIII.J.4. **Compliance Monitoring Data Evaluation**

a. The Permittees shall monitor the groundwater at Trench 5 to determine if the groundwater protection standards in Permit Condition VIII.J.3 have been exceeded at one or more of the wells listed in Table VIII-1 with an "X" in the column "POC."

b. The Permittees shall use Shewart-CUSUM control charts for data with normal distributions to detect changes in the concentrations in groundwater of the constituents in Permit Condition VIII.J.2. The Shewart-CUSUM control chart procedure shall follow *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*, March 2009; EPA 530/R-09-007.

c. If the Permittees determine that any groundwater protection standard is being exceeded at any monitoring well at the point of compliance, the Permittees shall take the actions in Permit Condition VIII.J.5.

d. Annually, the Permittees must determine whether additional constituents from Appendix IX of 40 C.F.R. Part 264 could possibly be present in the uppermost aquifer, and if so, at what concentrations. The Permittees must follow the procedures in 40 C.F.R. § 264.99(g) to conduct Appendix IX sampling.

e. In accordance with 40 C.F.R. § 264.99(i), the Permittees may choose to demonstrate that an exceedance of a groundwater protection standard in Permit Condition VIII.J.3 is an artifact caused by an error in sampling, analysis or statistical evaluation or natural variation in the groundwater. The Permittees may make a demonstration in addition to or in lieu of submitting a permit modification. However, the Permittees are not relieved of the requirement to submit a permit modification within the specified timeframe, unless the demonstration successfully shows that the increase resulted from error in sampling, analysis or evaluation. If the Permittees chooses to make such demonstration, the Permittees shall:

   i. Notify the Director in writing within seven days that the Permittees intend to make a demonstration.

   ii. Within 90 days of the notification above, submit a report to the Director which demonstrates that the apparent non-compliance with the standards resulted from error in sampling, analysis or evaluation.

   iii. Within 90 days of the notification above, submit to the Director a permit modification in accordance with Permit Condition II.C.2 to make any appropriate changes to the Compliance Monitoring Program at the Facility.

   iv. Continue to monitor in accordance with the Compliance Monitoring Program established at the Facility.

VIII.J.5. **Actions Required in the Event of an Exceedance**

a. The Permittees shall notify the Director in writing within seven days of a determination of an exceedance of a groundwater protection standard in Permit Condition VIII.J.3. The notification must indicate what chemical parameters or hazardous constituents have exceeded the respective groundwater protection standard. The notification must include on a well-by-well basis all the parameters that have exceeded the groundwater protection standard.

b. The Permittees shall submit a Permit modification request to the Director within 30 days to include any monitoring wells with new groundwater protection standard exceedances and to include any newly- detected constituents into the Corrective Action Monitoring Program in Permit Condition VIII.K. The permit modification submittal shall include the following information:

   i. An identification of the concentration of all constituents exceeding the groundwater protection standard in the groundwater at each monitoring well at and/or beyond the compliance point;

ii. All proposed changes to the groundwater monitoring system at the Facility necessary to meet the requirements of Corrective Action Monitoring in this Permit and as described in 40 C.F.R. § 264.100; and

iii. All proposed additions or changes to the monitoring frequency, sampling and analysis procedures, or methods or statistical methods used at the Facility necessary to meet the requirements of Corrective Action Monitoring in this Permit and as described in 40 C.F.R. § 264.100.

VIII.J.6. **Duty to Adequately Monitor**

If the Permittees determine that the Compliance Monitoring Program no longer satisfies the requirements of Permit Condition VIII.J, the Permittees shall, within 90 days of such determination, submit a permit modification in accordance with Permit Condition II.C.2 to make all appropriate and/or necessary changes to the program. The Permittees shall continue to monitor in accordance with the compliance monitoring program established by this Permit unless and until any changes to the compliance monitoring program are approved by the Director through the permit modification process.

VIII.K. GROUNDWATER CORRECTIVE ACTION MONITORING PROGRAM

If required, the Permittees shall implement a Corrective Action Groundwater Monitoring Program that prevents hazardous wastes or hazardous constituents from exceeding their respective concentration limits at and beyond the point of compliance by removing the hazardous wastes or hazardous constituents or treating them in place.

VIII.K.1. The Permittees shall monitor all the wells listed in VIII-1 with an "X" in the column "POC" and any wells between the point of compliance and the Facility boundary, and beyond the Facility boundary, as described in Permit Attachment VIII-1 to determine if the groundwater protection standards in Permit Condition VIII.J.3 have been exceeded at one or more of the wells.

VIII.K.2. Any modification in the number and/or location of the monitoring wells established in Permit Conditions VIII.K.1 shall require a Permit modification in accordance with 40 C.F.R. § 270.42 and Permit Condition II.C.2.

VIII.K.3. **Performance Standards for Corrective Action Monitoring**

a. If required, the Permittees shall conduct a Corrective Action Monitoring Program to remove or treat in place any hazardous wastes or hazardous constituents that exceed the groundwater protection standards specified in Permit Condition VIII.J.3 at the compliance point and beyond (downgradient) of the compliance point. The Permittees are not relieved of all responsibility to clean up a release that has migrated beyond the

Facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis.

b. Corrective action measures must be initiated and completed within a reasonable period of time considering the extent of contamination.

c. The Permittees shall remove or treat in place any hazardous wastes or hazardous constituents under 40 C.F.R. § 264.93 that exceed concentration limits.

d. Corrective action measures may be terminated with approval from the Director once the concentration of hazardous wastes or hazardous constituents is reduced to levels below the groundwater protection standards specified in Permit Condition VIII.J.3.

e. The Permittees shall continue corrective action measures during the compliance period to the extent necessary to ensure that the groundwater protection standards specified in Permit Condition VIII.J.3 are not exceeded. If the Permittees are conducting corrective action at the end of the compliance period, the Permittees shall continue that corrective action for as long as necessary to achieve compliance with the groundwater protection standards.

f. The Permittees may request approval from the Director to terminate corrective action measures taken beyond the compliance period equal to the active life of the waste management area (including the closure period) if the Permittees can demonstrate, based on data from the groundwater monitoring program in Permit Condition VIII.K. that the groundwater protection standard, as specified in Permit Condition VIII.J.3, has not been exceeded for a period of three consecutive years.

g. If the groundwater protection standard is met during the compliance monitoring period, the Permittees shall submit a permit modification request, in accordance with 40 C.F.R. § 270.42 and Permit Condition II.C.2, to the Director to initiate a Compliance Monitoring Program for the duration of the compliance monitoring period, which meets the requirements of 40 C.F.R. § 264.99 in lieu of the Corrective Action Monitoring Program specified in Permit Condition VIII.K.

h. If the groundwater protection standard is met after the compliance monitoring period, but before completion of the post-closure care period, the Permittees shall submit a permit modification request, in accordance with 40 C.F.R. § 270.42 and Permit Condition II.C.2, to the Director to initiate a Detection Monitoring Program for the duration of the post-closure care period, which meets the requirements of 40 C.F.R. § 264.98 in lieu of the Corrective Action Program specified in Permit Condition VIII.K.

i. If the Director determines that the corrective action monitoring program established by this Permit no longer satisfies regulatory requirements and this Permit, then the Permittees must submit within 90 days of written notice from the Director an application for a permit modification to make all appropriate changes to the Corrective Action Monitoring Program to remediate the concentration of hazardous constituents to levels below the groundwater protection standards specified in Permit Condition VIII.J.3.

VIII.L. RECORDKEEPING

The Permittees shall record, enter, incorporate or otherwise include in the Operating Record all information, inspection data, monitoring data, field notes, field data, data forms, notes, photographs, drawings, testing data, analytical data, quality assurance data, quality control data, calculations, calculated data, computations and evaluations (including those from statistical evaluations) required by Permit Condition VIII or necessary to demonstrate compliance with Permit Condition VIII.

VIII.M. REPORTING

VIII.M.1. The Permittees shall submit written groundwater reports no later than September 30 for groundwater data and samples collected during the annual sampling event in May.

VIII.M.2. The written annual report shall include the following information:

a. Evaluation of monitoring data shall include: data in tables and electronic files, potentiometric surface maps for each hydrostratigraphic unit, hydrographs of groundwater elevations for key wells in each hydrostratigraphic unit and surface water monitoring points, contaminant plume maps for each major hydrogeologic unit, cross sections depicting geochemical data, monitoring points, and hydrogeology, comparison of the new data with previous data and established performance criteria, results of statistical comparisons, discussion of trends and the relation of any trends to remedial goals and assessment of QA/QC data.

b. Evaluation of Institutional Controls that includes: observed changes in land or resource use, discussion of any pending changes in land use, resource use or property ownership and evaluation of the effectiveness of the ICs.

c. Conceptual Site Model Evaluation that includes: updating the conceptual site model incorporating any new data and data trends, discussion of consistency of previous conceptual site model with new data, suspected sources for continued groundwater contamination, characteristics of sources, trends in contaminant and geochemistry values, discussion of any observed changes in site hydrology and discussion of changes in land use and potential effects on the conceptual model.

IX. CORRECTIVE ACTION

IX.A. AUTHORITY

Section 3004(u) of RCRA, 42 U.S.C. § 6924, and 40 C.F.R. § 264.101, require that all Permits issued after November 8, 1984, address corrective action for all releases of hazardous waste or hazardous constituents from any SWMU at a treatment, storage, or disposal Facility seeking the Permit, regardless of when the waste was placed in the unit or whether the unit is closed. Those sections further require that Permits issued under Section 3005 of RCRA, 42 U.S.C. § 6925, contain schedules of compliance for corrective action (where corrective action cannot be completed prior to Permit issuance) and assurances of financial responsibility for completing such corrective action. Section 3004(v) of RCRA, 42 U.S.C. § 6924(v), authorizes the Administrator to require that corrective action be taken by the Facility Owner or Operator beyond the Facility boundary when necessary to protect human health and the environment, unless the Owner or Operator demonstrates to the Administrator's satisfaction that permission to undertake such action, despite the owner/operator's best efforts, was denied. Section 3005(c)(3) of RCRA, 42 U.S.C. § 6925(c)(3), requires that each Permit issued under that section shall contain terms and conditions as the Administrator determines necessary to protect human health and the environment. The Administrator has delegated authority to perform all actions necessary to enforce this Permit to the Director of Region 7 Air and Waste Management Division, (hereafter referred to as "Director") or the Director's designated representative.

On March 13, 1989 (54 FR 10520), the EPA adopted a policy for listing Federal Facility sites that are eligible for the National Priorities List (NPL), even if they are also subject to the corrective action authorities of Subtitle C of RCRA. The NPL is the EPA's list of CERCLA, more commonly known as *Superfund*, sites that pose the greatest threat to human health and the environment, based on a site assessment process. The EPA added the IAAAP to the NPL in 1990. The Department of Defense (DOD) established the Defense Environmental Restoration Program to address sites that are within the responsibility of the DOD under CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA). The Army, as an agency within the DOD, is responsible under CERCLA for implementing environmental response action at the IAAAP. The EPA and the Army signed a CERCLA Federal Facilities Agreement (FFA) for site cleanup, which became effective December 10, 1990, following public comment. The FFA provides a framework for CERCLA response actions to be performed at the IAAP, including the investigation and cleanup of contamination.

Consequently, the Facility is subject to both RCRA and CERCLA cleanup authorities. The EPA will coordinate actions under RCRA and CERCLA to address overlapping cleanup requirements.

IX.B. IDENTIFICATION OF SWMUS, AOCS AND RELEASES

The following SWMUs and AOCs have been identified at the Facility. The general descriptions and locations of the SWMUs and AOCs are shown in Figure 4, Permit Attachment I-1. The EPA is deferring corrective action for the SWMUs and AOCs listed in the table below to the ongoing actions being taken, and the future actions to be taken, by the Army pursuant to the Federal Facility Agreement (FFA), dated December 10, 1990, and future updates to the FFA between the Army and the EPA. The SWMUs listed in the 1990 FFA in Table X-1 are being integrated to CERCLA sites.

RCRA PERMIT	1990 FFA	RI SITE DESIGNATION	HQAES/CC SITE #	HQAES SITE NAME
IAAP-001	IAAP-001	R1	IAAP-001	Line 1 Ammo LAP (Missile/Former AEC)
			CC-001G	Line 1 Groundwater
IAAP-002	IAAP-002	R2	IAAP-002	Line 2 Ammo LAP (Artillery/Shape)
			IAAP-0002G	Line 2 Ammo LAP (Artillery/Shape) GW
IAAP-003	IAAP-003	R3	IAAP-003	Line 3 Ammo LAP (Artillery)
			IAAP-003G	Line 3 Ammo LAP (Artillery) GW
IAAP-004	IAAP-004	R4	IAAP-004	Line 3A Ammo LAP (Artillery)
			IAAP-004G	Line 3A Ammo LAP (Artillery) GW
IAAP-005	IAAP-005	R5	IAAP-005	Line 4A and 4B Ammo Assembly
			IAAP-005G	Line 4A and 4B Ammo Assembly GW
IAAP-006	IAAP-006	R6	IAAP-006	Line 5A and 5B Ammo Assembly
			IAAP-006G	Line 5A and 5B Ammo Assembly GW
IAAP-007	IAAP-007	R7	IAAP-007	Line 6 Ammo Production (Detonator)
			IAAP-002-R-01	Line 6 Ammo Production (Inside Blast Radii)
			IAAP-002-R-02	Line 6 Ammo Production (Outside Blast Radii)
			IAAP-007G	Line 6 Ammo Production (Detonator) GW
IAAP-008	IAAP-008	R8	IAAP-008	Line 7 AMMO LAP (Fuze/Blank)
			IAAP-008G	Line 7 AMMO LAP (Fuze/Blank) GW
IAAP-009	IAAP-009	R9	IAAP-009	Line 8 Ammo LAP (Fuze/Rocket)
			IAAP-009G	Line 8 Ammo LAP (Fuze/Rocket)
IAAP-010	IAAP-010	R10	IAAP-010	Line 9 Ammo LAP (Mine)
			IAAP-010G	Line 9 Ammo LAP (Mine) GW
IAAP-011	IAAP-011	R11	IAAP-011	Line 800 Ammo Renovation (combined with IAAP-044 per IAP)
IAAP-012	IAAP-012	R12	IAAP-012	Explosive Disposal Area (East Burn Pads)
			IAAP-012G	Explosive Disposal Area (East Burn Pads) GW
IAAP-013	IAAP-013		IAAP-013	Incendiary Disposal Area (East Yard D)
			IAAP-006-R-01	Incendiary Disposal Area (InDA)

			IAAP-013G	Incendiary Disposal Area (East Yard D) GW
IAAP-014	IAAP-014		IAAP-014	Boxcar Unloading Area
			IAAP-014G	Boxcar Unloading Area GW
IAAP-015	IAAP-015		IAAP-015	Old Fly Ash Waste Pile
			IAAP-015G	Old Fly Ash Waste Pile GW
IAAP-016	IAAP-016		IAAP-016	Line 1 Former Wastewater Impoundment
			IAAP-016G	Line 1 Former Wastewater Impoundment GW
IAAP-017	IAAP-017	R13	IAAP-017	Pesticide Pit
			IAAP-017G	Pesticide Pit GW
IAAP-018	IAAP-018		IAAP-018	Possible Demolition Site (South Yard G)
			IAAP-004-R-01	Possible Demolition Site (PDS)
			IAAP-018G	Possible Demolition Site (South Yard G) GW
IAAP-019	IAAP-019		IAAP-019	Contaminated Clothing Laundry (Amend #1)
			CC-01	Contaminated Clothing Laundry
IAAP-020	IAAP-020	R14	IAAP-020	Inert Disposal Area
			IAAP-020G	Inert Disposal Area GW
IAAP-021	IAAP-021	R15	IAAP-021	Demolition Area/ Deactivation Furnace (combined with IAAP-023)
			CC-06	Demolition Area/ Deactivation Furnace (combined with IAAP-023)
IAAP-022	IAAP-022		IAAP-022	Unidentified Substance Waste Site (per 1996 RI)
			IAAP-022 GW	Unidentified Substance Waste Site (per 1996 RI) GW
IAAP-023	IAAP-023	R15	[IAAP-021]	Deactivation Furnace Site (combined with Demolition Area IAAP-021 per IAAP)
			CC-06	Deactivation Furnace Site (combined with Demolition Area IAAP-021 per IAAP)
IAAP-024	IAAP-024	R16	IAAP-024	Contaminated Waste Processor (per1996 RI)
			CC-02	Contaminated Waste Processor (per1996 RI)
IAAP-025	IAAP-025	R17	IAAP-025	Explosive Waste Incinerator
			IAAP-025G	Explosive Waste Incinerator GW
IAAP-026	IAAP-026	R18	IAAP-026	Main Sewage Treatment Plant/Drying Beds
			CC-04	Main Sewage Treatment Plant/Drying Beds
IAAP-027	IAAP-027	R19	IAAP-027	Fly Ash Landfill
			CC-03	Fly Ash Landfill
IAAP-028	IAAP-028	R20	IAAP-028	Construction Debris Disposal Area
			IAAP-028G	Construction Debris Disposal Area GW
IAAP-029	IAAP-029	R21	IAAP-029	Line 3A Sewage Treatment Plant/Drying Beds

			CC-05	Line 3A Sewage Treatment Plant/Drying Beds
IAAP-030	IAAP-030	R22	IAAP-030	Firing Sites Area
			IAAP-030G	Firing Sites Area GW
IAAP-031		R23	IAAP-031	Ammunition Box Chipper Disposal Pit (per 1996 RI)
			IAAP-031G	Ammunition Cox Chipper Disposal Pit (per 1996 RI) GW
IAAP-032		R24	IAAP-032	Burn Cages, BCLF; West Burn Pads, WBPLF
			IAAP-003-R-01	West Burn Pads (WBP)
			IAAP-005-R-01	West Burn Pads South of the Road (WBPS)
			IAAP-032G	Burn Cages, BCLF; West Burn Pads, WBPLF GW
IAAP-033		R24	IAAP-032	(combined with Burn Cages IAAP-032 per IAAP)
IAAP-034		R24	IAAP-032	(combined with Burn Cages IAAP-032 per IAAP)
IAAP-035		R24	IAAP-032	(combined with Burn Cages IAAP-032 per IAAP)
IAAP-036		R25	IAAP-036	North Burn Pads (2) (Near IAAP-024)
			IAAP-036G	North Burn Pads (2) (Near IAAP-024) GW
IAAP-037		IAAP-037	IAAP-037	North Burn Pads Landfill
			IAAP-037G	North Burn Pads Landfill GW
IAAP-038		R26	IAAP-038	Building 600-86 Septic System
			IAAP-038G	Building 600-86 Septic System GW
IAAP-039		R27	IAAP-039	Fire Training Pit
			IAAP-039G	Fire Training Pit GW
IAAP-040		R28	IAAP-040	Roundhouse Transformer Storage Area
			IAAP-040G	Roundhouse Transformer Storage Area GW
IAAP-041		R29	IAAP-041	Line 3A Pond
			IAAP-041G	Line 3A Pond GW
IAAP-042			IAAP-042	Abandoned Coal Storage yard
			IAAP-042G	Abandoned Coal Storage yard GW
IAAP-043		R30	IAAP-043	Fly Ash Disposal Area
			IAAP-043G	Fly Ash Disposal Area GW
IAAP-044			IAAP-044	Line 800 & Pinkwater Lagoon (combined with IAAP-011)
			IAAP-044G	Line 800 & Pinkwater Lagoon GW
IAAP-045			IAAP-045	Former Fuel Station USTs
IAAP-046			IAAP-046	Off Post Contamination
IAAP-047			IAAP-047	Central Test Area
			IAAP-001-R-01	Central Test Area
			IAAP-47G	Central Test Area Groundwater
IAAP-XXX			IAAP-XXX	Pinkwater Reroute Line 3, Bldg 3-70-1
IAAP-XXX			IAAP-XXX	Pinkwater Reroute Line 3A

IAAP-006-R-02			IAAP-006-R-02	Maneuver Area (MA)
CC-IAAP-001			CC-IAAP-001	Construction Debris Site #1
CC-IAAP-002			CC-IAAP-002	Construction Debris Site #2
AOC-001				PCB Electrical Equipment Sites
AOC-002				40MM Range
AOC-003				Pistol Range

XXX- Site number to be determined when added to Headquarters Army Environmental System (HQAES).

IX.C. NOTIFICATION REQUIREMENTS FOR AND ASSESSMENT OF NEWLY-IDENTIFIED SWMUS, AOCS AND RELEASES

IX.C.1. The Permittees shall notify the Director in writing of any newly-identified SWMUs, AOCs and releases discovered during the course of groundwater monitoring, field investigations, environmental audits or other activities or by any other means, no later than 15 days after discovery. As used in this part of the Permit, the terms "discover," "discovery" or "discovered" refer to the date on which the Permittees or an EPA representative either: 1) visually observed evidence of a new SWMU, AOC or release; 2) visually observed evidence of a previously unidentified release of hazardous wastes or hazardous constituents to the environment; or 3) receives information which suggests the presence of a new release of hazardous wastes or hazardous constituents to the environment. The notification shall include, at a minimum, a unique sequential identification number, the location of the SWMU, AOC or release and all available information pertaining to the nature of the release (e.g., media affected, hazardous constituents released, magnitude of release, etc.).

IX.C.2. After such notification, the Director may request, in writing, that the Permittees prepare a SWMU, AOC or Release Assessment Work Plan, a proposed schedule of implementation for the work and a completion of a SWMU, AOC or Release Assessment Report. Additionally, the Director may require a new or supplemental RCRA Facility Investigation (RFI) or corrective measures study (CMS) for the newly-identified SWMU(s), AOC(s) or release(s) in accordance with this Permit.

IX.C.3. The Permittees shall submit a SWMU, AOC or Release Assessment Work Plan within 60 days after receipt of notice that the Director requires a SWMU, AOC or Release Assessment Work Plan. The Work Plan shall describe all the activities to be completed in order to characterize the newly-identified SWMUs, AOCs or releases so that the Director can determine if an RFI and/or CMS is necessary. The SWMU, AOC or Release Assessment Work Plan for the investigation shall include any of the following, as specified in the Director's notice:

a. A discussion of past waste management practices at the unit or area;

b. A sampling and analysis program for groundwater, soil, surface water or air, as necessary, to determine whether a release of hazardous wastes and/or hazardous constituents from the SWMU or AOC has occurred or is occurring and to determine whether the release is harmful to human health or the environment;

c. A discussion of DQOs;

d. A QAPP for the collection and analysis of samples;

e. A proposed schedule for implementation and completion of the assessment.

IX.C.4. The sampling and analysis program, if required, shall be capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous wastes or hazardous constituents from the newly-identified release(s) to the environment. The SWMU, AOC or Release Assessment Work Plan shall specify any data to be collected to provide for a complete SWMU, AOC or Release Assessment Report, as defined below.

IX.C.5. The Permittees shall implement the SWMU, AOC or Release Assessment Work Plan in accordance with the schedules contained therein upon the Director's approval of said work plan.

IX.C.6. The Permittees shall submit an SWMU, AOC or Release Assessment Report to the EPA according to the schedule specified in the approved SWMU, AOC or Release Assessment Work Plan. The Assessment Report shall present and discuss the information obtained from implementation of the approved SWMU, AOC or Release Assessment Work Plan. At a minimum, the SWMU, AOC or Release Assessment Report shall provide the following information for each SWMU, AOC, and/or newly-identified release:

a. The location of the newly-identified SWMU/AOC/release, including its location in relation to other SWMUs, AOCs or other areas where a release has occurred and regulated units;

b. The type and function of the SWMU/AOC/release area, including past and present operating practices;

c. The general dimensions, capacities and structural description of the SWMU/AOC/release area;

d. The period during which the SWMU/AOC/unit or other release area was operated;

e. The physical and chemical properties of all wastes and hazardous materials that have been or are being managed at the SWMU/AOC/unit or other release area, to the extent such information is available;

f. The results of all sampling and analysis conducted;

g. Previous uses of the area in which the release occurred;

h. Amounts of waste and hazardous materials handled; and

i. Drainage areas and/or drainage patterns near the release.

IX.C.7. Based on the findings of the SWMU, AOC or Release Assessment Report, and any other available information, the Director will determine the need for further investigation or an RFI, interim measures, stabilization or a CMS.

IX.D. INTERIM MEASURES AND STABILIZATION

IX.D.1. Interim measures shall be used whenever necessary to achieve the goal of stabilization, which is to control or abate immediate threats to human health and the environment, and to prevent or minimize the spread of contaminants while long-term corrective remedies are being evaluated. If required, the Permittees shall evaluate available data and assess the need for interim measures in addition to any interim measures specifically required by this Permit.

IX.D.2. The Permittees shall notify the Director within 24 hours of becoming aware of a situation that requires interim measures, stabilization or both.

IX.D.3. If the Director determines that a release or potential release of hazardous wastes and/or hazardous constituents poses a threat to human health or the environment, the Director may require interim measures, stabilization or both to control or abate such threat or to minimize or prevent the further spread of contamination until final corrective measures can be initiated. The Director will determine the specific action(s) that must be taken to implement interim measures, stabilization or both, including the schedule for implementing the interim measures and/or stabilization requirements and will inform the Permittees of the action(s) in writing.

IX.D.4. The Permittees shall submit an Interim Measures and/or Stabilization Work Plan within 30 days of notification by the Director. The work plan shall describe the proposed interim measures and/or stabilization and include an implementation schedule. Upon receipt of written approval by the Director, the Permittees shall implement the Interim Measure and/or Stabilization Work Plan in accordance with the requirements of the approved work plan and according to the schedules therein. The completion of the interim measures and/or stabilization shall be documented by the Permittees in accordance with the approved schedule.

IX.D.5. If at any time, the Permittees determine that the interim measures and/or stabilization activities are not controlling or abating the threat or effectively minimizing or preventing the further spread of contamination, the Permittees

must notify the Director in writing no later than 10 days after such a determination is made. The Director may then require that the interim measures and/or stabilization activities be revised to make them more effective or that final corrective measures be implemented to remediate the contaminated media.

IX.E. RCRA FACILITY INVESTIGATION WORK PLAN

IX.E.1. The objectives of the RFI include, but are not limited to, all actions necessary to characterize the nature, three-dimensional extent, direction, rate, movement and concentrations of releases of hazardous waste and/or hazardous constituents from SWMUs, AOCs or releases and assessment of their actual or potential receptors. The RFI shall be designed to obtain sufficient information to support further corrective action decisions at the Facility.

IX.E.2. Any required RFI activities shall also be conducted using the approaches contained in the EPA guidance document titled *Resource Conservation and Recovery Act Facilities Investigation Remedy Selection Track: A Toolbox for Corrective Action*, dated May 20, 2016.

IX.E.3. Within 90 days of a written request from the Director, the Permittees shall prepare and submit an RFI Work Plan for conducting an RFI for those SWMUs, AOCs and releases identified by the Director. The RFI Work Plan(s) shall be consistent with the requirements of the Scope of Work for a RCRA Facility Investigation in the *RCRA Corrective Action Plan*, dated May 1994, OSWER Directive Number 9902.3-2A; EPA Document Number 520-R-94-004; and any subsequent revisions or editions. The RFI Work Plan(s) shall also be consistent with the *RCRA Facility Investigation Guidance*, dated May 1989, OSWER Directive Number 9502.00-6D, EPA Document Number 530/SW-89-031, and any subsequent revisions or editions. The RFI Work Plan(s) shall describe in detail all proposed activities and procedures to be conducted at the Facility and the overall technical and analytical approach to completing all actions necessary to achieve the objectives of the RFI. In order to support corrective action decisions, the RFI Work Plan(s) shall include, but is not limited to:

a. A description of the current conditions at the Facility;

b. The full characterization of the environmental setting;

c. The full characterization of the sources and nature of hazardous wastes or hazardous constituents;

d. The procedures required to achieve full characterization of the three-dimensional extent and rate of on-site and/or off-site migration of releases of hazardous wastes or hazardous constituents from SWMUs, AOCs and/or releases at the Facility and their actual or potential receptors;

e. The work to identify and completely characterize all contaminant plumes;

f. Collection of sufficient data to conduct a Risk Assessment consistent with EPA's guidance for risk assessments titled *Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual, Parts A-D - Interim Final* (1989 & 1991), and any subsequent revisions or editions; and *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments Interim Final* (1997), and any subsequent revisions or editions;

g. The collection of any other pertinent data which are necessary to support a Corrective Measures Study (CMS) and/or any further corrective action decisions;

h. The schedule for implementing and completing such investigations and submitting reports, including the RFI Report;

i. A requirement to provide 30 days' written advance notice to the Director of the date upon which field work will begin;

j. The qualifications of personnel performing or directing the investigations, including contractor personnel; and

k. The overall management of the RFI or project organization.

IX.E.4. The RFI Work Plan shall include the submittal of a Sampling and Analysis Plan (SAP) prepared in accordance with the *RCRA Corrective Action Plan*, dated May 1994, OSWER Directive Number 9902.3-2A; EPA Document Number 520-R-94-004; and any subsequent revisions or editions and the *RCRA Facility Investigation Guidance*, dated May 1989, OSWER Directive Number 9502.00-6D, EPA Document Number 530/SW-89-031, and any subsequent revisions or editions. The SAP shall include, but not limited to, the following:

a. Description of all sampling procedures, including sample collection by media, field measurement and/or analysis, analytical methods, containerization, preservation, packaging and shipment (including chain-of-custody) procedures;

b. Plans for the handling and disposal of all investigation-derived wastes (e.g., drilling spoils, water from well development and purging and fluids from decontamination of drilling and sampling equipment);

c. A map with all SWMUs, AOCs and release areas shown, locations of proposed sampling points; and

d. Information regarding depth intervals and constituents to be sampled and analyzed for.

IX.E.5. The RFI Work Plan shall include the submittal of a Quality Assurance Project Plan (QAPP) prepared in accordance with *EPA Requirements for Quality Assurance Project Plans*, EPA QA/R-5, March 2001 and *Guidance for Quality Assurance Project Plans,* EPA QA/G-5, December 2002, and any subsequent revisions or editions. The QAPP shall present the policies, organization, objectives, functional activities and specific quality assurance and quality control activities designed to achieve the data quality goals of the RFI. The QAPP shall identify procedures that will be performed during the investigation to characterize the nature and extent of contamination in order to ensure that all information and data resulting from the investigation are technically defensible, representative and accurate in support of corrective action and risk management decisions. The QAPP shall include, but is not limited to, the following:

a. A discussion of analytical and laboratory methods, field and laboratory quality assurance and quality control sampling, chain-of-custody procedures;

b. A discussion of data review and management and data validation and reporting procedures; and

c. Inclusion of a laboratory QAPP or equivalent (quality assurance manual) for each method of analysis to be used.

IX.E.6. Laboratory methods shall be in accordance with *Waste Management System; Testing and Monitoring Activities; Final Rule: Methods Innovation Rule and SW-846 Final Update IIIB*. [70 FR 34538, June 14, 2005].

IX.E.7. The Permittees shall prepare and maintain a health and safety plan during the project that assures the RFI activities are conducted in a manner that is protective of human health and the environment.

IX.F. RFI IMPLEMENTATION

Upon receipt of written approval from the Director of an RFI Work Plan, the Permittees shall implement the EPA-approved RFI Work Plan according to the schedules therein and the following:

1. The Permittees shall notify the Director at least 30 days prior to any sampling, testing or monitoring activity required by the RFI Work Plan to give EPA personnel the opportunity to observe investigation procedures and/or obtain split samples.

2. Any proposed deviations from the EPA-approved RFI Work Plan must be approved in advance by the Director or his/her designee and fully documented and described in the progress reports and in the final RFI report.

3. Any additional work necessary to accomplish the RFI will be subject to the requirements of Permit Condition IX.U.

IX.G. RCRA FACILITY INVESTIGATION REPORT

IX.G.1. The Permittees shall submit an RFI Report according to the schedule contained in the EPA-approved RFI Work Plan and/or any EPA-approved RFI Work Plan Addenda. The RFI Report shall be consistent with the requirements of the *RCRA Corrective Action Plan*, dated May 1994, OSWER Directive Number 9902.3-2A; EPA Document Number 520-R-94-004; and any subsequent revisions or editions. The RFI Report shall also be consistent with the *RCRA Facility Investigation Guidance*, dated May 1989, OSWER Directive Number 9502.00-6D, EPA Document Number 530/SW-89-031, and any subsequent revisions or editions. The RFI Report shall present all information gathered under the EPA-approved RFI Work Plan and/or any EPA-approved RFI Work Plan Addenda along with a Facility description and map showing the property boundary and all SWMUs, AOCs and other areas where a release occurred. The RFI Report must contain sufficient information to support further corrective action decisions at the Facility. The RFI Report shall describe the procedures, methods and results of all investigations of SWMUs and AOCs and associated releases, including but not limited to the following:

a. Characterization of the extent, nature, direction, rate, movement and concentration of releases from the Facility;

b. Characterizations of the environmental setting at the Facility, including:

   i. A description of the regional and Facility-specific geologic and hydrogeologic characteristics affecting ground-water flow beneath the Facility and the unit;

   ii. Regional and Facility-specific ground-water flow patterns;

   iii. Soil characteristics, including lithology, grain size, sorting and degree of cementation;

   iv. Soil, groundwater, surface water and sediment quality; and

   v. Air quality and meteorological conditions.

c. Characterization of SWMUs, AOCs or other areas from which releases have been or may be occurring, including unit and waste or hazardous constituent characteristics;

d. Descriptions of human populations and environmental systems which are, may have been or may be exposed to release(s);

e. Any other information that will assist the Director in assessing risks to human health and the environment from releases from SWMUs, AOCs or releases;

f. Water level contour and/or potentiometric maps;

g. Conclusions regarding future contaminant movement;

h. Laboratory, bench-scale or pilot-scale tests or studies conducted to determine the feasibility or effectiveness of treatment technologies or other technologies that may be appropriate in implementing remedies at the Facility;

i. Any applicable statistical analyses to aid in the interpretation of data;

j. Results of any interim measures; and

k. Any deviations from the EPA-approved RFI Work Plan.

IX.G.2. If the Director determines that additional investigation or study of SWMUs, AOCs or releases is necessary, the Permittees shall conduct those activities in accordance with Permit Condition IX.U.

IX.G.3. If the Director determines that an interim measure or corrective measure is required, the Director will notify the Permittees in writing and request either interim measures as specified in Permit Condition IX.D or a corrective measures study as specified in Permit Conditions IX.H and IX.J.

IX.H. CORRECTIVE MEASURES STUDY WORK PLAN

IX.H.1. If the Director determines that there has been a release of hazardous waste and/or hazardous constituents that may present a threat to human health or the environment, the Director may require a Corrective Measures Study (CMS) and will notify the Permittees in writing of the requirement to complete a CMS.

IX.H.2. Any required CMS activities shall also be conducted using the approaches contained in the EPA guidance document titled *Resource Conservation and Recovery Act Facilities Investigation Remedy Selection Track: A Toolbox for Corrective Action*, dated May 20, 2016.

IX.H.3. The Permittees shall submit a CMS Work Plan to the Director within 60 days of notification of the requirement to complete a CMS. The CMS Work Plan shall describe all the investigations, studies and other work necessary to select corrective measure(s) to protect human health and the environment from releases of hazardous wastes and hazardous constituents. Corrective measures described in the CMS Work Plan may include measures that incorporate engineering or institutional controls subject to the Director's approval. The

CMS Work Plan shall be consistent with the most recent version of the EPA guidance document entitled, *RCRA Corrective Action Plan* (EPA/520-R-94-004).

IX.H.4. If the CMS Work Plan will consider corrective measures that leave contamination onsite at levels that do not allow for unrestricted use and unlimited exposure, the Permittees shall include as a component of such corrective measures a plan to implement institutional and/or engineering controls to prevent unacceptable exposures to human health and the environment in perpetuity. Such a plan shall be consistent with EPA guidance including but not limited to *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups*, EPA 540-F-00-005, OSWER 9355.0-74FS-P, September 2000 and the *Institutional Controls: A Guide to Planning, Implementing, Maintaining and Enforcing Institutional Controls at Contaminated Sites, OSWER 9355.0-89,* December 2012.

IX.H.5. At a minimum, the CMS Work Plan shall provide the following information:

a. A description of the general approach to investigating and evaluating potential corrective measures;

b. A site-specific description and a definition of the specific objectives of the overall purpose of the corrective measures study;

c. A description of the corrective measures objectives, including proposed target media cleanup standards and points of compliance or a description of how a risk assessment will be performed;

d. A description of the specific corrective measure technologies and/or corrective measure alternatives which will be studied;

e. A detailed description of any proposed pilot, laboratory and/or bench-scale studies;

f. A description of overall project management including approach, levels of authority, lines of communication, project schedules, budget and personnel directing or performing the work;

g. A description of the method to be used to evaluate corrective measures;

h. A specification that the CMS Report will include an evaluation of each corrective measure studied using, at a minimum, four "threshold criteria" and five "balancing criteria;"

   i. Threshold criteria: Protection of human health and the environment; Attainment of media cleanup standards set by, or risk-based standards approved by, EPA; Controlling the sources of releases to

reduce or eliminate further releases that may pose a threat to human health and the environment, and Compliance with applicable standards for management of wastes.

ii. Balancing criteria: Long-term reliability and effectiveness; Reduction of toxicity, mobility or volume of wastes; Short-term effectiveness; Implementability; and Cost.

i. The schedules for conducting the Corrective Measures Study and submitting a Corrective Measures Study Report;

j. A requirement to provide 30 days' written advance notice to the Director of the date upon which field work will begin; and

k. The proposed format for the presentation of information in the Corrective Measures Study Report. The format for the CMS Report shall include at a minimum:

i. Introduction/Purpose;

ii. Description of Current Conditions;

iii. Media Cleanup Standards;

iv. Identification, Screening, and Development of Corrective Measures Alternatives;

v. Evaluation of a Final Corrective Measures Alternative;

vi. Recommendation by Permittees for a Final Corrective Measure Alternative; and

vii. Public Involvement Plan.

l. The Director may require the Permittees to evaluate as part of the CMS one or more specific potential remedies. These remedies may include a specific technology or combination of technologies that, in the Director's judgment, achieves protection of human health and the environment.

m. The Director will review the CMS Work Plan in accordance with the procedures set forth in the Permit Condition II.H.

IX.I. CORRECTIVE MEASURES STUDY WORK PLAN IMPLEMENTATION

IX.I.1. Upon receipt of written approval from the Director for the CMS Work Plan, the Permittees shall implement the EPA-approved CMS Work Plan according to the schedules therein.

IX.I.2. The Permittees shall notify the Director at least 30 days prior to any sampling, testing or monitoring activity required by the CMS Work Plan to give EPA personnel the opportunity to observe investigation procedures and/or obtain split samples.

IX.I.3. Any proposed deviations from the EPA-approved CMS Work Plan must be approved in advance by the Director or his/her designee and fully documented and described in the progress reports and in the CMS Report.

IX.I.4. Any additional work necessary to accomplish the CMS will be subject to the requirements of Permit Condition IX.U.

IX.J. CORRECTIVE MEASURES STUDY REPORT

IX.J.1. The Permittees shall submit a CMS Report according to the schedule contained in the approved CMS Work Plan. The CMS Report shall present all information gathered under the approved CMS Work Plan and shall be consistent with the most recent version of the EPA guidance document entitled, *RCRA Corrective Action Plan* (EPA/520-R-94-004).

IX.J.2. The CMS Report shall include:

a. A brief summary discussion of any new information that would significantly affect the evaluation and selection of the corrective measures alternative;

b. A summary of the risks to human health and the environment which require implementation of a corrective measure(s);

c. Proposed media cleanup standards for the protection of human health and the environment;

d. The results of the investigations for each remedy studied and of any bench-scale or pilot tests or modeling (if applicable) conducted;

e. An estimate of the costs for implementing each corrective measure;

f. A detailed evaluation of each corrective measure using the four threshold criteria and the five balancing criteria listed in Permit Conditions IX.H.5.h.i and IX.H.5.h.ii; and

g. The Permittees' recommendation, with justification, of the appropriate corrective measure or measures, based upon the above criteria.

IX.J.3. The CMS Report must contain adequate information for the Director to select the corrective measure(s) necessary to protect human health and the environment from releases of hazardous wastes and hazardous constituents at or from the Facility.

IX.J.4. The CMS Report will be reviewed in accordance with the procedures set forth in Permit Condition II.H.

IX.K. CORRECTIVE MEASURES SELECTION

IX.K.1. Corrective Measures Selection

a. The Director will select corrective measure(s) that will comply with the threshold criteria identified Permit Condition IX.H.5.h.ii. Before selecting corrective measures, the Director will prepare a Statement of Basis that identifies the preferred corrective measure(s) and provides the reasons for the selection. The Director will make a final corrective measures decision after public notice and public review of the Statement of Basis and review of all public comments.

b. The Director will initiate a Permit modification pursuant to 40 C.F.R. § 270.41 to require implementation of the selected corrective measure(s), or the Permittees may request that this Permit be modified in accordance with Permit Condition II.C.2 and 40 C.F.R. § 270.42(c) for the implementation of the EPA-selected corrective measure(s).

IX.K.2. Corrective Measures Selected to Date

RESERVED

IX.L. CORRECTIVE MEASURES OBJECTIVES

The methods/approaches used to develop Media Cleanup Standards shall be consistent with those used at CERCLA sites.

IX.M. CORRECTIVE MEASURES IMPLEMENTATION

RESERVED

IX.N. CORRECTIVE MEASURE IMPLEMENTATION WORK PLAN

IX.N.1. Within 60 calendar days of selection by the Director of a final remedy/corrective measure, the Permittees shall submit a Corrective Measures Implementation Work Plan (CMI) Work Plan to implement the selected corrective measure(s). The CMI Work Plan shall be developed in a manner consistent with the CMI Scope of Work in the *RCRA Corrective Action Plan*, EPA 520-R-94-004, OSWER Directive 9902.3-2A, May 1994, incorporated herein.

IX.N.2. The CMIWP shall detail the design, construction, operation, maintenance, and monitoring of the selected corrective measure. If the CMI will consider corrective measures that leave contamination onsite at a level that does not allow for unrestricted use and unlimited exposure, the Permittee shall include as a component of such corrective measures a plan to implement institutional and/or engineering controls to prevent unacceptable exposures to human health and the environment. The CMIWP, at a minimum, shall include the following sections:

a. Project Management;

b. Design Plans and Specifications;

c. Sampling and Analysis Plan and Quality Assurance Project Plan, as applicable;

d. Construction Quality Assurance/Quality Control Program;

e. Operation and Maintenance Plan;

f. Monitoring, Recordkeeping and Data Management;

g. Cost Estimate; and

h. Project Schedule, including provisions for thirty (30) days written advance notice of any field work.

IX.N.3. **Institutional Controls**

a. Within 120 days of any final remedies requiring institutional controls, the Permittees shall modify the *Facility-wide Land Use Control Plan* to establish enforceable institutional controls at the site to ensure Facility uses minimize the potential for human exposure to contamination and/or protect the integrity of the remedy.

b. The Institutional Controls shall be consistent with EPA guidance including but not limited to *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups*, EPA 540-F-00-005, OSWER 9355.0-74FS-P, September 2000 and the *Institutional Controls: A Guide to Planning, Implementing, Maintaining and Enforcing Institutional Controls at Contaminated Sites, OSWER 9355.0-89,* December 2012.

IX.O. CORRECTIVE MEASURES IMPLEMENTATION

IX.O.1. Upon receipt of written approval from the Director for a corrective measure work plan, the Permittees shall implement the EPA-approved corrective measure work plan according to the schedules therein.

IX.O.2. The Permittees shall notify the Director at least 30 days prior to any sampling, testing or monitoring activity required by the corrective measure work plan to give EPA personnel the opportunity to observe investigation procedures and/or obtain split samples.

IX.O.3. Any proposed deviations from the EPA-approved corrective measure work plan must be approved in advance by the Director or his/her designee and fully documented and described in the progress reports and in the Corrective Measures Construction Completion Report.

IX.O.4. Any additional work necessary to implement the Corrective Measures will be subject to the requirements of Permit Condition IX.U.

IX.P. CORRECTIVE MEASURES CONSTRUCTION COMPLETION REPORT

The Permittees shall submit a Corrective Measures Construction Completion Report (CMCC) Report to the Director in accordance with any EPA-approved CMI Work Plan schedules. The CMCC Report shall be consistent with the *RCRA Corrective Action Plan,* EPA 520-R-94-004, OSWER Directive 9902.3-2A, May 1994, incorporated herein. The CMCC Report shall, at a minimum, include the following:

1. Description of the purpose of the CMCC Report;

2. Synopsis of the corrective measure, design criteria and certification that the corrective measure was constructed in accordance with the final plans and specifications as contained in the EPA-approved CMI Work Plan;

3. Explanation and description of any modifications to the EPA-approved CMI Work Plan and specifications and why these were necessary for the project;

4. Results of any operational testing and/or monitoring indicating how initial operation of the corrective measure compares to the design criteria;

5. Summary of significant activities that occurred during construction, including a discussion of problems encountered and how they were addressed;

6. Summary of any inspection findings (include copies of key inspection documents in appendices); and

7. As-built drawings and photographs depicting the constructed corrective measure(s).

IX.Q. CORRECTIVE MEASURES IMPLEMENTATION ANNUAL REPORT

For each SWMU or AOC with a final remedy selected under RCRA, the Permittees shall submit a Corrective Measures Implementation (CMI) Annual Report to the Director no later than March 1 of each year of the prior year's performance of the corrective measure(s), including IC's. The CMI Annual Report shall include documentation of all samples and data collected and their analysis and an evaluation of both the short-term and long-term effectiveness of the corrective measure(s). The CMI Annual Report shall identify any deficiencies or violations of engineering controls or institutional controls determined from inspections, maintenance and monitoring required by the remedy. Based upon the Director's review of the report, the Director may require the Permittees to conduct additional investigation, study and/or work in order to modify an existing corrective measure or to select new corrective measure(s). If action is needed to protect human health or the environment from releases or to prevent or minimize the further spread of contamination while long-term remedies are pursued, the Director may require the Permittees to implement Interim Measures pursuant to Permit Condition IX.D. The Permittees must still report all instances of non-compliance as required elsewhere by this Permit.

IX.R. CORRECTIVE MEASURES IMPLEMENTATION FIVE-YEAR REVIEW

IX.R.1. For each SWMU or AOC with a final remedy selected under RCRA, the Permittees shall submit to the Director a 5-Year Corrective Measures Performance Evaluation Report every five years starting five years after the Director's selection of a final remedy. The evaluation shall be consistent with the *CERCLA Comprehensive Five-Year Review Guidance, OSWER 9355.7-03B-P,* July 17, 2001 and any subsequent revisions or additions, and include the following:

a. An evaluation of the effectiveness of corrective measures in protecting human health and the environment;

b. An evaluation of the effectiveness of any applicable engineering controls and institutional controls in protecting human health and the environment;

c. The results of sampling and analysis to determine the effectiveness and performance of the corrective measures;

d. Identification of any changed circumstances that render the corrective measure, including engineering controls and institutional controls, ineffective;

e. Possible modifications to the corrective measures to provide necessary protection; and

f. Any other reporting requirements included in the EPA-approved CMI Work Plan.

IX.R.2. Based upon the Director's review of the report, the Director may require the Permittees to conduct additional investigation, study and/or work in order to modify an existing corrective measure or to select new corrective measure(s). If action is needed to protect human health or the environment from releases or to prevent or minimize the further spread of contamination while long-term remedies are pursued, the Director may require the Permittees to implement Interim Measures pursuant to Permit Condition IX.D.

IX.S. CORRECTIVE MEASURE COMPLETION REPORT

IX.S.1. The Permittees shall submit a Corrective Measures Completion (CMC) Report to the Director within 90 days of the completion of all remedial activities required by Permit Condition IX for each RCRA-selected remedy. The CMC shall be consistent with the *RCRA Corrective Action Plan*, EPA 520-R-94-004, OSWER Directive 9902.3-2A, May 1994, and *Guidance for Evaluating Completion of Groundwater Restoration Remedial Actions*, OSWER 9355.0-129, November 25, 2013, both incorporated herein. The purpose of the CMC Report is to fully document how the corrective measure completion criteria have been satisfied and to justify why the corrective measure and/or monitoring may cease. The CMC Report shall, at a minimum, include the following elements:

a. Purpose and synopsis of the corrective measure;

b. Corrective Measure Completion Criteria- describe the process and criteria for determining when corrective measures, maintenance and monitoring may cease;

c. A demonstration that the completion criteria have been met, including results of testing and/or monitoring indicating how operation of the corrective measure compares to the completion criteria;

d. Summary of work accomplishments (e.g., performance levels achieved, total treated and/or excavated volumes, nature and volume of wastes generated, etc.);

e. Summary of significant activities that occurred during operations, including a discussion of problems encountered and how they were addressed;

f. Summary of inspection findings (include copies of key inspection documents in appendices); and

g. Summary of total operation and maintenance costs.

IX.S.2. The Director will review the CMC Report for approval in accordance with the procedures set forth in Permit Condition II.H.

IX.S.3. The requirements for institutional controls and engineering controls shall be maintained as specified in this Permit and shall not be terminated until the Director has determined that the concentration of hazardous constituents in the soil and groundwater are at such levels to allow for unlimited use and unrestricted exposure.

IX.T. CHANGE IN PROPERTY USE

If property use restrictions are included as a part of any RCRA-selected corrective measures, before the property use can be changed, the Permittees shall submit a request for a Permit modification to include a new risk assessment and/or corrective measures study that addresses potential exposures associated with the proposed property use. Changes in corrective measures shall be selected in accordance with procedures in Permit Condition IX.K.1. Upon the Director's final selection and modification into the Permit, the Permittees shall implement the new corrective measure.

IX.U. ADDITIONAL WORK

If at any time during implementation of corrective action under this Permit the Director determines that additional work is necessary to accomplish the corrective action required under this Permit, the Director will provide written notification to the Permittees of the requirement for additional work to be performed by the Permittees. The Director may determine that certain tasks, including, but not limited to, investigatory work or engineering evaluation are necessary in addition to the tasks and deliverables already required under this Permit. The Director will specify the basis for his determination that the additional work is necessary and will request submittal of a draft work plan to perform the additional work. The Permittees shall submit the requested work plan within 60 days of the Director's request. Upon the Director's approval, the Permittees shall perform the additional work according to the EPA-approved work plan. The completion of the additional work, as specified in this Permit Condition, shall be documented by the Permittees in accordance with the approved schedule for the additional work.

IX.V. RECORDKEEPING

IX.V.1. The Permittees shall preserve and retain all non-identical copies of data (including those in electronic form), information, plans, work plans, reports (including the last draft or final version of any plans, work plans or reports), correspondence now in its possession or control or that come into its possession or control, or generated during the performance of Permit Condition IX, that relate in any manner to Permit Condition IX during the term of this Permit, the term of continuation of this Permit and the term of any reissued Permit.

IX.V.2. The Permittees shall instruct their contractors and agents to preserve and retain, during the term of the contract or agreement, all non-identical copies of data (including those in electronic form), information, plans, work plans, reports (including the last draft or final version of any plans, work plans or reports), correspondence in their possession or control, or that come into their possession or control, or generated during the performance of Permit Condition IX, that relate in any manner to Permit Condition IX regardless of any record or information retention policy to the contrary.

IX.V.3. The Permittees shall obtain from their contractors and agents all non-identical copies of data (including those in electronic form), information, plans, work plans, reports (including the last draft or final version of any plans, work plans or reports), correspondence in their possession or control, or that come into their possession or control, or generated during the performance of Permit Condition IX, that relate in any manner to Permit Condition IX prior to the expiration or termination of the contract or agreement.

IX.V.4. The Permittees shall retain the information in Permit Condition IX.V regardless of any record or information retention policy to the contrary.

IX.V.5. The Permittees shall comply with 40 C.F.R. § 267.74(a) for the availability and 40 C.F.R. § 267.74(b) for the automatic extension of this record retention period.

IX.V.6. At the conclusion of this record retention period, the Permittees shall notify the Director at least 90 days prior to the destruction of any such Records, and upon request by the Director, the Permittees shall deliver any such records to the Director.

X. FACILITY SUBMISSION SUMMARY

The following is a summary table of requirements under this Permit. The summary description does not modify or change the requirements of any Permit Condition. Omission of an item from this table or typographical error of an item does not modify or change the requirements of any Permit Condition. Nothing in this table shall toll, suspend or excuse compliance with a submittal requirement.

SUBMITTAL	DUE DATE	PERMIT CONDITION
Permit Modification Report	Annually, on the effective date of the Permit	II.C.4
Notification to New Owner or Operator of Permit Requirements	At least 90 days prior to anticipated date of transfer of ownership or operation	II.C.5.a
Permit Application	At least 180 days prior to expiration of this Permit	II.E.2
Information/Records	Within 30 days of a request from the Director	II.E.7
Notice of Planned Changes	At least 30 days prior to any planned physical alterations or additions to the Facility	II.E.10
Notice of Anticipated Noncompliance	At least 30 days prior to any planned changes which may result in noncompliance	II.E.11.a
Notice of Compliance/Noncompliance	Within 14 days following each scheduled completion date	II.E.13
Verbal Report of Noncompliance	Within 24 hours after Permittees become aware of the circumstances	II.E.14.a
Written Notice of Noncompliance	Within five days after Permittees become aware of circumstances	II.E.14.c
Report of Other Noncompliance	Within 30 days of occurrence	II.E.15.a
Other Information	Within seven days of discovery	II.E.17
Electronic Submittals	Within 30 days of a request from the Director	II.F.2

SUBMITTAL	DUE DATE	PERMIT CONDITION
Response to "For Official Use" Document	Within 16 working days of a public request	II.G.2
Submittal of Permit Modification to Incorporate Revised Documents	Within 14 days of the Director's approval of the document	II.H.7
Submittal of Dispute	Within 10 days of receipt of disputed decision	II.I.1
New Waste Analysis Plan	If needed and within 90 days of issuance of the Permit	III.C.2
Refusal of arrangements by local authorities	Within five days of a refusal	III.H.6
Reports of fires, explosions or any unplanned sudden or non-sudden release of hazardous waste or waste constituents	Within five days of each occurrence	III.I.6
Biennial Report	By March 1st of even numbered years	III.K.2
Notice of closure	At least 45 days prior to date Permittees expect to begin closure	III.L.3
Waste Minimization Certification	Annually, on the effective date of the Permit	III.N.1
Report of Noncompliance with Air Emission Requirements for Containers	Within six months of the noncompliance event	IV.L
Open Burning Unit Secondary Containment Design Package	Within 24 months of the Permit's effective date	V.B.2
Open Burning Unit Construction Certification and As-Built Report	Within 24 months of the Permit's effective date	V.D.2
Annual Open Burning Waste Treatment Certification	Annually, one year after Permit issuance	V.E.4
Class 1 Modification for Revision to Open Burning SOP	Within 14 days of a revision or update to Open Burning SOP	V.F.3

SUBMITTAL	DUE DATE	PERMIT CONDITION
Open Burning Release Detection Monitoring SOP	Within six months of the Permit's effective date	V.H.1
Open Burning Release Detection Sampling Event Report	Within 60 days of sample collection	V.H.2
Open Burning Air Monitoring Plan	Within six months of the Director's request	V.H.3
Open Burning Release Detection Response Action work plan	Within six months of the Permit's effective date	V.H.4
Open Burning Release Detection Response Action Report	Within 60 days of completion of each response action	V.H.5
Open Burn Area Risk Assessment Work Plan	Within 90 days of the Director's request	V.J.1
Open Burning Technology Assessment Report	Every five years, beginning four years after Permit issuance	V.K
Annual Open Detonation Waste Treatment Certification	Annually, one year after Permit issuance	VI.D.3
Class 1 Modification for Submittal of Open Detonation SOP	Within 30 days of Permit Issuance	VI.E.3
Open Detonation Release Detection Monitoring work plan	Within six months of the Permit's effective date	VI.G.1
Open Detonation Release Detection Sampling Event Report	Within 60 days of completing any response action	VI.G.2
Open Detonation Air Monitoring Plan	Within six months of the Director's request	VI.G.3
Open Detonation Release Detection Response Action work plan	Within six months of the Permit's effective date	VI.G.4
Open Detonation Release Detection Response Action Report	Within 60 days of completion of a response action	VI.G.5
Open Detonation Area Risk Assessment Work Plan	Within 90 days of the Director's request	VI.I.1

SUBMITTAL	DUE DATE	PERMIT CONDITION
Open Detonation Technology Assessment Report	Every five years, beginning four years after Permit issuance	VI.J
Annual 40mm Open Detonation Waste Treatment Certification	Annually, beginning one year after Permit issuance	VII.D.4
40mm Grenade Open Detonation SOP and Class 1 Modification Request to Include 40mm Open Detonation SOP	Within 30 days of Permit issuance	VII.E.2
Class 1 Modification for Revision to 40mm Open Detonation SOP	Within 14 days of a revision or update to the 40mm Open Detonation SOP	VII.E.3
40mm Open Detonation Release Detection Monitoring work plan	Within six months of the Permit's effective date	VII.G.1
40mm Open Detonation Release Detection Sampling Event Report	Within 60 days of sample collection	VII.G.2
40mm Open Detonation Air Monitoring Plan	Within six months of the Director's request	VII.G.3
40mm Open Detonation Release Detection Response Action work plan	Within six months of the Permit's effective date	VII.G.4
40mm Open Detonation Release Detection Response Action Report	Within 60 days of completion of a response action	VII.G.5
40mm Open Detonation Area Risk Assessment Work Plan	Within 90 days of the Director's request	VII.I.1
40mm Open Detonation Technology Assessment Report	Every five years, beginning four years after Permit issuance	VII.J
Permit Modification for Post-Closure Plan Changes	Within 60 days of any event compelling a change in the post-closure plan	VIII.E.2
Modified Post-Closure Plan and Permit Modification to Incorporate Modified Post-Closure Plan	Within 60 days of the Director's request	VIII.E.3
Notice of Groundwater Monitoring System Field Work	At least 30 days prior to start of field work	VIII.G.3.b

SUBMITTAL	DUE DATE	PERMIT CONDITION
Permit Modification for Groundwater Monitoring System Changes	Within 60 days of any change	VIII.H.3
Appendix IX Sampling Results	Within 14 days of receiving analytical data	VIII.I.5
Notice of Statistically Significant Increase	Within seven days of determination of statistical increase	VIII.I.6
Permit Modification for Changes to Compliance Monitoring Program	Within 30 days of determination of statistical increase	VIII.I.6.b
Notice of Intent to Demonstrate Detection Groundwater Monitoring Artifact	Within seven days of determination of statistical increase	VIII.I.6.c.i
Report of Demonstration of Detection Groundwater Monitoring Artifact	Within 90 days of notification of intent to demonstrate groundwater monitoring artifact	VIII.I.6.c.ii
Permit Modification for Changes to Detection Monitoring Due to Groundwater Monitoring Artifact	Within 90 days of notification of intent to demonstrate groundwater monitoring artifact	VIII.I.6.c.iii
Permit Modification for Changes to Address Inadequate Detection Monitoring Program	Within 90 days of the Permittees' determination that the Detection Monitoring Program is no longer adequate	VIII.I.7
Notice of Intent to Demonstrate Compliance Groundwater Monitoring Artifact	Within seven days of determination that groundwater protection standard exceedance may be an artifact	VIII.J.4.e.i
Report of Demonstration of Compliance Groundwater Monitoring Artifact	Within 90 days of notification of intent to demonstrate groundwater monitoring artifact	VIII.J.4.e.ii
Permit Modification for Changes to Compliance Monitoring Due to Groundwater Monitoring Artifact	Within 90 days of notification of intent to demonstrate groundwater monitoring artifact	VIII.J.4.e.iii
Notice of Exceedance of Groundwater Protection Standard	Within seven days of groundwater protection standard exceedance	VIII.J.5.a

SUBMITTAL	DUE DATE	PERMIT CONDITION
Permit Modification to Add Wells and Constituents to Corrective Action Monitoring Program	Within 30 days of a groundwater protection standard exceedance	VIII.J.5.b
Permit Modification for Changes to Address Inadequate Compliance Monitoring Program	Within 90 days of the Permittees' determination that the Compliance Monitoring Program no longer adequate	VIII.J.6
Permit Modification to Change the Corrective Action Monitoring Program	Within 90 days of the Director's notice	VIII.K.3.g
Permit Modification to Remove Hazardous Constituents	Within 90 days of the Permittees' determination that the Corrective Action Monitoring Program no longer satisfies regulatory requirements	VIII.K.3.i
Annual Trench 5 Groundwater Monitoring Report	No later than September 30th of each year	VIII.M.1
Notice of Newly-Identified SWMUs, AOCs & Releases	Within 15 days after discovery	IX.C.1
SWMU/AOC/Release Assessment Work Plan	Within 60 days of the Director's notice	IX.C.3
SWMU/AOC/Release Assessment Report	According to the schedule dates in the EPA-approved SWMU/AOC/Release Assessment Work Plan	IX.C.6
Notice of Interim Measure/Stabilization	Within 24 hours of the Permittees' discovery of a situation that requires interim measures, stabilization or both	IX.D.2
Interim Measure/Stabilization Work Plan	Within 30 days of the Director's notice	IX.D.4
Notice of Interim Measure/Stabilization Not Effective	Within 10 days of the Permittees' determination	IX.D.5
RFI Work Plan	Within 90 days of the Director's request	IX.E.3
Notice of RFI Field Work	At least 30 days prior to the start of field work	IX.F.1

SUBMITTAL	DUE DATE	PERMIT CONDITION
RFI Report	According to the schedule(s) in the EPA-approved RFI Work Plan	IX.G.1
CMS Work Plan	Within 60 days of the Director's notice	IX.H.3
Notice of CMS Field Work	At least 30 days prior to the start of field work	IX.I.2
CMS Report	According to the schedule in the EPA-approved CMS Work Plan	IX.J.1
CMI Work Plan	Within 60 calendar days of the Director's selection of a final remedy/corrective measure	IX.N.1
Adding sites to Facility-wide Institutional Control Plan	Within 120 days of any final remedies requiring institutional controls	IX.N.3
Notice of CMI Field Work	At least 30 days prior to start of field work	IX.O.2
Corrective Measure Construction Completion Report	According to the schedule in the EPA-approved CMI Work Plan	IX.P
CMI Annual Report	By March 1st of each year	IX.Q
CMI 5-year Review	Every five years after the Director's selection of a final remedy/corrective measure	IX.R
Corrective Measure Completion Report	Within 90 days of completion of all remedial activities	IX.S.1
Additional Work	Within 60 days of the Director's notice	IX.U
Notice of Record Destruction	At least 90 days prior to the destruction of any records	IX.V.6

PERMIT ATTACHMENT I-1 – FACILITY FIGURES

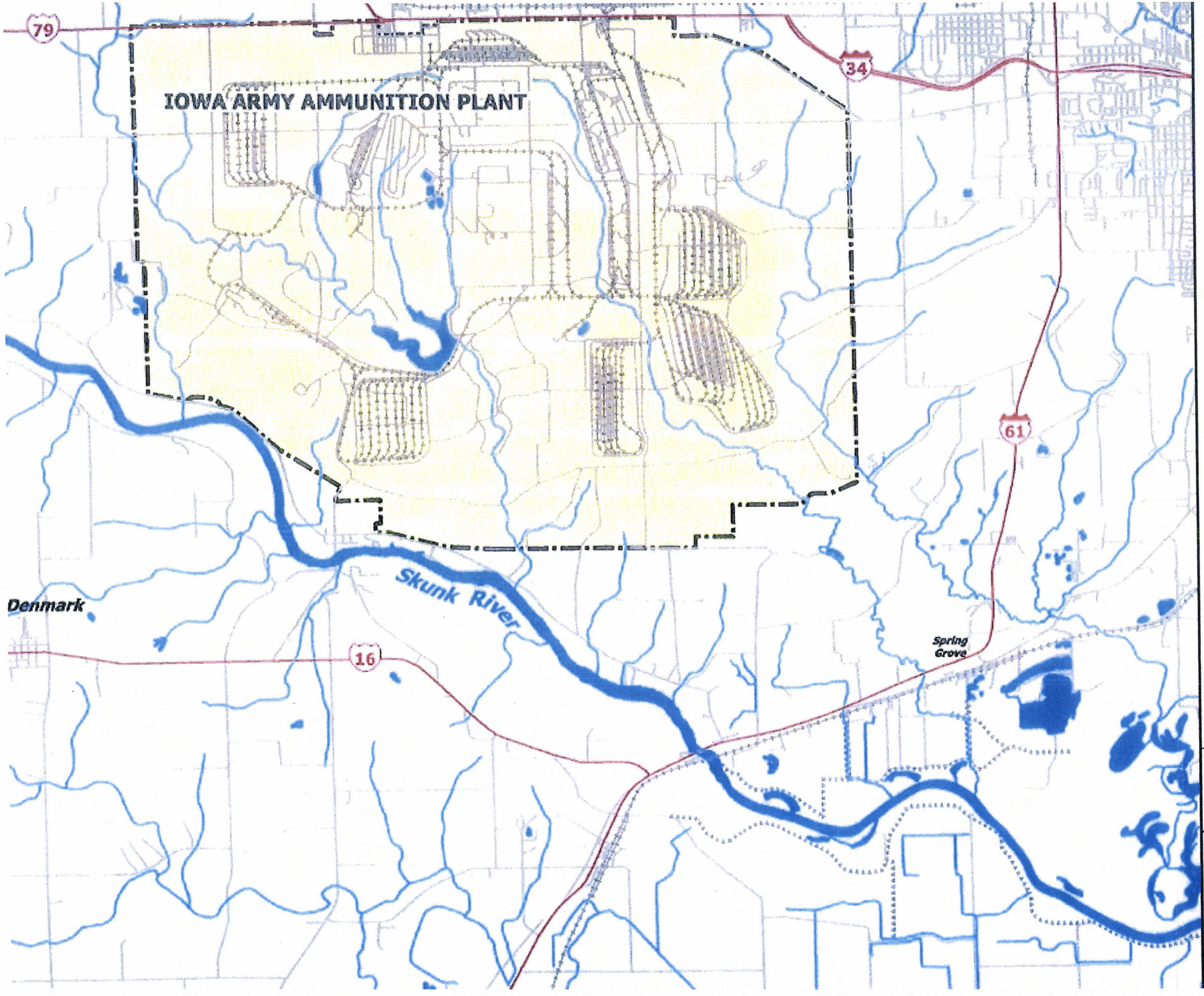


FIGURE 1

Facility Location Map

BILL OF MATERIAL				
PC	REQ.	MATL.	MATL. REF.	DESCRIPTION

Inert Disposal Area

Igloo C-13

Open Burn Pans & 40mm Detonation Chamber

Open Detonation Pits

LEGEND

- PRIMARY ROAD
- SECONDARY "
- TERTIARY "
- ABANDONED "
- RAILROADS
- FENCE LINE
- SECTION LINE
- BOUNDARY
- TRANSMISSION LINE
- ROAD BARRICADES
- BRIDGES (HIGHWAY) H22
- BRIDGES (RAILROAD) RR1
- CEMETERIES

SCALE

0 500 1000 2000 3000 4000 5000

ONE INCH EQUALS 1000 FEET

UTM GRID ZONE-15T

REV.	DATE	BY	CHECK	DESCRIPTION	APPROVED BY	DATE
6	8-11 93	JK		REVISED AND REDRAWN		

REVISIONS

TOLERANCES UNLESS OTHERWISE NOTED
FRACTIONAL:
DECIMAL:
ANGULAR:
ALL DIMENSIONS ARE IN INCHES

DRAWN: T.G. SCALE: 1"=1000'
DESIGN:

ORIGINAL APPROVAL	DATE
J. E. Jamison	J. E. J.
R. D. Brewer	R. D. B.
M. H. Wegener	
G. K. Mathes	

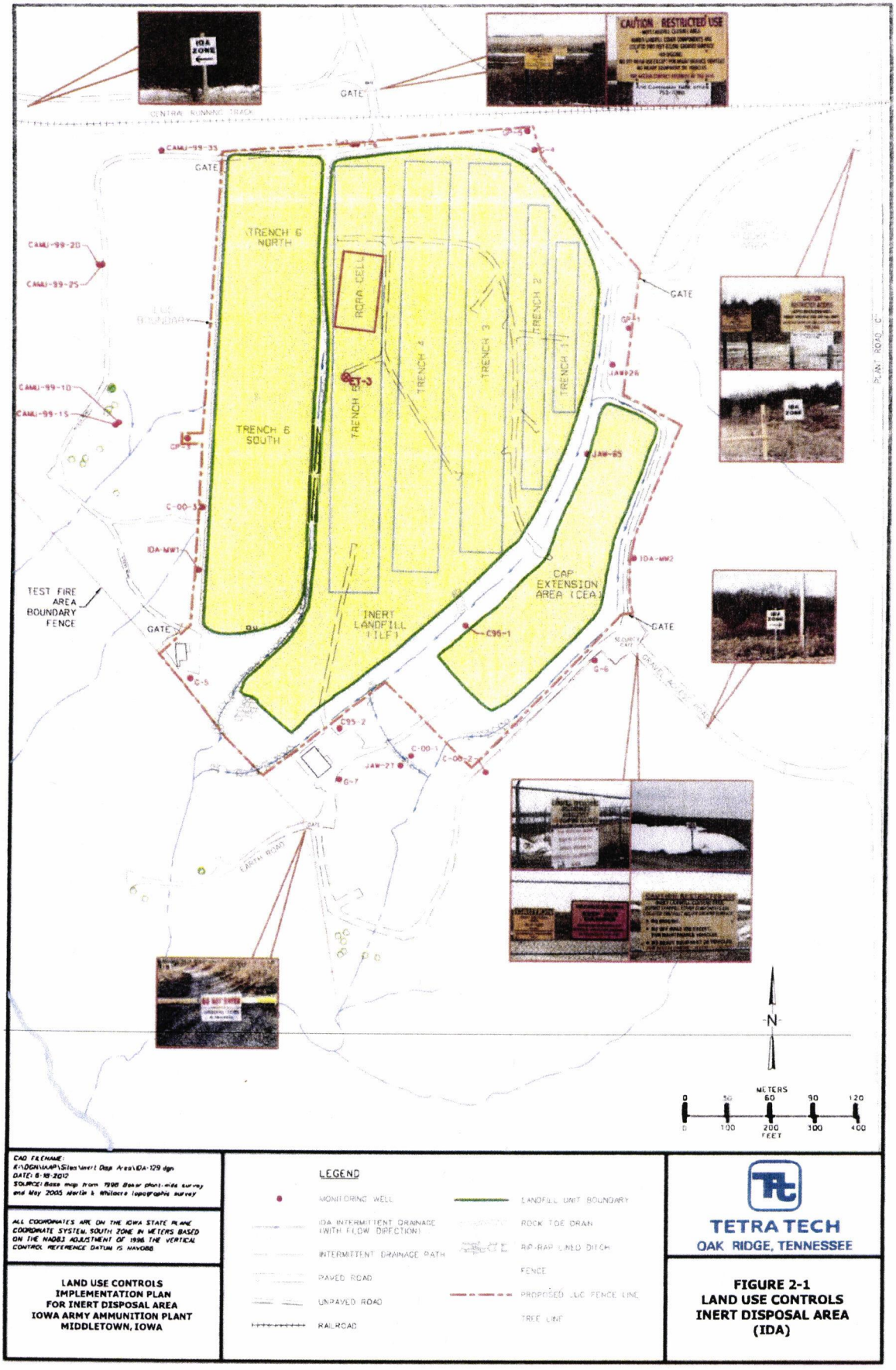
Mason & Hanger–Silas Mason Co., Inc.
ENGINEERS OPERATORS OF CONTRACTORS
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA 52638-9701

GENERAL AREA DIMENSIONED LAYOUT

FILE NO. 2923	PROJ.	CHG. NO.	ITEM
DATE 7/3/69	DWG. NO. G-W-9001	REV. 6	SHT. 1 OF 1

Figure 2

Figure 3



CAD FILENAME:
K:\DGN\MAP\Site\Inert Disp Area\IDA-129.dgn
DATE: 6-19-2012
SOURCE: Base map from 1996 Base plant-wide survey and May 2005 Martin & Whitacre topographic survey

ALL COORDINATES ARE ON THE IOWA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE IN METERS BASED ON THE NAD83 ADJUSTMENT OF 1996. THE VERTICAL CONTROL REFERENCE DATUM IS NAVD88

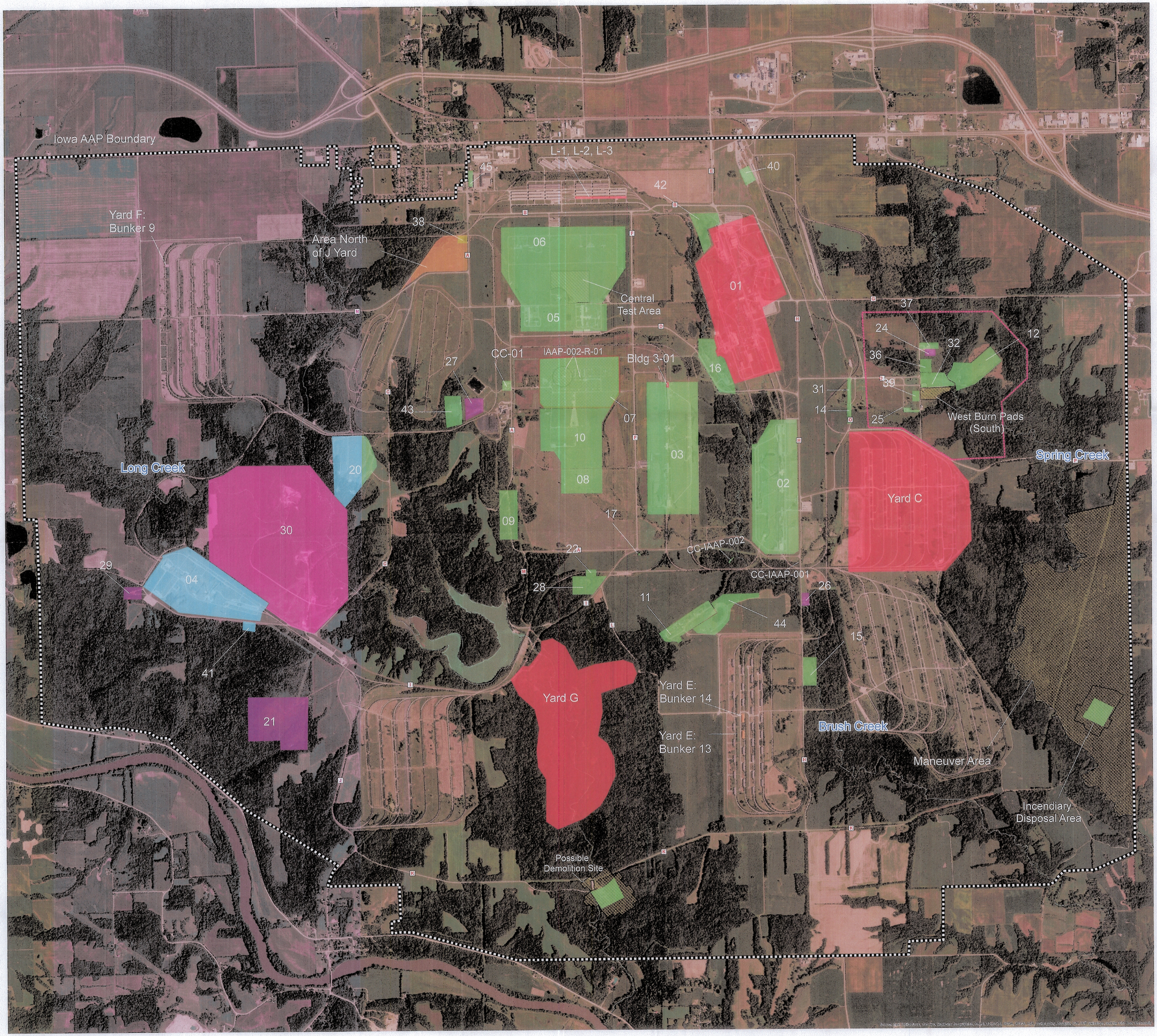
LAND USE CONTROLS IMPLEMENTATION PLAN FOR INERT DISPOSAL AREA IOWA ARMY AMMUNITION PLANT MIDDLETOWN, IOWA

LEGEND

- MONITORING WELL
- IDA INTERMITTENT DRAINAGE (WITH FLOW DIRECTION)
- INTERMITTENT DRAINAGE PATH
- PAVED ROAD
- UNPAVED ROAD
- RAILROAD
- LANDFILL UNIT BOUNDARY
- ROCK TOE DRAIN
- RIP-RAP LINED DITCH
- FENCE
- PROPOSED LUC FENCE LINE
- TREE LINE

TETRA TECH
OAK RIDGE, TENNESSEE

FIGURE 2-1
LAND USE CONTROLS
INERT DISPOSAL AREA
(IDA)



Legend

- Plant Boundary
- Plant Roads
- Explosive Disposal Area Boundary
- creeks

IAAP Site Designations

- Additional FUSRAP Screening Sites
- Compliance Cleanup
- IRP
- FUSRAP
- MMRP

IAAP Restoration Sites

- Area North of J Yard
- Yard E: Bunker 13
- Yard E: Bunker 14
- Yard F: Bunker 9
- Building 3-01
- West Burn Pads South of the Road
- L-1, L-2, L-3
- Yard C
- Yard G
- IAAP-001 Line 1
- IAAP-002 Line 2
- IAAP-003 Line 3
- IAAP-004 Line 3A
- IAAP-005 Line 4A & 4B
- IAAP-006 Line 5A & 5B
- IAAP-007 Line 6
- IAAP-008 Line 7
- IAAP-009 Line 8
- IAAP-010 Line 9
- IAAP-011 Line 800
- IAAP-012 East Burn Pads
- IAAP-013 Incendiary Disposal Area
- IAAP-014 Boxcar Unloading Area
- IAAP-015 Old Flyash Waste Pile
- IAAP-016 Line 1 Former Wastewater Impoundment
- IAAP-017 Pesticide Pit
- IAAP-018 Possible Demolition Site
- IAAP-020 Inert Disposal Area
- IAAP-021 Demolition Area / Deactivation Furnace
- IAAP-022 Unidentified Substance (Oil) Waste Site
- IAAP-024 Contaminated Waste Processor
- IAAP-025 Explosive Waste Incinerator
- IAAP-026 Sewage treatment Plant / Drying Beds
- IAAP-027 Flyash Landfill (Bld. 400-139)
- IAAP-028 Construction Debris Landfill
- IAAP-029 Line 3A Sewage Treatment Plant
- IAAP-030 Firing Site Area
- IAAP-031 Yard B Ammo Box Chipper Disposal Pit
- IAAP-032 West Burn Pads Area
- IAAP-036 North Burn Pads (2)
- IAAP-037 North Burn Pads Landfill
- IAAP-038 Building 600-86 Septic System
- IAAP-039 Fire Training Pit
- IAAP-040 Roundhouse Transformer Storage Area
- IAAP-041 Line 3A Pond
- IAAP-042 Abandoned Coal Storage Yard
- IAAP-043 Fly Ash Disposal Area
- IAAP-044 Line 800 Pinkwater Lagoon
- IAAP-045 Former Fuel Station USTs
- IAAP-047 Central Test Area
- CC-01 Contaminated Clothing Laundry
- CC-IAAP-001 Construction Debris Site 1
- CC-IAAP-002 Construction Debris Site 2

MMRP Sites

- IAAP-001-R-01 Central Test Area
- IAAP-002-R-01 Line 6 Blast Radii
- IAAP-002-R-02 Line 6 Outside Blast Radii
- IAAP-003-R-01 West Burn Pads Area (North)
- IAAP-004-R-01 Possible Demolition Site
- IAAP-005-R-01 West Burn Pads Area (South)
- IAAP-006-R-01 Incendiary Disposal Area
- IAAP-006-R-02 Maneuver Area

0 0.225 0.45 0.9 Miles

N

Map Date: 30 August 2016

Basemap: Esri & Suppliers

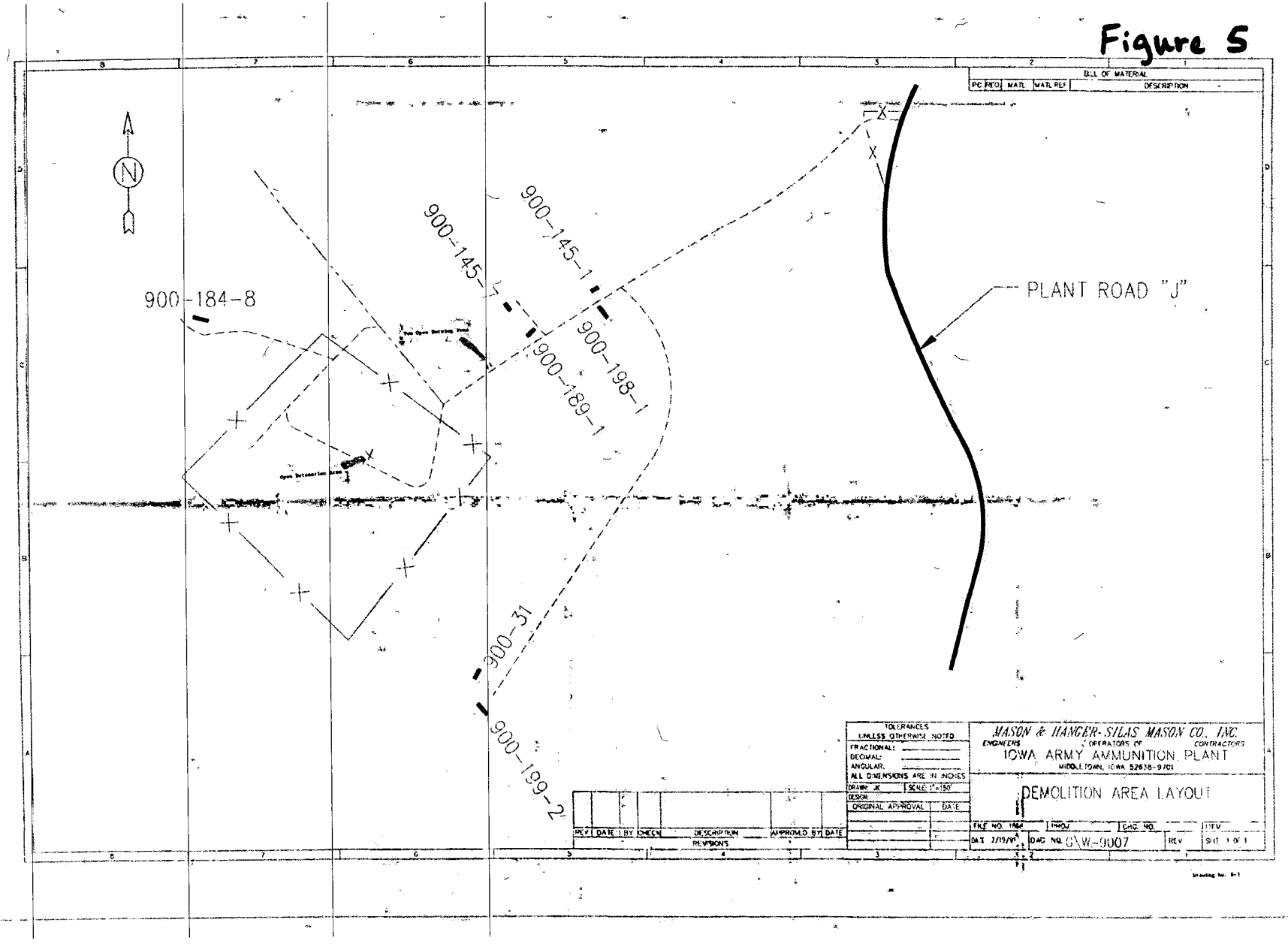
(World Imagery provides one meter or better satellite and aerial imagery in many parts of the world and lower resolution satellite imagery worldwide.)

ENVIRONMENTAL CLEANUP SITE MAP

IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA

Figure 4

Figure 5


N
900-184-8
900-145-2
900-145-1
900-189-1
900-198-1
900-31
900-199-2
PLANT ROAD "J"
BILL OF MATERIAL
PC NO. | MATL | MATL REF | DESCRIPTION
TOLERANCES UNLESS OTHERWISE NOTED
FRACTIONAL:
DECIMAL:
ANGULAR:
ALL DIMENSIONS ARE IN INCHES
DRAWN JK | SCALE 1"=150'
DESIGN
ORIGINAL APPROVAL | DATE
REV | DATE | BY | CHECK | DESCRIPTION | APPROVED BY | DATE
REVISIONS
MASON & HANGER-SILAS MASON CO., INC.
ENGINEERS OPERATORS OF CONTRACTORS
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA 52638-9701
DEMOLITION AREA LAYOUT
FILE NO. 1984 | PROJ | CAG. NO. | ITEM
DAT 2/19/91 | DAG NO. GW-9007 | REV | SHT 1 OF 1

PERMIT ATTACHMENT III-1 – WASTE ANALYSIS PLAN

SECTION D WASTE CHARACTERISTICS

Building Nos: BG-12 and C-13 will be utilized for the storage of non-useable, bulk explosive waste scrap generated from production operations, waste pressed explosives/components from production, small munitions items derived from production and demilitarization programs, spent carbon, diatomaceous earth and sludge from explosive wastewater treatment facilities.

D-1 Chemical and Physical Analysis

Chemical and physical analyses of the hazardous waste material will not be performed prior to entering the waste into Building Nos. BG-12 and C-13 for storage nor immediately following the removal of the waste from the buildings for off-site treatment or recovery. Hazardous wastes stored in Building Nos. BG-12 and C-13 are considered to be known wastes attributed to process knowledge of the sources producing the wastes. All of the hazardous wastes stored are reactive due to explosive content. Some of the small munitions items derived from production and demilitarization programs, in addition to being reactive, also contain metals in excess of TCLP limits. As shown in Table D-1, the identified hazardous wastes stored in Building Nos. BG-12 and C-13 may be coded simply reactive (D003) waste or the waste may be coded as a specific waste code such as K044, K045 and D030 and TCLP codes where appropriate. All of the wastes are shipped off-site for treatment with the exception of explosive contaminated carbon (waste code K045) which is recovered and returned to the IAAAP for use.

D-2 Waste Analysis Plan

The Waste Analysis Plan for hazardous wastes to be stored in Building Nos. BG-12 and C-13 is shown on Table D-1.

TABLE D – 1 WASTE ANALYSIS PLAN
Identification of Hazardous Wastes
To Be Stored in Building Nos. BG-12 and C-13

Wastes Generated On-Site	Process Generating the Waste	Basis For Hazard Classification	EPA Waste Code	Hazardous Properties of Wastes	Waste Water Status	Waste Analysis Criteria	On-Site Storage Facility	On-Site Treatment Facility	LDR Treatment Final Off-Site Disposition	Comments
Spent Carbon from Explosive Wastewater	Explosive Contaminated Carbon from Production Wastewater Treatment Facilities	Process Knowledge Testing	K045 D030	Reactive	NWW	2,4 DNT Present	Bldg. BG-12 Bldg. C-13	N/A	Regenerated	Carbon Changed When Explosive Contamination Reaches Predetermined Levels.
Diatomaceous Earth from Explosive Wastewater Treatment	Diatomaceous Earth (filter)	Process Knowledge Testing	K044 D030	Reactive	NWW	2,4 DNT Present	Bldg. BG-12 Bldg. C-13	None	Incineration	Diatomaceous Earth Changed When Filter Pressure Gauge Indicates.
Bulk Explosive Waste Scrap	Non-useable Explosive Waste from Production Operations	Process Knowledge Testing	D003 D030	Reactive	NWW	Reactivity Characteristic	Bldg. BG-12 Bldg. C-13	None	Incineration	
Waste Pressed Explosives	Waste Explosive Components from Production	Process Knowledge Testing	D003	Reactive	NWW	Reactivity Characteristic	Bldg. BG-12 Bldg. C-13	None	Incineration	
Sludge from Explosive Wastewater Treatment	Explosive Wastewater Treatment Facilities-Production Operations	Process Knowledge Testing	K044 K030	Reactive TCLP	NWW	Reactivity Characteristics TCLP	Bldg. BG-12 Bldg. C-13	None	Incineration	
Small Munition Items	Production Processes, Demilitarization Program	Process Knowledge	D003, D005, D006, D007, D008, D009	HMX, RDX, TNT, TCLP	NWW	Hazardous Characteristics TCLP	Bldg. BG-12 Bldg. C-13	None	Incineration	

PERMIT ATTACHMENT III-2 – SECURITY PLAN

SECTION G PROCEDURES TO PREVENT HAZARDS

This section describes the procedures to prevent hazards for the entire Iowa Army Ammunition Plant. These procedures are generic in nature and one or more of the procedures may apply to Building No. C-13 as applicable.

G-1 Security Procedures and Equipment

The IAAAP Plant Protection Plan details the security procedure in operation at the facility. This plan provides a sophisticated system including sign-in procedures, security police, security badges and control barriers to restrict movement of unauthorized persons onto and within the facility.

G-1(a) 24 Hour Surveillance System

Mobile security police routinely patrol the installation on a 24 hours basis, seven days per week. Regular patrols are conducted in Yard C where Building No. C-13 is located. Schedules and procedures of surveillance are confidential.

G-1(b) Barriers

The north IAAAP facility fence perimeter boundary, a portion of the east perimeter boundary and a small area around an access gate along the south boundary are enclosed by 6-foot high cyclone fences topped by 2 feet of barb wire. The fence around the remaining portions of the facility consists of either 3 to4 feet woven wire fence topped with barbed wire or a fence consisting of 4 to 5 strands of barbed wire. Access to the installation is controlled by entrance through designated gates with security police assigned to the gates during active installation hours. When security police are not at the designated entrance gates the gates are locked.

In addition to the IAAAP facility boundary, Building No. C-13 is located in Yard C which is enclosed by a 7-foot high cyclone fence topped by 3 strands of barbed wire. Entrance to Yard C is through an unmanned sliding age secured with a high security lock. Only a limited number of personnel are assigned to the list for yard gate keys which must be checked out from the Security Police Headquarters. In addition, Building No. C-13 is secured by a high security lock. The key for this lock is independent is independent from gate keys or other building keys. These keys are available only to personnel whose names are on a pre-approved listing of individuals eligible to checkout specific key located at the Security Department Headquarters.

G-1(c) Means to Control Entry

All persons entering the IAAAP facility must wear, on their person, a security badge. The badge identifies the individual as an employee or visitor and indicates areas of the facility which may be assessed.

Visitors are issued security badges upon proper authorization and registration. Visitor sign-in requirements include the logging of the following information on Form SEC-0070 dated 10/11: name, signature, home agency, purpose of visit, areas to be visited, U.S. citizen (yes or no), date and time in and date and time out.

Visitor sign-in requirements may also include a picture identification badge for positive identification. All visitors entering the confines of the installation are subject to search both their vehicles and packages which may contain items contraband as follows: firearms and ammunition, strike-anywhere matches, explosives, intoxicants, narcotics and drugs. In addition, to the above, matches, lighters or flammable items are not permitted in any fence limited or restricted area. Anyone having authorization may have a camera, recording device or binoculars in their possession in any except limited areas without a pass to take pictures of wildlife, landscape and similar pictures. Cameras, recording devices and binoculars require obtaining a Prohibited Article Pass when entering a limited which consists of active production lines and Yard C.

A security check using the FBI database will be conducted by AO Security on visitors needing access to limited areas. Additional restrictions will apply to all visits requested by Foreign visitors.

G-1(d) Warning Signs

Posted at key points of the facility perimeter, signs bearing the legend Warning Authorized Personnel Only serve to notify persons of the access restrictions to the installation. At each hazardous waste management unit, a sign is legible from 25 feet and conspicuously posted with the legend: Danger Unauthorized Keep Out.

G-2 Inspection Schedule

G-2(a) General Inspection Requirements

All equipment checks and procedures for general safety and emergency equipment have been incorporated into inspection schedules performed routinely at the IAAAP. These inspections are intended to ensure standard operations of IAAAP waste handling, storage and treatment facilities and to ensure readiness of equipment and supplies in the event of an emergency.

All equipment and supplies used to prevent and control fire hazards are routinely inspected by the Fire Department. The inspection requirements for safety and fire equipment is presented in Table G-1 (on Page G-3).

TABLE G-1

INSPECTION FOR SAFETY AND EMERGENCY EQUIPMENT

Note: Inspection Requirements shall not apply to facilities in layaway status in accordance with Permit Condition II.E.3.

ITEM NO.	ITEM DESCRIPTION	TYPE OF PROBLEM	FREQUENCY
1	Automatic Building Alarms	Test for alarm	Monthly
2	HAD's Heat Detectors, Smoke Detectors	Test for alarm	Semi-annually
3	Fire Phones	Test for operation	Monthly
4	Hydrants	Check valve operation & weep hole	Annually
5	Fire Hoses	Pressure test	Annually
6	Fire Hoses	Inspect for wear	Annually
7	Building Extinguishers	Inspect for recharge of units	Monthly
8	Mobile Extinguishers	Inspect for recharge of units	Monthly
9	Fire Trucks	Engine performance and readiness	Daily
10	Fire Trucks	Required maintenance	As Required
11	Fire Trucks	Conduct pumping test	Annually
12	UV/Deluge Sprinkler System	Pull UV heads, flush system and check operability of system	Annually
13	Spill Containment Materials	Missing, replace as required	Monthly
14	Personal Protective Devices	Holes, missing, unserviceable	Prior to operation
15	Security Equipment, Telephone	Inoperable	Daily

[Remainder of page left intentionally blank]

G-2(b) Specific Process Inspection Requirements

Detailed inspection requirements for Building No. C-13 is presented in Table G-2 (on Page G-5).

G-2 (c) Remedial Action

Any deficiency in a buidling integrity that is detected by inspection will be corrected in a timely manner to prevent an environmental or human health hazard. Storage operations will cease and repairs will start immediately if a building deficiency is determined to be an immediate threat to safe operations. Needed repairs which are not an immediate threat to safe operations. Needed repairs which hare not an immediate threat to safe operations. Needed repairs which are not an immediate threat to safe operations, but need to be performed are normally corrected with 30 days of discovery depending on the availability of funding and materials. If a repair item is considered relatively low priority, provisions will be made through normal channels to correct the deficiency within 60 days of the discovery depending on the availability of funding and materials.

G-2(d) Inspection Log

A hazardous waste inspection log is maintained which shows the box/drum number, date and time the hazardous waste is received at the storage facility, inspector's name, name of waste, weekly sign-offs, date the waste is shipped out of the facility and a comment column. The comment column may be used to note building deficiencies, storage notations and any other concerns. A copy of an example of a RCRA Weekly Inspection Record for Hazardous Waste Storage Areas is provided as Figure G-1 (on Page G- 6). A computerized inspection tracking system also is used to document inspections.

G-3 Preparedness and Prevention Requirements

Subpart C of Part 264, Chapter 40 CFR, Pertains to Preparedness and Prevention requirements that apply to owners and operators of all hazardous waste facilities. This subparagraph includes, but is not limited to, equipment and aisle space requirements as defined in Paragraphs 40 CFR264.32 and 264.35, respectively.

A waiver of equipment requirements is being sought for Building No. C-13 in accordance with 40 CFR Subpart C. A listing of equipment and the waiver status of each item included in Table G-3 (on Page 7).

The IAAAP has an existing set of documents that describes on-site preparedness and prevention measures. These measures are described in the Spill Prevention Control and Countermeasure Plan (SPCCP) Plan and the Disaster Control Plan (DCP) as well as in facility –specific documents. The SPCC Plan appears in the current edition in Appendix C. Spill Prevention Control and Countermeasure Plan. The DCP cannot be made available due to Army Security requirements.

TABLE G-2

INSPECTION REQUIREMENTS FOR STORAGE BUILDING No. C - 13

NOTE: Inspection Requirements shall not apply to facilities in layaway status in accordance with Permit Condition II.E.3.

Operator			D - Daily W - Weekly	
Item No.	Frequency		Types of Problems	Types of Problems
	D	W		
1		X	Placement and Stacking	Improper aisle space, height.
2		X	Lids	Improperly or not sealed.
3		X	Labels	Improper, missing.
4		X	Containers	Ruptured, spilled.
5		X	Pallets, Wood Planking	Damaged, rotted.
6		X	Locks	Corroded, damaged, unlocked.
7		X	Building Foundation/ Structure	Cracked, settled unevenly.
8		X	Concrete Floor	Cracks.
9		X	Debris, Refuse	Possible reaction with spills.
10		X	Signs	Damaged, missing, illegible.
11		X	Containment System	Joint sealant, drains and floor openings sealed, accumulated liquids or debris.
12		X	Containment Pans	Broken welds or seams, excessive rusting or punctures.
13		X	Containment Pans	Accumulated liquids or debris.
14		X	Lightning Rods	Grounding wire rusted, continuity with grounding rods broken.
15		X	Metal Door Grounding	Grounding wire rusted, continuity with grounding rods broken.
16	X*		Loading/Unloading Areas	Spilled materials, standing liquids, stains, debris, etc.

* Daily when in use for loading/unloading

FIGURE G-1 RCRA WEEKLY INSPECTION RECORD FOR HW STORAGE AREAS

AMERICAN ORDNANCE LLC – IOWA ARMY AMMUNITION PLANT

RCRA WEEKLY INSPECTION RECORD
HAZARDOUS WASTE STORAGE

BUILDING NO _____

LOCATION _____

DRUM NUMBER	START DATE	NAME OF WASTE	NAME		INSPECTION OF CONTAINERS/SECONDARY CONTAINMENT (If Required)			WASTE MANIFEST NO./COMMENTS	DATE WASTE SHIPPED
		NUMBER	DATE	TIME					

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TABLE G-3

REQUIRED EQUIMENT WAIVER CONSIDERATION FOR BUILDING NO. C- 13

40 CFR Part 264.32 Required Equipment: All facilities must be equipped with the following, unless it can be demonstrated to the Regional Administrator that none of the hazards posted by wastes handled at the facility could require a particular kind of equipment specified below:

I. An internal communications or alarm system capable of providing immediate emergency instruction voice or signal to facility personnel.

Waiver Consideration: Storage operators at Building No. C-13 will be in close proximity to each other while handling hazardous waste thus internal communications devices are not required. Building No. C-13 is relatively small in size at 2,146 square feet of floor space. As a result, storage operators will be in close proximity to each other while handling hazardous waste and an internal communications device is not considered to be required.

II. A device, such as a telephone immediately available at the scene of operations.

Waiver Consideration: Personnel working in Building No. C-13 carry cell phones to allow emergency assistance to be summoned. Although cell phones are not allowed inside the Building No. C-13, they can remain inside the vehicle used by personnel to travel to the building. The vehicle can be parked within 10 feet of the building to allow quick access by personnel. A land-line telephone is available in close proximity to Building No. C-13 at the main entrance (west gate) to Yard C.

III. Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers or water supply systems.

Waiver Consideration: The IAAAP has fire hydrants located near Building No. C-13 with a static pressure of about 65 pounds. A fire truck pumper with a 1,250 GMP centrifugal pump and a fire truck with a 1,000 GMP centrifugal pump are available on-site for use by the Installation Fire Department.

The IAAAP includes various propellant and explosive generating processes, some of which generate hazardous waste. The policy of the IAAAP is to prevent any hazardous material from contaminating the installation and neighboring areas. Compliance with all applicable federal, state and local requirements, regulations, and standards is sought including those of 40 CFR Subpart C. In order to implement this policy, IAAAP has prepared a Spill Prevention Control and Countermeasure Plan (SPCC Plan) which contains procedures used to provide the necessary actions to minimize or prevent drainage to the environment from any sudden or non-sudden release of any hazardous substance or petroleum products used or stored at the IAAAP. The SPCC Plan is also used to describe the procedures used in preventing the discharge of oil, hazardous materials or hazardous waste from reaching any navigable waters.

The IAAAP has been prepared to set forth policy, guidance, requirements and procedures for planning and operations during a disaster. Disaster control includes all measures taken to reduce the probability of damage, to minimize the effects of drainage and to recover from damage caused by a variety of events including oil spills or hazardous substance pollution. An outline of the information contained in the above documents follows:

Spill Prevention Control and Countermeasure Plan (SPCC Plan)

1. Description of the IAAAP facilities
2. Procedures for preventing and dealing with spills of hazardous materials at various locations at IAAAP.
3. Personnel responsibility chart for supervising cleanup and decontamination activities resulting from a discharge of hazardous materials which identifies On-Scene Coordinators (Army and Contractor), alternates, and other personnel that will participate in the plan.
4. Assignment of duties and responsibilities during an emergency release.
5. Identification, procurement, maintenance and storage of equipment and supplies for control and containment of a major spill.
6. Surveillance and notification system is described.
7. Materials to be used in a spill emergency are identified.
8. Potential major oil spill areas and containment measures are described.
9. Procedures to be taken by on-scene coordinator(s) in reporting accidental spills.
10. Attachments to this document include maps, photographs and spill procedures for areas where hazardous materials are stored, treated or produced.

Disaster Control Plan (DCP

1. Disaster control planning and operations are described.
2. A disaster actions checklist is provided.
3. Mechanical service –emergency response teams are identified
4. Emergency equipment available for disaster control is identified.
5. Mutual aid agreements regarding fire protection with neighboring communities and the IAAAP are discussed.
6. The plan establishes operating procedure and guidance necessary to insure effective transportation and traffic management during a disaster.

7. Off-facility local support groups are identified.
8. Emergency warning system and signals are identified.
9. Fire and explosion response procedures are identified.
10. Physical security operations are identified.
11. Other disaster control measures are described including financial management, reporting, installation closure and communications.

The IAAAP operates and maintains a Fire Department due to the presence of explosives, hazardous materials and the products and by-products present. The Fire Department is available at all times to deal with fires caused by the handling or storage of materials and hazardous wastes. A three platoon work schedule is in effect which allows for a 24-hour day, 7 days a week alert. The Fire Department has a fire prevention program in which major buildings are inspected on a regular basis. Fire extinguishers and other local firefighting equipment are inspected on a regular basis. Fire extinguishers and other local firefighting equipment are inspected regularly. Manual and automatic alarm boxes are located at various locations throughout the plant. This coupled with the telephone communication system, allows for prompt notification in the event of an emergency.

The IAAAP has an extensive network of fire hydrants (over 300) which are inspected annually by the Fire Department. Fire trucks with tanks and foam equipment are available.

This section describes the procedures, structures and equipment used to prevent the various hazards associated with the processing of hazardous wastes at the facility's hazardous waste handling areas. Initially, general procedures will be described that are applicable to many of the hazardous waste handling areas. These general descriptions are followed by site specific descriptions of procedures, structures and equipment used to prevent the various hazards associated with the processing of hazardous wastes at each of the areas.

G-4(a) Loading /Unloading Operations

Wherever hazardous material is moved into a bay or building, explosive and personnel limits are established and are conspicuously posted. This assures the facility is equipped to receive the volume of propellants and/or explosives and has the appropriate docking facilities and a proper number of personnel for handling materials.

Rules applicable to the loading and unloading of loaded explosives and/or ammunition trucks shall apply to handling of hazardous propellants and explosives for transport to a hazardous waste storage or treatment facility. Including Building No. C-13.

A summary of these rules are as follows:

1. Trailers not attached to tractors must be parked on a level surface unless the trailer is butted at the downgrade and against a stable object. The wheels must be securely chocked and the landing gear foundation must be stable and level.
2. The tractor engine must be turned off during loading and unloading operations.
3. All inclined section of a gravity roller conveyors must be equipped with some type of locking device to prevent the sections working apart while in use.

4. Dock plates must be a safety approved design and must be securely positioned to prevent displacement when in use. A safe and suitable surface condition must be provided as related to needs dependent on the incline of planks while in use.
5. Wastes will be stored in approved containers.
6. Containers must be placed in the vehicle in a manner to prevent sliding, falling or shifting.
7. When loading, the packages or containers must be placed a sufficient distance from the exhaust of the vehicle to prevent the danger of engine sparks igniting the material when the motor is restarted. Containers must not be thrown, dropped or tumbled while being loaded or unloaded.
8. Only those materials which are compatible will be loaded as one load and loaded in a proper manner.
9. The drive is responsible for checking the following items of inspection before moving the loaded truck:
    a. Inspect the load to insure that no containers are leaking, broken, or appear so weak that breakage could occur during movement.
    b. Inspect the load to ensure it is braced and blocked securely and will not shift during transport.
    c. Inspect the scrap removal request form to insure the proper quantity has been located.
    d. Inspect the vehicle to insure that proper signs and/or placards are on the vehicle and in the proper location.
10. Drivers will not carry matches, lighters or other flame producing devices in trucks or on their person while they are transporting dangerous cargo.
11. Waste Materials and other dangerous articles will not be exposed unnecessarily to the direct rays of the sun or to inclement weather.

G-4(b) Runoff

Building No. G-13 is located approximately 1.5 miles from the nearest installation boundary so that any release, fire or explosion could be contained well within the confines of the installation. The IAAAP emergency response is in charge of containment and clean-up of releases from hazardous waste handling areas. Sufficient absorbent materials and sand bags are available to contain the releases. Pumps, tractors, bulldozers, grade-alls, dump trucks, graders and endloaders are available on the installation for use in containing contaminated runoff. After containment, contaminated runoff will be collected and properly handled in accordance with all applicable regulations.

G-4(c) Water Supplies

The only water supply is from the City of Burlington, Iowa water system which is conveyed throughout the installation by an underground water supply system. There are no supplementary groundwater supply wells located on-site.

G-4(d) Equipment and Power Failure

Key processes in selected facilities are monitored by equipment malfunction alarms. In the event a piece of equipment fails, the alarm will be activated and the necessary action taken. In situations of power failure power the primary goal is to prevent accidental injury. Emergency lighting operated by a battery powered source is available inside selected buildings. Personnel are instructed to exit the building. Primary operators are responsible for a restart of equipment following an emergency. However, Building No. C-13 does not have electrical power or any system of emergency lighting.

G-4(e) Personnel Protection Equipment

The IAAAP maintains an inventory of protective clothing and equipment to be used by personnel working with hazardous materials. Protective clothing and equipment are available at personnel changehouses except for safety items which are assigned to specific buildings. Standing Operating Procedures (SOP), including SOP 525 "General Safety Requirements", specify when and where protective equipment is required. Figure C-3 (on page G-12) shows the clothing, eye protection and safety equipment available. Personnel are also instructed on personnel articles which are banned from wear in work areas as safety precautions (jewelry, hair pins, loose clothing, non-cotton underwear and etc.).

1. The following equipment and procedures are followed to prevent undue exposure or face shield when handling hazardous materials and wastes.

2. Explosive quantity distance limits imposed on the location of the facility and quantity of explosive contaminated material allowed at the facility will insure that a release, fire or explosion at the facility will insure that a release, fire or explosion at the facility will not result in a release, fire or explosion at any other installation facility.

3. There is sufficient aisle space at each hazardous waste handling facility to allow unobstructed movement of personnel, fire protection equipment and spill control equipment to any other area of the facility in an emergency.

G-5 Prevention of Reaction of Ignitable, Reactive or Incompatible Wastes

The IAAAP proposes to store reactive wastes and spent solvents at Building No. C-13 but not at the same time. If reactive wastes are in the building no spent solvents will be stored in the building at the same time. If ignitable wastes are in the building no reactive wastes will be stored in the building at the same time. The reactive wastes consist of explosive sludge, explosive contaminated carbon, explosive contaminated diatomaceous earth, bulk explosive scrap, waste pressed explosives and small munitions items. The spent solvents may consist of spent non-halogenated solvents and spent halogenated solvents. The following sections describe precautions observed at IAAAP for all hazardous wastes. Not all of the precautions apply to the Building No. C-13 storage facilities.

FIGURE G-3 PERSONNEL PROTECTION EQUIPMENT

Clothing

Flame proof powder suits

Cotton gloves

Rubber gloves

Asbestos fire suits

Fire proof gloves

Conductive soled safety shoes

Sweat bands

Eye Protection

Safety glasses

Safety glass side shields

Full-face safety shield

Personal Safety Equipment

Respirators

Safety showers

Eye wash station

As required by 40 CFR 270.14 paragraph (a) (9), the following general precautions are observed when managing ignitable, reactive and incompatible wastes. These precautions are taken to prevent accidental ignition or reaction of ignitable or reactive waste.

1. No flame producing devices are allowed in hazardous waste storage areas. Signs indicated this are conspicuously posted whenever there is a hazard from ignitable or reactive wastes.
2. Non-sparking tools are used to scoop explosive sludge from tanks which are then placed in containers for storage in Building No. C-13.
3. Reactive or ignitable wastes shall be shielded from the rays of the sun.
4. Maintenance (other than routine maintenance using hand tools) will be performed following the notification of the Safety Department and issuance of a safety work permit. This permit serves as notification to the Safety Department of pending work and prescribes the types of tools and methods to be utilized during the work. It enables the Safety Department to track all on-going work at the IAAAP and make periodic inspections while such work is in progress. Explosives and other hazardous materials must be removed from the work area in which the work is to be performed, prior to starting of work.
5. Spontaneous ignition from heat-producing chemical reactions are avoided by segregation of non-compatible materials.
6. All hazardous materials and waste containers shall be inspected thoroughly. Any defects or foreign material shall be reported to the operating supervisor for disposition.
7. Clearing equipment, which has been contaminated, shall be placed in storage buildings specifically identified for the types of hazardous waste it contains. Non-compatible wastes shall not be stored in the same container or location.
8. Hazardous wastes that are place in permitted storage shall be placed in storage buildings specifically identified for the types of hazardous wastes is contains. Non-compatible wastes shall be stored in the same container or location.

G-5(a) Specific Precautions for storage of Ignitable Wastes

The IAAAP proposes to store reactive wastes and spent solvents at Building No. C-13 but not at the same time. If reactive wastes are in the building no spent solvents will be stored in the building at the same time. If ignitable wastes are in the building no reactive wastes will be stored in the building at the same time. When spent solvents are stored in Building No. C-13 the following precautions will be enacted:

1. Open Flames and Smoking. Building No. C-13 is located in Yard C. Smoking is not allowed in Yard C. Fire producing matches and lighters are not allowed in Yard C. Warning signs are present at the gates and on the security fences around Yard C. In addition, "No Smoking Signs" are placed at conspicuously at the entrance to Building No. C-13.
2. Flammable Gases. Drum containing waste solvents will have all bungs tightly closed to prevent the release of vapors.
3. Lightning. Building No. C-13 has grounded lightning rod protection.
4. Static and Electrical Sparks. Building No. C-13 is not equipped with electrical service thus no source of electrical sparks exist.

G-5(b) Specific Precautions for Storage of Reactive Wastes

Reactive wastes will be stored in Building No. C-13. Precautions to protect reactive wastes from sources or reaction are listed below:

The IAAAP proposes to store reactive wastes and spent solvents at Building No. C-13 but not at the same time. If reactive wastes are in the building no spent solvents will be stored in the building at the same time. If ignitable wastes are in the building no reactive wastes will be stored in the building at the same time. When reactive wastes are stored in Building No. C-13 the following precautions will be enacted:

1. Open Flames and Smoking. Building No. C-13 is located in Yard C. Smoking is not allowed in Yard C. Fire producing matches and lighters are not allowed in Yard C. Warning signs are present at the gates and on the security fences around Yard C. In addition, "No Smoking Signs" are placed at conspicuously at the entrance to Building No. C-13.
2. Flammable Gases. Drum containing waste solvents will have all bungs tightly closed to prevent the release of vapors.
3. Lightning. Building No. C-13 has grounded lightning rod protection.
4. Static and Electrical Sparks. Building No. C-13 is not equipped with electrical service thus no source of electrical sparks exist.

G-5(c) Specific Precautions for the Treatment of Waste Solvents and Reactive Wastes

There will be no on-site treatment of waste solvents or reactive wastes stored in Building No. C-13 as these wastes will be transported off-site for treatment.

G-5 (d) Precautions for Managing Incompatible Wastes.

The IAAAP proposes to store reactive wastes and spent solvents at Building No. C-13 but not at the same time. If reactive wastes are in the building no spent solvents will be stored in the building at the same time. If ignitable wastes are in the building no reactive wastes will be stored in the building at the same time.

PERMIT ATTACHMENT III-3 – INSPECTION SCHEDULE

TABLE G-2

INSPECTION REQUIREMENTS FOR STORAGE BUILDING No. C - 13

NOTE: Inspection Requirements shall not apply to facilities in layaway status in accordance with Permit Condition II.E.3.

Operator			D - Daily W - Weekly	
Item No.	Frequency		Types of Problems	Types of Problems
	D	W		
1		X	Placement and Stacking	Improper aisle space, height.
2		X	Lids	Improperly or not sealed.
3		X	Labels	Improper, missing.
4		X	Containers	Ruptured, spilled.
5		X	Pallets, Wood Planking	Damaged, rotted.
6		X	Locks	Corroded, damaged, unlocked.
7		X	Building Foundation/ Structure	Cracked, settled unevenly.
8		X	Concrete Floor	Cracks.
9		X	Debris, Refuse	Possible reaction with spills.
10		X	Signs	Damaged, missing, illegible.
11		X	Containment System	Joint sealant, drains and floor openings sealed, accumulated liquids or debris.
12		X	Containment Pans	Broken welds or seams, excessive rusting or punctures.
13		X	Containment Pans	Accumulated liquids or debris.
14		X	Lightning Rods	Grounding wire rusted, continuity with grounding rods broken.
15		X	Metal Door Grounding	Grounding wire rusted, continuity with grounding rods broken.
16	X*		Loading/Unloading Areas	Spilled materials, standing liquids, stains, debris, etc.

* Daily when in use for loading/unloading

FIGURE G-1 RCRA WEEKLY INSPECTION RECORD FOR HW STORAGE AREAS

AMERICAN ORDNANCE LLC – IOWA ARMY AMMUNITION PLANT
RCRA WEEKLY INSPECTION RECORD
HAZARDOUS WASTE STORAGE

BUILDING NO

LOCATION

DRUM NUMBER	START DATE	NAME OF WASTE NUMBER	NAME DATE	NAME TIME	INSPECTION OF CONTAINERS/SECONDARY CONTAINMENT (If Required)			WASTE MANIFEST NO./COMMENTS	DATE WASTE SHIPPED

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PERMIT ATTACHMENT III-4 – TRAINING PLAN

I. PERSONNEL TRAINING PROGRAM

I-1 Outline of Training Program

The IAAAP uses an extensive training program for employees of all levels. This training includes plant safety, explosive materials safety and emergency response for all employees and specialized training for employees working in hazardous waste management.

I-1(a) Job Descriptions

The IAAAP organization for hazardous waste management is shown in Figure I-1 (on page 1-5). The organization is a cooperative effort of a number of plant divisions and services with the main responsibility and coordination through the Environmental, Health and Safety Director. Job descriptions of personnel as it relates to hazardous waste management are given in Table I-1 (on pages 1-6 thru 1-8). Written descriptions of job responsibilities are kept in personnel files.

I-1(b) Training Content, Frequency and Techniques

The general program includes an indoctrination for new employees, a required understanding of training materials, including Standing Operating Procedures and Administrative Practice and Procedures, ongoing instruction Group Safety Meetings and additional training sessions for specific job task descriptions. An outline of the general training program for hazardous waste management personnel can be found in Table 1-2 (on page 1-9 and 1-10).

The employee indoctrination program is conducted by the Training Department. Required for all new employees, the program includes a basic training of safety rules for working with explosives. The program insures all employees are trained to respect the sensitive nature of materials handled on the installation. Employees whose jobs include management, handling and transportation of hazardous waste materials, are required to receive training applicable to their specific job. For the procedural material in the Standing Operating Procedures (SOPs) and Administrative Practices and Procedures (AP&Ps), employees sign a statement that they understand the content.

Group Safety Meetings are conducted to review and update plant –wide rules and regulations, present a variety of safety topics applicable to both on and off the job and serve to keep employees informed on company matters.

Additional training sessions, listed in Table I-2, General Outline for Hazardous Waste Management Personnel (on pages I-9 and I-10) are provided to employees whose job descriptions require them to work with hazardous wastes. Depending on the employee job task description, the employee may be required to complete some or all the training sessions listed.

Training materials, Group Safety Meeting and additional training sessions are conducted in several ways. Area production supervisors maintain a high level of expertise in the hazardous waste management areas they supervise by being very familiar with the procedural guidance, but also rely on the area production supervisor's knowledge and training. Training is provided to employees by the supervisor in each of the divisions/departments where hazardous waste may be generated and stored.

Personnel of the Environmental Department provide much of the training sessions listed in Table I-2 (on pages I-9 and I-10) to employees to ensure changes in environmental regulations are met. The Training Department is responsible for scheduling the training and for maintaining accurate records on training. The Environmental Manager has the responsibility to assist in interpreting environmental regulations and to provide all employees answers to environmental concerns.

An outline of the hazardous waste operators training program can be seen in Table I-2. Specific Training for Hazardous Waste Management Facilities is contained in Table 1-3 on pages I-11 and I-13. Each operator is required to study and demonstrate expertise with the material prior to being assigned an unsupervised task. They are required to sign a statement that they understand the content of the procedures. An index of relevant procedures for these activities appear in Table I-4, Hazardous Waste Management Operating Procedure Index (on page I-14).

I-1 (c) Training Director

The training director for hazardous waste is the Environmental, Safety and Health Director. All operations and training materials require his approval. He is in communication with other ammunition facilities handling similar wastes as an aid to maintaining an expertise in this area. The Environmental Manager and other selected personnel have received a certificate for completing RCRA training.

I-1 (d) Training for Emergency Response

The intent of the IAAAP training program is to instruct all employees required to safely perform their job and respond in an emergency situation. The training is shown in Table I-5, Training for Hazardous Waste Personnel (on page 1-15).

Supervisors are responsible for continual instruction of personnel on exit locations, building alarms and evacuation procedures. AP&P No. 40 Evacuation for Fire, Explosion or Emergency Condition is the reference for training. In addition to the personal instruction, this information conspicuously posted in each building. Annual evacuation drills are conducted as part of the training.

I-1(d)(i) Equipment Malfunction Emergency Response

This requirement is not applicable to the hazardous waste storage unit at Building No. C-13 as there is no equipment used other than two wheel hand operated carts and pallet lifts used to move materials. Installation wide, all key processes are monitored by equipment malfunction alarms. Standing Operating Procedures include routine testing and response procedures for emergency conditions.

I-1(d)(ii) Communications and Alarm Systems

In the event of an emergency situation at Building No. C-13, employees who supervise work in the building or otherwise have authorized access to the building have company issued cell phones which can be used in the event of an emergency situation to summon assistance. Although cell phones are not allowed in the building, the cell phones are available in vehicles parked a short distance away from the building. There are no land line telephones in Building No. C-13.

Throughout the installation an alarm may be placed through the following communication devices: Company issued cell phones, land line telephones, two-way radios, building alarms and "red alarm boxes" located throughout the facility. All alarm systems route to the alarm dispatcher who will notify the appropriate emergency response team.

I-1(d)(iii) Response to Fires

The IAAAP maintains an on-site Fire Department staffed by employees trained in emergency response and equipment operation. The fire station has personnel on duty 24 hours per day, 7 days per week at or above minimum standards established in the National Fire Code 1500. Personnel include one fire chief, seven lieutenants and six fire fighters. Driving of fire apparatus and fire equipment, performing fire inspections and emergency medical treatments are duties shared by qualified fire station personnel. Auxiliary fire personnel include plant personnel trained in emergency response. In addition, the IAAAP has mutual aid agreements with the Fire Departments of Burlington, West Burlington and Danville. These fire departments may provide backup for only non-explosive areas such as shops and maintenance areas while the IAAAP Fire Department is engaged with a fire.

I-1(d)(iv) Response to Surface Water Contamination

Employees working at the hazardous waste management units at IAAAP are trained in various emergency response scenarios. These include hazardous material spills which could result in the possible contamination of groundwater. Employees are trained by procedure to either clean up a spill themselves of less than one gallon inside of a building or to the call the emergency response team for spills inside of a building of more than one gallon or for any spill outside of a building.

I-1(d)(v) Shutdown of Operations

This requirement is not applicable to the hazardous waste storage unit at Building No. C-13 as the only equipment used consisting of two wheeled hand operated carts and pallet lifts used for moving containers of hazardous waste do not have requirements for shutdown of operations.

I-2 Implementation of Training Program

The implementation of the training requirements specified in Title 40 CFR Part 264 is the responsibility of the training director (Environmental, Safety and Health Director) who is trained in hazardous waste management procedures.

This position is responsible for development of all training material and to ensure records are properly maintained. The Training Section and Human Resources Department each maintain a current copy of the "EPA Resource Conservation and Recovery Act Job Descriptions for Employees Working With Hazardous Waste". This document lists job titles and job classifications for all hazardous waste management positions.

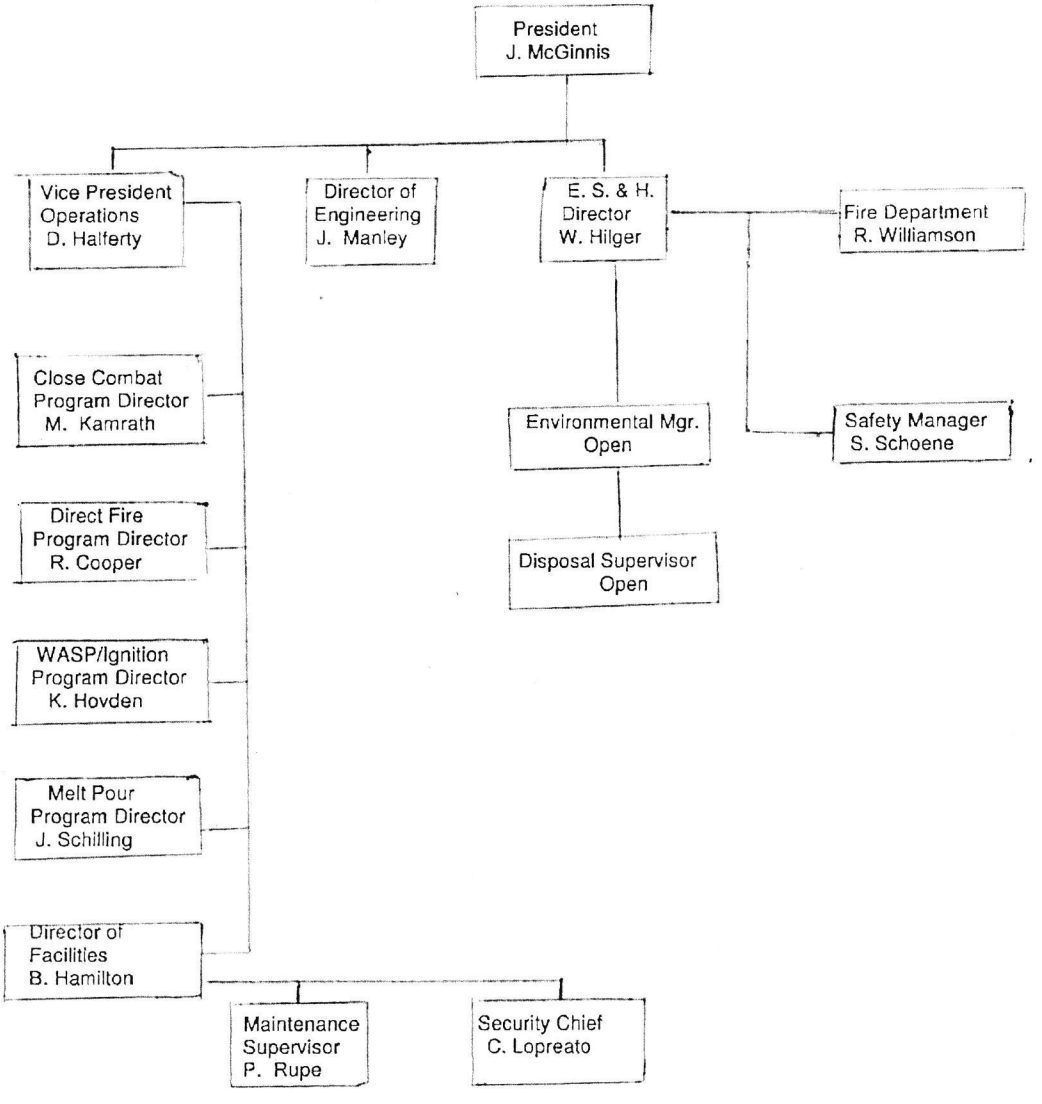
The following records will be kept in Building No. 500-118 (Annex I) in the Administration Area by the Training Section:

1. A written description of the introductory and continuing training given to each person employed for Hazardous Waste Management (HWM) unit operation.
2. All training and employment records for former operators will be kept for a minimum period of three years. Records for current operators will be kept until closure.

The training program has been developed for each HWM unit shall be completed by all supervisory personnel within six months of their assignment to the unit. Until the personnel are trained they must be supervised by trained personnel. All new employees shall be trained in the following areas prior to working in an unsupervised area:

1. Procedures for using, inspecting, repairing and replacing facility emergency and monitoring equipment. The only emergency equipment at Building No. C-13 is a fire extinguisher which is inspected on a monthly basis by the Fire Department. There is no monitoring equipment at the building.
2. Key parameters for automatic waste feed cut-off system. This requirement does not apply to Building No. C-13 is a storage unit and not a treatment unit.
3. Communications and alarm systems. Employees who have access to Building No. C-13 have cell phones which can be used to summon emergency assistance. Although cell phones are not allowed inside the building they can be present in a vehicle parked a short distance away from the building. There is no alarm system at Building No. C-13.
4. Response to fire or explosion. The installation Fire Department can be summoned in the event of a fire or explosion.
5. Response to groundwater contamination incidents. The storage of hazardous waste in Building No. C-13 will be in closed drums or heavy gauge cardboard boxes (for dry explosives and small ammunition devices) placed on top of secondary containment pans which makes the possibility of a release very slight and incidence of groundwater contamination very unlikely.
6. Shutdown of operations. Since Building No. C-13 is a storage unit only, this requirement does apply. All non-supervisory personnel working in positions managing hazardous waste are closely supervised by supervisory personnel who have received the required training. Working under these conditions of close supervision is considered on-the-job training in compliance with 264.16(a)(1) in lieu of classroom training.

Figure I-1
Iowa Army Ammunition Plant
Hazardous Waste Management Organization



EPA RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) JOB DESCRIPTIONS FOR EMPLOYEES WORKING WITH HAZARDOUS WASTES

1. Cost centers AM173, Close Combat Business Unit; AM174, Direct Fire Business Unit; AM176, Indirect Fire Business Unit; AM177, WASP Business Unit; AM178, X-Ray; AM179, Quality Engineering; AM181, Production Planning & Scheduling; AM184, Line 1 Indirect Fire; AM185, Line 1 – Close Combat; AM186, Line 2; AM188, Line 3A; AM189, Line 4B; AM190, Special Projects; AM192, Line 1 Direct Fire; AM193, Line 1 WASP; AM194, Day/Night Thermal; AM269, President's Office

   Perform/supervise operations generating hazardous waste solvents from the operation of paint booths and the cleaning/wiping of parts and equipment with solvents. Paint booths may be used to spray paint, Humiseal or Estane. Paint booths are located at Lines 1, 2, 3, 3A and Line 4B. A hazardous waste solvent accumulation area (90 day storage area) is designated at Building number 2-03. In addition, solvent contaminated wipes may be accumulated for up to 90 days at Building Nos. 1-85-2 and 2-03. The hazardous waste solvents and solvent contaminated wipes in the accumulation areas must be properly maintained by production personnel as EPA RCRA hazardous waste regulations require weekly inspection of containers, preparation of weekly inspection record, proper container labeling and assurance drums are closed when not being filled. Solvent contaminated wipes are transported to Building No. BG 199-4 where they are compacted followed by transport to the 90 day accumulation area at Building No. BG 199-3 to await off-site transport for treatment In addition, paint filters (contaminated with aluminum epoxy paint) from the generation area at the Building No. 2-04 painting system are accumulated at the 90 day accumulation area at Building No. BG 199-4 until a Gaylord container (large cardboard box) is full followed by transport of the Gaylord container to the BG 199-3 90 day accumulation area, while awaiting transport off-site for treatment. Lines 3, 3A and 4B have hazardous waste generation areas but no accumulation areas.

2. Cost centers AM202, Traffic; AM204, Material Storage & Distribution; AM223, General Supply; AM224, Property; AM230, Waste Management; AM231, Disposal

   A. Perform/supervise operations at EPA RCRA permitted hazardous waste storage facilities at Bldg. Nos. BG-12 and C-13, both of which may store waste explosives, explosive contaminated carbon and sump scrap for up to one year. The permitted storage facilities are required by EPA RCRA regulations to be inspected weekly for the condition of the containers and a weekly inspection record maintained. Remove sump scrap, which is designated as a hazardous waste, from explosive wastewater collection tanks. Personnel are also responsible for the 90 day hazardous waste accumulation performed at Building No. BG-199-3.

   B. Storage operators and supervisors are also responsible for loading/unloading the above hazardous wastes transported by vehicles on the installation.

3. Cost center AM202, Traffic; AM204, Material Storage & Transportation

   Perform/supervise operations to transport hazardous wastes (waste solvents, sump scrap, explosive contaminated carbon and waste explosives) on installation roads by trucks from point of generation to storage facilities on-site.

4. Cost center AM234, Chemical Lab; AM179, Quality Engineering

   Perform/supervise operations at the Line 1 Laboratory that generate hazardous waste solvents that are satisfactorily controlled at a generation area.

5. Cost center AM131, Plant Maintenance; AM132, Production Maintenance; AM229, Facilities Engineering

   Perform/supervise activities to remove explosive contaminated carbon from carbon filter Column facilities at Bldg. No. 3-70-1, 3-70-2, 3A-70-1 and 3A-70-2. The explosive Contaminated carbon is identified as a hazardous waste by EPA RCRA regulations.

6. Cost center AM131; Plant Maintenance; AM132, Production Maintenance; AM134, Tool and Die; AM204, Material Storage & Transportation; AM229, Facilities Engineering; AM235, Utilities

   Perform/supervise maintenance activities which result in generation of hazardous waste solvents and wipes. Hazardous waste solvents/wipes may be generated from parts cleaning operations or may be clean-up material from a minor spill. Points of generation include Building Nos. 1-01 Millwright Shop, 1-148, 300-148, 500-139, production areas and general area. Waste solvents will be collected at generation areas until transported to the waste solvent accumulation area at Building No. BG 199-3. Solvent contaminated wipes from generation areas are transported for compacting at Building No. BG 199-4, a 90 day accumulation area. After compacting, the drums of wipes are transported to the 90 day accumulation area at Building No. BG 199-3.

7. Cost center AM131, Plant Maintenance; AM229, Facilities Engineering

   Generation of waste solvents by operation of parts washers at Building Nos. 400-138 (Roundhouse) and 500-129 (Garage).

8. Cost center AM190, Special Projects; AM177, WASP Business Unit; AM269, President's Office

   Perform/supervise operations generating hazardous waste solvents from the operation of paint booths and hazardous waste solvent contaminated wipes from the cleaning/wiping of parts and equipment. Paint booths may be used to spray paint, Humiseal or Estane.

9. Environmental Staff: Cost center AM230, Waste Management; AM228, Environmental; AM225, Safety/Medical

   A. Perform/supervise operations at EPA RCRA permitted hazardous waste storage facilities at Bldg. Nos. BG-12 and C-13, both of which may store waste explosives, explosive contaminated carbon and sump scrap for up to one year. The permitted storage facilities are required by EPA RCRA regulations to be inspected weekly for the condition of the containers and a weekly inspection record maintained. Remove sump scrap, which is designated as a hazardous waste, from explosive wastewater collection tanks. Personnel are also responsible for the 90 day hazardous waste accumulation performed at Building Nos. BG-199-3 and BG 199-4 (compacting solvent contaminated wipes and filling Gaylord containers (large cardboard boxes) with aluminum epoxy paint filters from Building No. 2-04 painting system) and performing the weekly EPA RCRA inspections at these buildings.

   B. Coordinate EPA RCRA program to ensure compliance with hazardous waste regulations. Perform inspections and prepare letter, reports and other documents as required by EPA and Army commands to remain in compliance with RCRA requirements. For the transport of hazardous waste off-site, maintains hazardous waste manifests, files and performs tracking of manifests.

The following personnel may either come into contact with hazardous wastes or provide instruction to personnel who come into contact with hazardous wastes identified in paragraphs 1-8 during the performance of their duties related to Safety and Health, Security, Fire, Auditing and Engineering:

10. Safety and Health: Cost center AM225, Safety/Medical

11. Security: Cost center AM227, Security; AM229, Facilities Engineering

12. Fire: Cost center AM226, Fire Department, AM229, Facilities Engineering

13. Audit: Cost center AM179, Quality Engineering

14. Engineering: Cost center AM151, Engineering; AM171, Production Engineering

All engineers could potentially perform engineering related work on production lines or in other areas where hazardous waste is generated.

Table I-2

GENERAL OUTLINE FOR HAZARDOUS WASTE MANAGEMENT PERSONNEL

1. Employee Indoctrination Program

   A. Training Materials

      1. General Safety Requirements

         (a.) SOP 525 General Safety Requirements for Explosive Manufacturing Areas

         (b.) SOP 618 Collection, Handling and Removal of Explosive Scrap Generated on Lines

      2. Training for Emergency Response

         (a) Disaster Control Plan

         (b) AP&P 40 Evacuation Procedure for Fires, Explosions or Emergency Conditions

         (c) AP& P 1005 Spill Prevention Control and Countermeasure Plan

      3. Explosive Transportation

         (a) IO-0000-L-004 Intraplant Transportation of Outbound Loaded explosive and/or Ammunition Trucks

         (b) IO-0000-L-005 Intraplant Transportation of inbound Loaded Explosive and/or Ammunition Trucks

         (c) Hazmat Endorsement required on Commercial Driver's License for all Drivers.

         (d) In-house Manual for Drivers of Explosive Trucks

         (e) HAZMAT Drivers Training

Table I-2

GENERAL OUTLINE FOR
HAZARDOUS WASTE MANAGEMENT PERSONNEL

4. Training for Environmental Compliance

   (a.) SOP 846 Collection and Handling of Waste Material

   (b.) SOP 921 Handling of Barrels and Receptacles

   (c.) AP&P No. 41 Environmental Program Plan

   (d.) QAS-ENV No. 01 RCRA Training Program

2. Regular Group Safety Meetings

3. Additional Training Sessions

   A. Annual RCRA Training – Levels I and I

   B. Annual HAZWOPER Training – Levels I,II and III

   C. Hazard Communication (Worker's Right-to Know) Training

   D. Hazmat Safety Training

Table I-3

Specific Training for Hazardous Waste Management Facilities

	Storage Buildings	Demilitarization Operations
1. Training Materials to be Studied and Referenced	1. SOP 525 General Safety Requirements for Explosive Manufacturing Areas 2. SOP 921 Handling of Barrels and Receptacles 3. IO-0000-L-004 Intraplant Transport of Outbound Loaded Explosive and/or Ammunition Trucks 4. 4. IO-0000-L-005 Tntraplant Transport of Inbound Loaded Explosive and/or Ammunition Trucks	1. SOP 525 General Safety Requirements for Explosive Manufacturing Areas 2. Additional Material as Presented by the Demil Trainer 3. IO-0000-K-019 Demilitarization of Various Billets 4. SOP J-025 Demil 105MM M494 Projectiles 5. SOP-J-030 Demil 106MM M581 Cartridges 6. SOP-J-035 Demil 105MM M724 Cartridges 7. SOP-J-036 Demil 105MM M490 and M491 Cartridges 8. SOP Nos: K-028, J-016, J-023 Demil 8" M650 Projectiles 9. SOP Nos: I-039 and I-041 Demil, 175MM, M437 Projectiles

	Storage Buildings	Demilitarization Operations
II. Training Materials Mentioned in (I.) are reviewed on a Periodic Basis and as Revisions are Made	Yes	Yes
III. On the Job Training by experienced supervisors.	Yes	Yes
A. Procedures for equipment use.	Yes	Yes
B. Process Monitoring	Yes	Yes
C. Equipment Maintenance, Repair and Replacement	Yes	Yes
D. Emergency and Monitoring Equipment Use.	Yes	Yes
E. Detailed instruction on system shutdown, emergencies and waste feed cutoff	Yes	Yes
F. Use of communication systems	Yes	Yes
IV. Additional Training (Films< Literature, Courses, and lectures) available in-house and through Federal and State Agencies	Yes	Yes

	Storage Buildings	Demilitarization Operations
V. Review of:		
A. Available Equipment Drawings.	Yes	Yes
B. Inspection Requirements	Yes	Yes
C. Record Keeping Requirements	Yes	Yes

Table I-4

HAZARDOUS WASTE MANAGEMENT OPERATING PROCEDURE INDEX

SOP 525	General Safety Requirements for Explosive Manufacturing Areas
SOP 618	Collection, Handling and Removal of Explosives and Inert Non-Confirming Material
SOP 846	Collection and Handling of Waste Material
SOP 921	Handling of Barrels and Receptacles
Procedure 83-70	Sensitive Material Control Procedures
AP&P 122	Respirator Protection Procedure
IO-0000-K-019	Demilitarization of Various Billets
IO-0000-K-004	Transportation of Explosive and/or Ammunition Trucks
IO-0000-V-303	Surveillance Verification Inspection or Demilitarization Activities
IO-0000-J-025	Demilitarization of 105MM M494 Projectile
IO-0000-J-030	Demilitarization of 106MM M581 Projectile
IO-0000-J-035	Demilitarization of 105MM M724 Cartridges
IO-0000-J-036	Demilitarization of 105MM M490 and M491 Cartridges
IO-0000-J-016, J-023, K-028	Demilitarization of 8" M650 Projectiles
IO-0000-I-039, I-041	Demilitarization of 175MM M437 Projectiles

Table I-5

Training for Hazardous Waste Personnel

ORGANIZATION DIVISION	GENERAL SAFETY PROCEDURES	EMERGENCY RESPONSE/ EVACUATION PROCEDURES	SPILL PREVENTION PROCEDURES	ENVIRONMENTAL COMPLIANCE PROCEDURES	TRANSPORTATION REQUIREMENTS	RCRA TRAINING	HAZARDOUS MATERIAL TRAINING	HAZARDOUS WASTE OPERATIONS	HAZARD COMMUNICATION
Contract Administration	Yes	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes
Controller Division	Yes	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes
Methods Engineering and Projects	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes
Environmental, Safety & health Division	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Materiel Department	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mechanical/Lab Support	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes
Operations Division	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes
Program Management Division	Yes	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes
Information Technology	Yes	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes
Business Development	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Yes
Plant Manager	Yes	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes
Audit	Yes	Yes	N/A	N/A	N/A	Yes	N/A	Yes	Yes
Human Resources	Yes	Yes	N/A	N/A	N/A	N/A	N/A	Yes	Yes

PERMIT ATTACHMENT III-5 – CONTINGENCY PLAN

SECTION H CONTINGENCY PLAN

H-1 General Information

The Resource Conservation and Recovery Act (RCRA) requires a Hazardous Waste Management (Part B) Permit applicant to submit a Contingency Plan in order to minimize hazards to human health or the environment due to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents. These requirements are fully described in 40 CFR Parts 270.14 (b) (7), 264.37, 264.51 through 264.56, 267.171, 264.194 (c), 264.227 and 264.255.

The Spill Prevention Control and Countermeasure Plan (SPCCP) and the Disaster Control Plan (IAAAP DCP) were prepared to satisfy the 40 CFR requirements. A copy of the SPCCP appears in Appendix C. The IAAAP DCP does not appear in Appendix C due to Army security requirements which severely limit the distribution of this document. The SPCCP is considered to meet all 40 CFR requirements identified above. The RCRA permitted hazardous waste storage unit at Building No. C-13 appears in Attachment I of the SPCCP.

The SPCC Plan will be amended, if necessary, whenever:

1. The facility permit is revised.
2. The plan fails in an emergency.
3. The facility changes in design, construction, operation or maintenance in a way that materially increases the potential for fires, explosions, or releases of hazardous waste.
4. The list of emergency coordinators changes; or
5. The list of emergency equipment changes.

H-2 Emergency Coordinators

A listing of personnel have been assigned the responsibility of supervising all clean-up and decontamination activities resulting from an accidental discharge of oil or hazardous materials within the installation boundaries. These personnel are listed in the Emergency Personnel & Telephone Numbers on page v of the SPCCP.

H-3 Implementation

The SPCC Plan will be implemented whenever a fire, explosion, or release of hazardous waste is detected. The decision of the Contractor On-Scent Coordinator (COSC) or the on-site alternate will be based on the following decision-making points:

1.Fire and/or Explosion

a. Fire and/or explosion
b. An existing fire could cause heat-induced explosions and/or ignite other on-site material.
c. The possibility of non-containment of the fire and its spreading to adjacent areas.
d. The presence of contaminated runoff from water and chemical agents used in fire fighting.
e. A safety hazard exists from the possibility of flying fragments or shock waves due to an imminent explosion.

f. The possibility exists that an explosion could release toxic materials.

g. An explosion has occurred.

2. Spills

a. The possibility of a fire or explosion hazard exists as the result of the release of flammable liquids or vapors.

b. The possibility exists of surface or groundwater contamination exists as a result of a spill.

c. The possibility of surface or groundwater contamination exists as a result of a spill.

d. An uncontained spill causes off-site soil, groundwater or surface contamination.

3. Floods

Hazardous Waste Management Unit C-13 is located above the 100-year flood elevation, therefore, the possibility of flooding is slight.

H-4 Emergency Response Procedures

Notification of any emergency situation is given to Security (police) Department headquarters by an on-site telephone at extension 17 or by cell phone by calling 319-753-7414 or the activation of a Fire Alarm. Security Department Headquarters will contact the Contractor on-Scene or the Alternate who contacts member of the Emergency Response Team. In the event of an imminent emergency, the communication system is activated by Security Headquarters. An Installation-wide emergency warning system and signals are in-place and operational.

Activation of the outdoor warning signals will be coordinated with the Des Moines County Defense Civil Preparedness Agency except when performing the weekly Outdoor signal warning tests.

Storage unit hazardous waste management procedures require labeling of all waste drums at the source. Thus, waste classification is based on known characteristics of the waste. In the event of a leaking box or a drum, the spilled contents can be identified by the label.

If a fire occurs at a storage site, the labels on the drums may not be legible. The character of the waste can be determined by reviewing the records of all stored wastes. The location of the fire would indicate the type of waste involved in the emergency. If the waste can be sampled, it will be collected and analyzed in accordance with the waste analysis plan.

H-4(a) Identification of Hazardous Waste

The on-scene coordinator or alternates and the Emergency Response Team have extensive training related to the identification and handling of hazardous wastes stored in Building No. C-13. The training is discussed in detail in Section I. Personnel Training Program. The contractor Environmental, Safety and Health Director oversees RCRA hazardous waste training conducted by the Training Department. Hazardous waste identification is an inherent part of the training program. Personnel assigned to storage operations follow specific procedures appearing in Section I Personnel Training Program, which specifies the hazards and precautions required for the storage and handling of hazardous waste.

H-4(b) Assessment

The person making the initial discovery of a fire, explosion or spill shall first consider safety and then report to the Security Department Headquarters, by dialing "17" on any installation phone, immediately. The COSC coordinator or alternate Fire Department and Emergency Response Team shall provide all spill responses. The following general safety precautions apply to all situations involving wastes (discovery, mitigation, clean-up etc):

- Always approach upwind of the spill, fire or explosion.
- Evacuate the area immediately if there exists an apparent possibility of further explosion or fire.
- Remove all possible sources of pollution.
- Restrict access to the area.
- Do not touch or move any container unless trained to do so and full knowledge of the hazards involved is available.
- If identified fuming liquids or gases are present, do not approach until fully equipped with proper safety equipment.

The COSC or alternate shall obtain the following information for the assessment of the situation:

- Discover's name and position.
- Location of fire, explosion or spill (i.e. name of material or container markings)
- Physical properties of fire, explosion, or spill (i.e. odor, color or the vapors, visicoty, color of the smoke or flame etc.)
- Estimated quantity of material involved in the fire, explosion or spill.
- Time emergency situation occurred.
- Mitigating measures taken, if any
- Secondary containment of spilled materials, if present.
- Direction and rate of fire or spill.
- Whether the spill has reached or can reach a sewer.
- Whether fire or explosion is isolated or has the potential of igniting or exploding additional material.
- Accessibility, lighting, security

The COSC or alternate using this information will assess the hazards to human health and the environment and the need for evacuation of area personnel. Immediate evacuation will be carried out by area supervisors as needed before arrival of Fire Department. Notification of all regulatory authorities will be performed by the on-duty Security Department Lieutenant, as the Security Department is manned 24 hours per day, 7 days per week. All Army agencies will be notified by the IOSC.

H-4 (c) Control Procedures

In the event of a fire, explosion, or release of a hazardous material the COSC or alternates are authorized to stop operations at all hazardous waste management units, if necessary, in case of an environmental emergency. It is the responsibility of the COSC or alternate to monitor for releases. The inspection of valves and pipes or systems that build-up pressure will not be required at Building No. C-13 as this storage unit does not contain this type of equipment. In the event of a fire, explosion, or release at a hazardous waste management unit, the COSC or alternate will, as soon as possible, conduct and on-site evaluation.

An on-site Fire Department is available to prevent the spread of fire. The inspection of valves and pipes or systems that build up pressure will not be required as storage units do not contain these types of equipment.

H-4(d) Post-Emergency Equipment Maintenance

In the event of a fire, explosion, or release of hazardous waste at a hazardous waste management unit, the COSC or alternate will as soon as possible conduct an on-site evaluation. Once the evaluation is completed, recommended correction actions, including procedural changes, will be implemented as required to prevent the recurrence of an incident.

H-4(e) Storage and Treatment of Released Material

Section 112.7(a)(3)(iv) on Page 18 of the SPCCP has an account of the on-site storage and off-site treatment of any released material.

H-4(f) Incompatible Wastes

There will be no incompatible wastes stored in Building No. C-13

H-4(g) Post-Emergency Equipment Maintenance

All emergency equipment used in responding to a spill and/or fire/explosion will be decontaminated before reuse, or will be replaced. Decontamination procedures will be prescribed by the COSC. The IAAAP Fire Department will decontaminate its equipment, as necessary. Additionally, all emergency equipment will be inspected before reuse.

H-4(h) Container Spill and Leakage

If a leak, spill or release occurs from a container or containment system in Building No. C-13 , the COSC or alternate will assure that the container or containment system is prevented from seeing further use until as such time as the container or containment system is inspected and a cause for release has been determined. All released materials will be removed within 24 hours of detection whether they are a release to a secondary containment or not. Reportable quantity releases to the environment will be reported to the EPA Reginal Administrator within 24 hours of detection. Within 30 days of detection, a report will be submitted to the EPA Regional Administrator containing specific information in regards to the release.

If the cause of the release was from a container into the containment system, the container will be replaced. If the secondary containment has a release it will be repaired or replaced. If extensive (major) repairs are made to the containment system, such as the building itself, for example, a certification by a registered professional engineer will be provided attesting to the integrity of the repair. At the Building No. C-13 storage facility, where proper operational procedures are to be followed in the management of hazardous waste, all wastes are expected to be contained within the building and no such spills or leakage from the building is expected to occur.

H-5 EMERGENCY EQUIPMENT

An inventory of the available emergency equipment appears in Appendix H of the SPCCP. This listing identifies the inventory or plant equipment available for use during an emergency and indicates the quantity available for area use when approved by the IAAAP Commanding Officer. Firefighting and heavy equipment is included on the list.

H-6 COORDINATION AGREEMENTS

The installation maintains a Fire Department, Security (police) Department, Environmental Safety and Health Department, Mechanical Operations Department and a field hospital (clinic) that are available to the COSC and alternates to implement the SPCCP. In addition, only installation personnel are allowed to enter hazardous waste processing areas during the course of an emergency that would require implementation of the SPCCP.

The installation has mutual aid agreements with the cities of Burlington, West Burlington, and Danville, Iowa fire departments to provide standby fire protection for installation non-explosive areas such as inert storage and the shop areas while the installation Fire Department is engaged in a fire. Under no circumstances would the standby fire departments be allowed to enter a hazardous waste management area.

Although only installation personnel are allowed to enter hazardous waste management areas, the following State and Federal emergency response organizations will be notified in case of a major emergency requiring implementation of the SPCCP.

1. Iowa Department of Natural Resources
   Central Office (Des Moines, Iowa)
   Wallace State Office Building
   900 East Grand Avenue
   Des Moines, IA 50319
   Telephone: (515) 281-8883
   24 Hour Number: (515) 281-8694

2. Iowa Department of Natural Resources
   Regional Office No. 6 (Washington, Iowa)
   Point of Contact: Ms. Deborah Quade
   1023 W. Madison
   Washington, IA 52353
   Telephone: (319) 653-2135
   Fax: (319) 653-2856

   If after hours, contact Washington County
   Sheriff at (319) 653-2107 and he will contact
   Region No. 6 personnel

3. U.S. Army
   JMC Operations Center
   Telephone: Commercial (309) 793-7270
   DSN 793-7270
   Point of Contact: Kevin Tiemeier AMSJM-ISM
   Rock Island, Illinois 61299

4. EPA Region 7
   Telephone: (913) 281-0991
   11201 Renner Blvd.
   Lenexa, KS 66219

5. National Response Center (NRC) 24 hours*
   Telephone: 1-800-424-8802
   *The NRC will notify the U.S. Coast Guard and EPA.

H-7 EVACUATION PLAN

Evacuation procedures for workers in the vicinity of specific hazardous waste management units are described in the IAAAP Program for Fire Prevention and Protection, current version.

H-8 REQUIRED REPORTS

1. If a release, fire or explosion occurs which could threaten human health or the environment outside of the facility, the Environmental, Safety and Health Director will submit a report of the incident to the Installation On-Scene Coordinator or the National Response Center.

2. The Environmental, Health and Safety Director must submit a written report to the Regional Administrator, Federal and State, within 15 days after any incident which requires implementation of the SPCCP.

3. Prior to resuming operations in an affected area, the Environmental, Safety and Health Director will notify the Regional Administrator, Federal and State, that the area is incompliance with Title 40 CFR 264.56(h).

PERMIT ATTACHMENT III-6 – CLOSURE PLANS

Container Storage

SECTION J CLOSURE AND POST-CLOSURE REQUIREMENTS

J-1. Closure Plans

These closure plans detail the closure procedures for RCRA permitted hazardous waste management units at the IAAAP consisting of Building Nos. BG-12 and C-13. There are no additional hazardous waste management units at the IAAAP requiring RCRA closure. Closure of one of the two units can be considered a partial closure. Final closure will occur when both units cease all hazardous waste storage and closure is performed in accordance with the closure plan outlined herein. Until final closure is completed and certified, a copy of these closure plans and all approved revisions will be furnished to the Director upon request.

J-1(a) Closure Performance Standards

The hazardous waste management units will be closed in a manner that all hazardous wastes and hazardous waste conditions will be removed until either the background concentrations or Agency-approved health-based residual levels of these components are reached and all structures and equipment decontaminated. If background concentration is the selected performance standard, it will be the mean of the concentrations obtained from analysis of four background samples of each soil horizon to be examined. The four background sampling locations will be determined at the time of closure to eliminate the possibility of pre-selecting a background site where a spill or release may have occurred during the active life of the unit. The selected performance standard along with the justification for the proposed residual hazardous constituent concentration will be submitted to the Regional Administrator at least 60 days prior to initiation of closure. The closure activities are expected to eliminate the need for further maintenance of the site and are also expected to eliminate any post-closure release of hazardous waste or hazardous waste constituents to ground or surface waters or to the atmosphere.

J-1(b) Partial Closure Activities

Closure of Building Nos. BG-12 or C-13 will begin 45 days after the Regional Administrator is notified in writing by the applicant of intent to close the unit provided funding has been received.

J-1(c) Maximum Waste Inventory

The maximum waste inventory for Building No. BG-12 is 10,000 pounds of TNT or its explosive equivalent. The maximum waste inventory for Building No. C-13 is 35,000 pounds of TNT or its explosive equivalent.

J-1(d) Inventory, Removal, Disposal, or Decontamination of Wastes and Equipment

The hazardous wastes stored in Building Nos. BG-12 and C-13 consists of bulk explosive waste scrap generated from production operations, waste pressed explosives/components from production, small munitions items from production and demilitarization programs, spent carbon, diatomaceous earth and sludge from explosive wastewater treatment facilities. All waste will be shipped off-site for reclamation or treatment/disposal.

The decontamination of Building Nos. BG-12 and C-13 may be accomplished with the use of steam or hot water or by another procedure acceptable to EPA. If steam or hot water is used, it will be collected for treatment either on-site in an IAAAP explosive contaminated wastewater treatment facility, if the contaminants are acceptable for on-site treatment, or be shipped off-site for treatment if the contaminants are not acceptable for on-site treatment.

Upon completion of the removal of wastes, decontamination of the building and equipment, and treatment/removal of contaminated soils, all contaminated equipment used during closure activities may be accomplished with steam or hot water or by another procedure acceptable to EPA. If steam or hot water is used, it will be collected for treatment either on-site in an IAAAP explosive contaminated wastewater treatment facility, if the contaminants are acceptable for on-site treatment, or be shipped off-site for treatment if the contaminants are not acceptable for on-site treatment.

J-1(e) Closure of Storage Units

Closure plans for the closure of Building Nos. BG-12 and C-13 storage facilities will result in no hazardous residues remaining after closure. The closure Contractor will be responsible for the preparation of a detailed closure work plan in compliance with all RCRA closure regulations.

First phase soil sampling will be at the entrance to each building to determine if any release of hazardous materials have occurred. Soils around the entrance will be examined where spills may have occurred during loading and unloading operations. Any spills which may have occurred inside of the buildings would have been contained and cleaned up in accordance with existing plans and procedures. Building Nos. BG-12 and C-13 were permitted to store spent halogenated solvents and spent non-halogenated from 1 October 1995 to 8 November 1999. If a review of the weekly inspection records during this period of time verifies no spent solvents were stored in the buildings, then Agency-approved health-based residual levels will be the selected performance standard for metals and explosives. USEPA Cleanup Objectives for RCRA Metals and Explosives in Soil are listed in Table J-1 (on page J-3). If documentation indicates that spent halogenated and non-halogenated solvents have been stored in the buildings then background concentrations will be the selected closure performance standard.

TABLE J-1 USEPA CLEANUP OBJECTIVES FOR RCRA METALS AND EXPLOSIVES IN SOIL

Element	Cleanup Objective	Analytical
Arsenic (As)	23 ug/g	Totals, no extraction (.37 ug/g Carcinogenic)
Barium (Ba)	5,500 ug/g	Totals, no extraction
Cadmium (Cd)	39 ug/g	Totals, no extraction
Chromium (Cr)	390 ug/g	Totals, no extraction
Lead (Pb)	400 ug/g	Totals, no extraction
Mercury (Hg)	23 ug/g	Totals, no extraction
Selenium (Se)	390 ug/g	Totals, no extraction
Silver (Ag)	390 ug/g	Totals, no extraction
RDX	53 ug/g*	Liquid Chromatography
HMX	51000 ug/g*	Liquid Chromatography
TNT	196 ug/g*	Liquid Chromatography
2,4-DNT	8.7 ug/g*	Liquid Chromatography

* - This standard derived from action levels based on U.S. Army Corps of Engineers requirements.

For purposes of statistical analysis, concentrations from one soil horizon will be compared to background concentrations of the same soil horizon. Concentrations of each contaminant at each soil sampling point will be compared to background concentrations in accordance with the Cochran's approximation to the Behrens' Fisher Students' t-test to determine if concentrations are significantly above background. Using all available background data for the specific analytical set (soil horizon), calculate the background mean and background variance. The t-test uses these data summary measures to calculate a t-statistic and a comparison t-statistic. Refer to tables J-2 and J-3 (on pages J-5 and J-6). The t-statistic value is compared to the comparison t-statistic value using the following decision rule:

> If the t-statistic is equal or larger than the comparison t-statistic, then conclude that most likely there has been a significant increase in this parameter.
>
> If the t-statistic is less than the comparison t-statistic, then conclude that most likely there has not been a change in the parameter.

Sketches J-1 and J-2 (on pages J-7 and J-8) respectively, show the locations of the first phase sampling points for Building Nos. BG-12 and C-13. Representative soil samples will be obtained at depths of 0-6 inches, 6-12 inches and 12-18 inches at both the sampling points and background locations. Soil samples will be analyzed for parameters listed in Table J-4 (on page J-6) using analytical test methods presented in Table J-5 (on page J-10).

The number and location of second phase soils sampling points cannot be determined until results of the first phase have been analyzed. The vertical extent of soil contamination will be defined by sampling and analyzing soils in depths of increments of 12 inches until concentrations do not exceed those required by the performance standard.

All soils with contaminant concentrations at hazardous waste levels as determined by the second phase of soil sampling, will either be treated and/or removed and disposed. The specific technology selected will be site specific based upon contaminant concentration, disposal regulations, and treatment technologies available at the time of closure.

All equipment exposed to hazardous materials during closure activities will be decontaminated in accordance with Section: J-1(e) above.

J-1(f) Schedule for Closure

Closure of Building Nos. BG-12 and C-13 will begin 45 days after the Regional Administrator is notified in writing by the applicant of intent to close the unit. It is expected that closure activities will be complete and certification submitted to EPA within 240 days of receipt of final volume of waste.

TABLE J-2

COCHRAN'S APPROXIMATION TO THE BEHRENS-FISHER STUDENTS' T-TEST

n_b = number of background samples

n_m = number of replicate monitoring samples

$\bar{x}_b$ = background mean

$\bar{x}_m$ = monitoring mean

s_b^2 = background variance

s_m^2 = monitoring variance

t_b = t-tables with (n_b-1) degrees of freedom at the .05 level of significance

t_m = t-tables with (n_m-1) degrees of freedom at the .05 level of significance

mean $$\bar{x} = \frac{x_1 + x_2 \ldots + x_n}{n}$$

variance $$s^2 = \frac{(x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 \ldots + (x_n - \bar{x})^2}{n-1}$$

t-statistic (For replicate monitoring samples) $$t^* = \frac{\bar{x}_m - \bar{x}_b}{\sqrt{\frac{s_m^2}{n_m} + \frac{s_b^2}{n_b}}}$$

t-statistic (for single monitoring samples) $$t^* = \frac{\bar{x}_m - \bar{x}_b}{s_b\sqrt{\frac{1}{n_b}}}$$

comparison t-statistic (For replicate monitoring samples) $$t_c = \frac{W_b t_b + W_m t_m}{W_b + W_m} \quad \text{where } W_b = \frac{s_b^2}{n_b} \text{ and } W_m = \frac{s_m^2}{n_m}$$

comparison t-statistic (For single monitoring samples) $$t_c = t_b$$

TABLE J-3

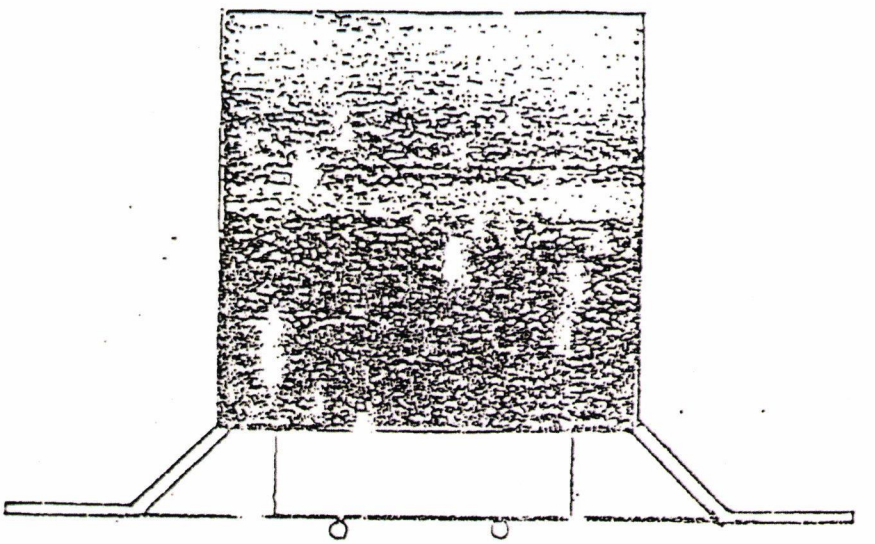
STANDARD T-TABLES 0.05 LEVEL OF SIGNIFICANCE

Degrees of Freedom	t-values (one-tail)	t-values (two-tail)
1	6.314	12.706
2	2.920	4.303
3	2.353	3.182
4	2.132	2.776
5	2.015	2.571
6	1.943	2.447
7	1.895	2.365
8	1.860	2.306
9	1.833	2.262
10	1.812	2.228
11	1.796	2.201
12	1.782	2.179
13	1.771	2.160
14	1.761	2.145
15	1.753	2.131
16	1.746	2.120
17	1.740	2.110
18	1.734	2.101
19	1.729	2.093
20	1.725	2.086
21	1.721	2.080
22	1.717	2.074
23	1.714	2.069
24	1.711	2.064
25	1.708	2.060
30	1.697	2.042
40	1.684	2.021

CORPS OF ENGINEERS U.S. AF

SKETCH J-1

N



HAZARDOUS WASTE STORAGE

O FIRST PHASE SAMPLING POINTS

0 10 20

SCALE IN FEET

BUILDING BG-12

FIRST PHASE SAMPLING POINTS

U.S. ARMY ENGINEER DISTRICT, FT. WORTH

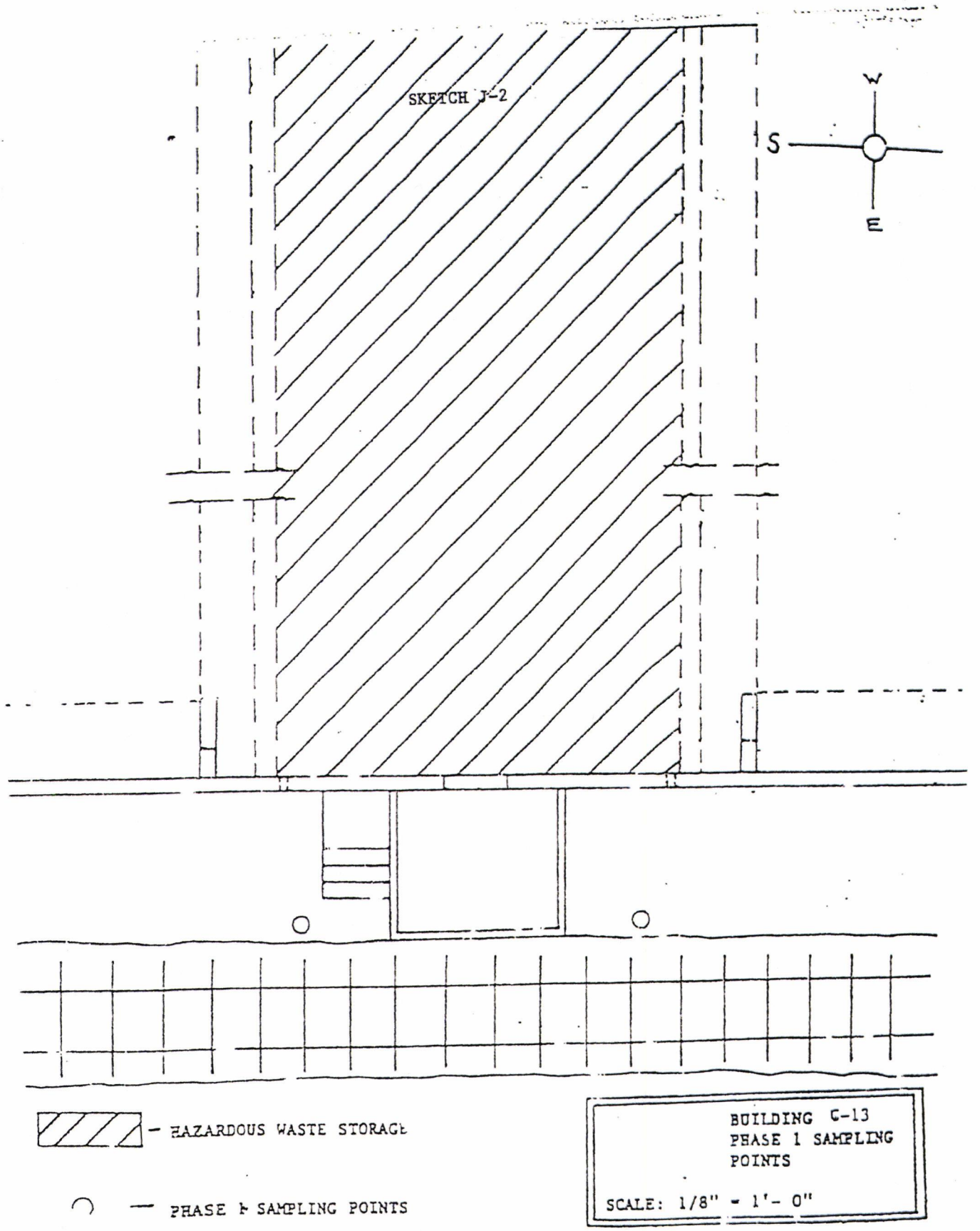

SKETCH J-2
W
S
E
HAZARDOUS WASTE STORAGE
PHASE I SAMPLING POINTS
BUILDING C-13
PHASE 1 SAMPLING POINTS
SCALE: 1/8" = 1'- 0"

TABLE J-4

ANALYTICAL PARAMETERS FOR SOILS ANALYSIS AT BUILDINGS BG-12, C-13

Total Explosive Reactivity

*Acetone
*Acetonitrile
*Benzene
*MEK
*Naphthalene
*Pyridine
*Toluene
*1,1,1,-Trichloroethane
*Trichloroethylene
*Trichloromethane
*Xylene
*Cyanide
*Ignitability

Total Concentration Of The Following Elements:

Arsenic
Barium
Cadmium
Chromium
Lead
Mercury
Selenium
Silver

* - Not required if Agency-approved health-based residual levels is the selected closure performance standard

TABLE J-5

ANALYTICAL METHODS

PARAMETER	TEST METHOD
Acetone	8240
Acetonitrile	8030
Azaserine	
Benzene	OA-10 (1)
Chlorobenzene	0A-10 (1)
Chloroform	0A-10 (1)
Creosote	0A-10 (1)
Dichlorodifluoromethane	8240
Dichloromethane	
1,4-Dioxane	8240
Ethyl Carbamate	
Formaldehyde	
Hexachlorocyclohexane	8120
HMX	Liquid Chromatography
Methyl Ethyl Ketone	0A-10 (1)
Naphthalene	8270
Pyridine	OA-10 (1)
RDX	Liquid Chromatography
Tetrachloroethylene	OA-10 (1)
Tetrachloromethane	OA-10 (1)
TNT	Liquid Chromatography
Toluene	OA-10 (1)
o-Toluidine Hydrochloride	8270
1,1,1-Trichloroethane	OA-10 (1)
Trichloroethylene	OA-10 (1)
Warfarin	
Xylene	8240

TABLE J-5

ANALYTICAL METHODS

Chlordane	8080
2,4,-D	8150
DDT	8080
Dieldrin	8080

TABLE VIII-7 ANALYTICAL METHODS CONT'D

Endrin	8080
Lindane	8080
Methoxychlor	8080
2,4,5-T	8150
Toxaphene	8080
2,4,5-TP (Silvex)	8150
Cyanide	9010
Metals:	
Arsenic	7060
Mercury	7471
Selenium	7740
Others	6010
Corrosivity	9040
Reactivity	U.S. Bureau of Mines Gap Test
Total Explosive Reactivity	8330

(1) Test Method OA-10 was developed by the University of Iowa Hygienic Laboratory.

For the purposes of estimating time for closure, it is assumed that second phase soil sampling and analysis and contaminated soils treatment and/or removal will be required. The schedule developed to accomplish closure activities is predicated on the assumption that funds for closure are available at the time it is indicated to commence closure activities. If funds are not available, the closure period will be extended by the number of days required to appropriate such funds. It is also assumed that contract plans and specifications have been prepared prior to the applicant's notification to EPA of the intent to close. Closure activities are estimated to proceed within the following time frame:

Day 0 - Receipt of final volume of hazardous waste
Day 30 - Remove final volume of hazardous waste
Day 40 - Decontaminate building and equipment
Day 47 - First phase soil sampling completed
Day 75 - Receive results of first phase soil sampling
Day 82 - Second phase soil sampling completed
Day 100 - Receive results of second phase soil sampling
Day 170 -Treatment or removal of contaminated soils completed
Day 180 - Closure activities completed
Day 240 - Closure certification submitted to EPA

The following closure activities will be witnessed by the certifying independent registered professional engineer:

1. Review chain-of-custody records for disposition of final volume of wastes (when applicable)
2. Decontamination of building and/or equipment
3. Determination of first phase sample locations
4. Review of statistical analysis of first phase soils analyses
5. Determination of second phase sample locations
6. Review statistical analysis of second phase soils analyses
7. Treatment and/or removal of contaminated soils

IAAAP will maintain on-site a copy of the approved closure plan at the office of the Environmental Coordinator in Building No. 100-101 until closure is complete. The certifying independent registered professional engineer, owner and the operator will certify that closure has been completed in accordance with the approved closure plan. The closure certification statement will be submitted to EPA, Region VII Office, within 60 days after closure activities have been completed.

J-1(g) Extensions for Closure Time

It is anticipated that closure activities will take no longer than 180 days if a release to the surrounding soils has occurred. If it is determined that an extension to the closure period is required the extension will be requested as soon as possible and prior to the expiration of the original closure period.

If it is determined that an extension to the closure period is required, IAAAP will prepare and submit to the Regional Administrator a demonstration in accordance with 40 CFR Paragraph 264.113(b) requesting an extension to the closure period. The demonstration will be submitted within 150 days from receipt of the final volume of hazardous wastes.

J-2 Post Closure Plan

It is expected that Building Nos. BG-12 and C-13, being container storage facilities, will be closed in a condition of acceptable environmental standards of cleanliness. This "clean" closure will require no Post Closure Plan and will allow the area to be available for use without restriction. In the event that "clean closure" is unattainable, a revised closure plan will be prepared to address the appropriate closure and post closure requirements based on the conditions determined at the time of closure.

J-3 Financial Assurance Mechanism For Closure, Closure Cost Estimates and Liability Requirements

The IAAAP is owned by the Federal Government and is exempt from the requirements noted in 40 CFR Subpart H (264.140).

Open Burning

SECTION J
CLOSURE AND POST-CLOSURE PLANS

J-1 Closure Plan [40 CFR 270.14(b)(13)]

This section contains the closure plan describing the steps necessary to permanently close the OB/OD units at IAAAP. Presently, IAAAP intends to perform a risk-based clean closure as described *in Standards Applicable to Owners and Operators of Closed and Closing Hazardous Waste Management Facilities; Post-Closure Permit Requirement; Closure Process*, 63 Federal Register 56710, October 22, 1998. However, a post-closure plan is also provided in this section in the event that significant contamination has occurred and it is not possible to achieve clean closure standards.

The demolition area was listed as one of 15 areas on IAAAP that were determined to pose an unacceptable threat to human health due to risks from potential ingestion, dermal contact with the soil, or contaminants leaching from soil to groundwater. A Record of Decision issued in 1998 required a Remedial Investigation (RI) to be performed at the site in the near future. A supplemental RI for this area was developed by IAAAP and approved by EPA in March of 2006.

J-2 Schedule for Closure [40 CFR 264.112(b)(7)]

The closure date for the IAAAP OB/OD units has not been determined. However, for the purpose of this discussion, the year 2050 will be used as a closure date.

J-3 Extensions for Closure Time [40 CFR 264.113(a)]

Within 90 days of receiving the final volume of waste, IAAAP will treat and remove all Pyrotechnics, Explosives, and Propellants (PEP) from the OB/OD units in accordance with the approved closure plan. Closure activities will be completed within 180 days after receiving the final volume of PEP. Therefore, an extension for closure time is not anticipated.

J-4 Closure Plan Documentation [40 CFR 270.14(b)(13)]

J-4a(1) Description of Partial or Final Closure Activities [40 CFR 264.112(b)(1) and (2)]

The IAAAP intends to perform a risk-based clean closure on the OB/OD units. Clean closure is defined as closure to background levels, screening levels, or to site-specific risk-based levels. In the event that these standards cannot be achieved, soil remediation will be conducted as necessary. The units will be closed in a manner that minimizes the need for further maintenance, and also controls or eliminates the post closure escape of hazardous constituents into the soil or water.

At closure, all untreated reactive hazardous wastes, contaminated ash residue, and contaminated soils will be removed from the OB/OD units. The burn pans and lids will be cleaned of treatment residuals and either left in place or sold as scrap metal.

No further maintenance of the units is expected to be required because the unit will have been cleaned or decontaminated. If clean closure cannot be achieved during the initial closure activities, other activities such as closing the area as a land disposal unit will be conducted.

J-4a(2) Comparison to Background

Background soil concentrations will be developed when IAAAP notifies EPA Region 7 of their intent to close the units. For parameters that occur naturally, such as metals, the existence of contamination will be determined by a statistical comparison with established background concentrations. If the constituents (i.e., metals) are statistically greater than background concentrations, they will be evaluated in the human health risk screening. If background values are not statistically exceeded, the soil at the OB/OD unit will be considered clean and no further analyses will be conducted.

For contaminants that do not occur naturally, such as explosives or organics, any detectable level may indicate potential contamination. In these cases, statistical comparisons to soil-screening levels will be made to determine the need for further action.

J-4a(3) Comparison to Soil Screening Levels

The Department of the Army agreed to utilize the Preliminary Remediation Goals (PRGs) identified in the March 1998 IROD in establishing risk based criteria for clean up of soils in OU-1.

J-4a(4) Description of Maximum Unclosed Portion During the Active Life of the Facility [40 CFR 264.112 (b)(2)]

The entire OB/OD unit is expected to remain in service throughout the active life of IAAAP. However, on certain occasions, one or more burn pans may need to be taken out of service for repair or replacement. Replacement of burn pans or precipitation covers is not considered a closure activity since the other burn pan within the unit would remain active. Classification and disposal of these items would be conducted in accordance with State and Federal regulations.

J-4b Estimate of Maximum Waste Inventory in Storage and Treatment During Facility Life [40 CFR 264.112 (b)(3)]

Wastes are not stored at the OB/OD units. The design capacity of the OB unit is 120 lbs per hour, while the OD capacity is 1,000 lbs per hour.

J-4c Description of Procedures for Removal or Decontamination of Hazardous Waste Residues, Structures, and Soils [40 CFR 264.112 (b)(4)]

J-4c (1) Burn Pans and Precipitation Covers

After treatment of the final volume of wastes, the burn pans and the area beneath the units will be inspected for the presence of any ejected untreated waste. If any ejected waste is discovered, it will be placed into the burn pans and retreated.

Any ash or shrapnel remaining in the pans will be placed into containers and analyzed to determine if it is regulated as a hazardous waste, non-hazardous waste, or as a decharacterized waste.

The metal burn pans and the area surrounding the pans will be inspected to verify that no treatment residuals remain. Once this inspection is performed, the pans and the precipitation covers will be removed and managed as scrap metal. These items meet the definition of unprocessed obsolete scrap metal and are exempt from Subtitle C standards pursuant to 40 CFR 261.6(a)(3)(ii).

J-4c(2) Soils Surrounding Burn Pans and in OD Area

At closure, the soils surrounding the OB/OD units will be inspected for the presence of readily identifiable unexploded ordnance (UXO) and treatment residues. The presence of debris, ash, explosives, and other ordnance-related items will be noted. A surface sweep using a magnetometer will be conducted to ensure surface soil is cleared of any UXO.

During closure, soil samples will be collected from the OB pan area and the OD area. A soil-sampling grid will be established over these areas, and samples will be taken from either the center of each grid, or from where the grid lines intersect. Records of any locations surrounding the OD area where ejected UXO have been detonated in place will be reviewed, and these areas will also be sampled. At the OB area, surface soil samples will be collected to a depth of 0-1 foot using a stainless steel auger or similar device. The soil removed from the auger will be thoroughly mixed, and a portion of the mixed soil will be placed into the designated sample containers. All samples will be analyzed for metals and explosives. Soil samples around the burn pans will also be analyzed for organics since explosives contaminated with solvents may have been treated there in the past. Similar sampling procedures will be used at the OD area, except that the depth, at which the samples will be collected, will range from 2 to 10 feet.

If a statistical analysis of the soil samples indicates that concentrations of all constituents are below background levels, screening levels, and risk-based levels, no further sampling or soil removal will be necessary.

If hazardous wastes are present, or if concentrations of hazardous constituents are statistically greater than background levels, screening levels, or risk-based levels, additional samples will be collected to characterize the nature and extent of contamination. Subsurface samples will be

collected deeper than 1 foot to determine the vertical extent of contamination, and the sampling grid will be widened to define the extent of horizontal contamination.

J-4c(3) Remedial Actions for Contaminated Soil and Groundwater

Should contaminated soil and/or groundwater need to be addressed during closure, the technology needed for treatment will be determined at that time. The decision will depend on the type of contaminant present, the nature and extent of contamination, and the available technology at the time.

J-5 Location of Disposal Facility (Equipment, Structures, and Soils When Removed [40 CFR 264.112 (b)(3)]

At the time of closure, IAAAP will establish contracts with recycling/disposal facilities for the disposition of non-D003 residuals and scrap metal.

J-6 Post-Closure Plan [40 CFR 264.603]

It is expected that the OB/OD area will be closed in a manner that meets acceptable environmental standards for cleanliness. This "clean" closure will require no Post-Closure Plan because the area will be available for future use without restriction. In the event that clean closure is unattainable, a revised closure plan will be developed to address conditions at the time of closure. The following sections itemize considerations for post closure in the event that clean closure cannot be accomplished.

J-6a Inspection Plan [40 CFR 264.118]

The OB/OD areas will be posted and secured by security personnel. The sites will be inspected quarterly, and the results will be recorded on an inspection form retained in the Environmental Management Office (EMO).

J-6b Monitoring Plan [40 CFR 264.118]

If contamination remains at the OB/OD area after closure, a properly designed monitoring plan will be required. This plan will take into consideration the site-specific conditions found in the area and will include the required scope of monitoring.

J-6c Maintenance Plan [40 CFR 264.118]

Deficiencies noted during inspections will be corrected by IAAAP personnel to maintain the integrity of the sites. Telephone numbers for personnel responsible for emergency response and maintenance will be posted onsite. Records of inspection and maintenance actions will be retained in the EMO, along with quarterly well monitoring reports and runoff discharge records.

J-6d Land Treatment

OB/OD is considered thermal treatment, not land disposal. Therefore, this section is not applicable.

J-7 Notices Required for Disposal Facilities [40 CFR 264.119]

Hazardous wastes will not remain at IAAAP after closure; therefore, this section is not applicable.

J-8 Closure Cost Estimate [40 CFR 264.142]

As stated in 40 CFR 264.140(c), Federal Government installations are exempt from the financial requirements of the hazardous waste regulations. Therefore, this section is not applicable.

J-9 Financial Assurance Mechanism for Closure [40 CFR 264.143]

Federal Government installations are exempt from the financial requirements of the hazardous waste regulations. Therefore, this section is not applicable.

J-10 Post-Closure Cost Estimate [40 CFR 264.145]

Federal Government installations are exempt from the financial requirements of the hazardous waste regulations. Therefore, this section is not applicable.

J-11 Financial Assurance Mechanism for Post-Closure [40 CFR 264.146]

Federal Government installations are exempt from the financial requirements of the hazardous waste regulations. Therefore, this section is not applicable.

J-12 Liability Requirements [40 CFR 264.147]

Federal Government installations are exempt from the financial requirements of the hazardous waste regulations. Therefore, this section is not applicable.

PERMIT ATTACHMENT V-1 – OPEN BURNING STANDARD OPERATING PROCEDURES

AMERICAN ORDNANCE

IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IA 52638

STANDING OPERATING PROCEDURE

EMERGENCY BURNING FOR PROPELLANT, EXPLOSIVES OR AMMUNITION COMPONENTS WHEN DEEMED UNSAFE FOR STORAGE

Σ03986

SOP NO. IO-0000-H-013
DATE: 14 JUNE 1989
REV.: 8
DATE: 21 January 2015
CHANGE NO.: 2
DATE: 3 May 2018

Page Schedule

PAGE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CHANGE NO.	1	1				1	1								
PAGE NO.	16	17	18	19	20	21									
CHANGE NO.															
PAGE NO.															
CHANGE NO.															

REV. NO. 8 DATE 21 January 2015
CHANGE NO. 2 DATE 3 May 2018

INDEX OF OPERATIONS

OPER. NO.	BLDG. NO. OR SITE	BAY NO.	TOTAL EXPL. ALLOWED AT SITE	DESCRIPTION OF OPERATION	PAGE NO.
1	Burn Pan	NA	70 lbs./hr (35 lbs/per pan) f/Propellant; 60 lbs/hr gross weight (30 lbs per pan) for Ammunition Components and explosives At a rate not to exceed 208 hours per year for each source.	Prepare pans for open burning of Propellant, Explosive Components	13
2	Burn Pan	NA	70 lbs/hr (35 lbs/hr per pan) f/Propellant; 60 lbs./hr gross weight (30 lbs/hr per pan) for Ammunition Components and explosives. At a rate not to exceed 208 hours per year for each source.	Lay Ignition Train to Burn Propellant and Explosive Components	17
3	Burn Pan	NA	NA	Recover unburned propellant or explosive components	22

REMARKS:

A. Operation 1 consists of open burning of Propellant, Explosives and Ammunition Components.

NOTE: SOP was prepared to conform to format of AMC-R 700-107.

References: DOD 4145.26-M SB 742-1
AMC-R 700-107 AMCCOMR 740-1
SOP NO. 525 AMC-R 755-8

B. This procedure was developed for emergency situations such as is that propellant found to be unstable, explosive and ammunition components that are deemed unsafe for continued storage which is declared and agreed upon between AO and Army Safety Departments that there is no other safe on-site treatment method, nor are items safe to transport to an offsite treatment facility. Open burning is not to exceed 70 lbs/per hour (35 lbs/per hour each pan) and (explosives and ammunition components) is not to exceed 60 lbs/per hour (30 lbs/per hour each pan). Open burning is not to exceed 208 hour per year for each source.

Rev. 7 added SF note for proper care and assistance needed when setting up burn pans, lids and troughs; updated total explosive allowed at site; allowed opening burning of propellant ,explosives and ammunition components; a sample of ash/residue from the pans will be obtained for analysis for explosives and metals to determine if the ash/residue is a hazardous waste; added the Army Safety, AO Environmental Manager, Army QASAS/Transportation Officer and the Fire Department to be notified prior to setting up firing train. Changes based on Risk Assessment No. 39-DA-02ET-04 for open burning at the demolition area of 70 lbs/hour for the opening burning source at a rate of 208 hours per year for each source. Also removes the Operator and Supervisor Statement which were originally on Page 2 and 3. Removes all references to open detonation.

Rev. 8 added Critical Safety Explosive Alerts.

Rev.8, Change 1, Revised and updated POC, etc. Rev. 8, Change 2, Page 7 – Paragraph 5. Updated the phone number and added a web site to obtain weather information..

DANGER	Indicates a hazardous situation which, if not avoided, ***will*** result in death or serious injury.
⚠ WARNING	Indicates a hazardous situation which, if not avoided could result in death or serious injury.
CAUTION	Indicates a hazardous situation which, if not avoided could result in minor or moderate injury.
NOTICE	Indicates a hazardous situation which, if not avoided could result in property damage.

GENERAL SAFETY REQUIREMENTS

CAUTION ***RESTRICTIONS CONCERNING EXPLOSIVE WEIGHT LIMITS AND RATES PER HOUR ARE NOT TO BE EXCEEDED. THEY ARE MANDATED BY THE IOWA DEPARTMENT OF NATURAL RESOURCES.***

1. General Safety Requirements are contained in SOP No. 525, "General Safety Requirements for the IAAAP". The SOP is available at the site where the operations are conducted. Other general safety requirements are as listed below.

2. The Gate must be closed and red lite flashing at the Demo Field Entrance during treatment operations.

   DANGER ***IF PERSONNEL DRIVE BEYOND THE GATE AND UNKNOWINGLY TRAVEL TO DEMOLITION AREA, SERIOUS INJURY OF DEATH COULD OCCUR.***

3. The demo field shall be under the direct control and supervision of an experienced and trained supervisor charged with the responsibility for all activities within the area. The Supervisor along with Safety Personnel will determine the exact site within the area identified that the open burn will take place. A competent qualified person designated to be in charge shall be present during all burning ground operations. The supervisor shall also be charged personally with the safe custody of all ignition devices.

4. Dry grass, leaves and other extraneous combustible material in amounts sufficient to spread fire shall be removed within a radius of 100 feet from the point of destruction.

5. Verify that 20 ft ignition train is a minimum of 15 ft from foliage.

6. The Explosive Treatment Operator (ETO) Supervisor or other authorized individual must make certain that 2 fire extinguishers are acquired from the fire station. The fire extinguisher must have a minimum UL classification of 2/A:10/B:C. These fire extinguishers must be available to the employees while preparing the open burn site. These fire extinguishers will be retained by ETO's for the duration of the permit. The fire extinguishers will be inspected daily by the ETO personnel. At the end of the open burn permit, the fire extinguishers will be returned to the fire station by the ETO. A radio must also accompany the ETO's while preparing and during the open burn.

7. Personnel at the demo field may stop operations or practices which, if allowed to continue, could reasonably be expected to result in death or serious physical harm to personnel, major system damage or endanger the installations ability to accomplish its' mission. Any action taken should be immediately reported to your immediate supervisor.

8. The ignition train will meet the following requirements:

   a. An ignition train of sawdust saturated with fuel oil will be used to ignite all materials.

   b. Only No. 2 diesel fuel will be used for ignition purposes.

   c. The prepared sawdust will be stored in 55-gallon drums with covers. These drums will be located in the open area adjacent to the open burn area designated by safety. The containers will be stenciled "#2 Diesel Fuel and Sawdust".

   d. The ignition train will be laid out in the trough so as to burn into the wind.

   e. The ignition train will be a minimum of four (4) inches wide and no higher than the trough..

9. Smoking is prohibited in the Area except in the designated smoking area outside the Demo field.

10. During treatment operations, care must be exercised to control and keep the minimum number of people in the area exposed to the hazard. The number of persons engaged in treatment operation shall in NO case be less than two (2).

11. Personnel engaged in treatment operations of explosive components or propellant shall wear flameproof clothing and safety shoes. Propellant handlers shall wear disposable nitrile gloves. Flameproof coats and slipover boots shall be provided and used during inclement weather.

⚠ WARNING **FAILURE TO WEAR PROPER PROTECTIVE CLOTHING COULD RESULT IN SERIOUS OR FATAL BURNS.**

12. Proper care and assistance will be needed when setting up burn pans, lids and troughs. Non skid gloves will be worn and proper lifting techniques must be used to avoid injuries. Due to the heavy weight of the troughs four persons must be used when setting up and during any movement.

13. All employees assigned to treatment operations shall wear safety glasses.

14. Tools and other aids used in handling explosive materials must be of non-sparking material. Such tools and aids shall be moved to a safe distance from the burning pan so they will NOT become heated during burning operations.

15. Matches or other flame producing devices are NOT allowed in the Explosive Treatment Areas except:

    a. As authorized by an approved Safety Work Permit and then only for the time and purpose specified on the permit.

    b. As authorized in No. 16 below.

    Matches found in materials being prepared for treatment will be given to the Explosive Treatment Area Supervisor who will attempt to locate the source.

16. Use of safety matches shall meet the following conditions:

    a. The approved safety match will be used as an ignition device for certain specified operations.

    b. The approved safety match is easily identified by its red wood stem.

    c. The Explosive Treatment Area Supervisor shall be responsible for:

        (1) Acquiring the safety matches.
        (2) Coloring them for easy identification as approved safety matches.
        (3) Storing the safety matches.

GENERAL SAFETY REQUIREMENTS - cont'd

d. The Explosive Treatment Area working supply of safety matches shall be kept in a padlocked metal container in the BG Area Office, BG 199-4. The key to the padlock will be retained by the Explosives Treatment Supervisor.

17. Treatment operations shall be suspended during thunderstorms or when notified that thunderstorms are approaching.

18. Meteorology:

a. When conducting open burning (OB) special attention will be given to the meteorological conditions. Adverse meteorological conditions could scatter the ash and residue contaminating the surrounding areas causing a noxious smoke plume to pass off Government property.

b. The following general conditions will be followed unless local, state or federal regulations are more stringent. In that event, the more stringent regulations should be followed:

(1) The OB operations will not be conducted during electrical storms or thunderstorms or during periods of precipitation or forecasted high probability (greater than 50 percent) of precipitation as predicted by the U.S. Weather Service for the duration of operations. NOTE: This refers to only the actual burning.

(2) The OB operations shall be restricted to periods when surface wind speed is more than three (3) miles per hour or less than 20 miles per hour.

(3) OB operations will not be conducted during periods of reduced visibility (less than one (1) mile) caused by but not limited to dense fog, blowing snow, sand or dust storms.

(4) OB shall not be carried out on extremely cloudy days with a low ceiling. Extremely cloudy days will be defined as overcast days (more than 80 percent cloud cover) having a ceiling of less than 2,000 feet. Cloud density will be determined by the ground supervisors observation. All questionable ceilings will be determined by calling the FAA Flight Service Station at Fort Dodge, Ia., Phone No. 1-800-992-7433.

GENERAL SAFETY REQUIREMENTS - cont'd

(5) The OB ground supervisor will ensure that the Weather Data Statistics Forms are properly filled out for each day's operations. The supervisor will obtain 1/2M and 4M temperatures from the recorder at BG-199-3. Sky/cloud conditions will be based on the supervisor's observation at the site. Relative humidity, wind speed and wind direction will be obtained by telephone from the Davenport Municipal Airport (1-800-803-9357) or Google search Accuweather Burlington IA. The explosive treatment supervisor will maintain weather data statistics forms with all the information shown in No. 19 instructions. When representative of local weather conditions, U.S. Weather Service information should be utilized.

(6) OB operations shall not be initiated until at least one-half hour after sunrise and will be concluded by at least one-half hour before sunset.

(7) OB operations will not be conducted during any lapse or inversion condition (low or high altitude).

(8) No OB operations will be left unattended during the active portion of the operation (i.e., during the actual burn).

(9) OB operations will not be conducted during periods of local air quality advisories/alerts. Guard Headquarters will be notified in the event of such advisories/alerts. Guard Headquarters will notify the transportation dispatcher who will in turn notify the Explosive Treatment Supervisor by radio or telephone.

(10) Installation will operate under any and all constrains identified by the Environmental Noise Management Plan.

GENERAL SAFETY REQUIREMENTS - cont'd

19. Weather Data Statistics Form (Open Burning)
Refer to Attachment "A" for form and step 19 instructions to complete the form.

20. Instructions for Completing Weather Data Statistics Form (Open Burning):

The purpose of the Weather Data Statistics Form is to document weather conditions immediately prior to and at completion of each open burning operation. The information collected will enable operators to determine the adequacy of environmental conditions for demolition area use. Fill in the columns of the Weather Data Statistics Form prior to and at the completion of each operation as follows:

a. Installation: Name of installation/activity and office of responsibility.

b. Demo Ground Location: Self-explanatory.

c. Mo/Yr: Reporting Month/Year. Enter the current calendar month and year.

d. Day/Time: Enter the day of the month and time of readings prior to and just after each treatment operation. The day should be entered once for each day. The time entry shall be made with each set of new readings. Military time shall be recorded based on the 24-hour clock.

e. 1/2M Temp: One-half meter temperature. Record the temperature at the 1/2 meter elevation from the temperature measuring device.

f. 4M Temp: Four meter temperature. Record the temperature at the 4 meter elevation from the temperature measuring device.

g. T: Temperature Difference: Subtract the one-half meter temperature from the 4 meter temperature and record the difference in this column.

h. Cond. L, N, I: Ground level atmospheric conditions; lapse, neutral or inversion. If the value of T (Column 7) is within the range of 1 degree (+1) to minus 1 degree (-1), a neutral condition exists. Enter N for a neutral weather condition. If T (Column 7) is more than 1 degree below zero, enter L for a lapse weather condition. If the value of T is more than 1 degree above zero, enter I for an inversion condition.

GENERAL SAFETY REQUIREMENTS - cont'd

i. Rel Hum: Relative Humidity: Record the relative humidity (0 to 100 percent).

j. Wind Speed: Record the wind speed in miles per hour.

k. Wind Direction: Record the wind direction in degrees or as follows: NE, E., SE, S., SW., W., NW, or N., as indicated by the wind direction gauge or meter.

l. Sky Cloud: Sky Conditions: Record the average cloud cover from the codes indicated below:

Code	Condition
0	Clear (less than 1/10 cloud cover)
1	Scattered clouds (1/10 to 1/2 cloud cover)
2	Broken clouds (6/10 to 8/10 cloud cover)
3	Overcast (8/10 or more cloud cover)
4	Rain

m. Material Burned: If weather conditions permit material treatment, indicate the amount and type of material that is to be treated. Otherwise, enter "NO OPERATION" and circle the weather conditions which limits the operation. Mark column "DA Form 4508 Number" as "NA".

GENERAL SAFETY REQUIREMENTS - cont'd

21. Propellant, explosives and ammunition component wastes are classified hazardous wastes. Ash residue from the wastes may exhibit the extraction procedure (EP) toxicity characteristic and must be tested to determine their classification and handling as hazardous or non-hazardous waste.

22. Prior to an open burn, notify Environmental (will notify IDNR, if required), Army Environmental Coordinator, Army Safety, AO Surveillance, Gov't Surveillance, Guard Headquarters, Fire Station and AO Safety.

A. STANDING OPERATING PROCEDURE FOR: B. OPERATION NO. 1
Open Burning of Propellant ,Explosives & Ammunition Components

C. LOCATION Demo. Field
D. SOP NO. IO-0000-H-013
DATE 14 JUNE 1989
E. REV. NO. 8
DATE 21 January 2015
F. CHANGE NO.___
DATE _____

G. OPERATION: Prepare Pans for Open Burning of Propellants, Explosives or Ammunition Components

H. EXPLOSIVES LIMITS: UNITS: N/A EXPLOSIVES LBS:

70 lbs/ hr f/Propellant;
60 lbs/hr gross weight in components, 35 lbs per pan

I. PERSONNEL LIMITS: OPERATORS 4 TRANSIENTS: 0

J.

Step No.	Description	Specific Instructions (S=Safety, Q=Quality, O=Operations, SS =Security
1.	There will be two open burning pans with lids to minimize infiltration of precipitation between burns.	1a.(S) ASSURE ROAD BARRICADES ARE UP PRIOR TO STARTING OPERATIONS.
2.	Transfer propellant powder to the pans via fork lift or van truck.	2a. (S) OBSERVE OPERATION 1, STEP 11 SOP NO. 525 REGARDING MATERIAL HANDLING EQUIPMENT.
	WARNING AREA TRAVELED BY FORKLIFT OR VAN TRUCK MUST BE LEVEL TO AVOID TOPPLING OF PROPELLANT DRUMS CAUSING FIRE AND SEVERE OR FATAL INJURIES.	2b.(S) No more than 70 lbs/per hour or 35 lbs per pan may be burned at one time. No more than 60 lbs/per hour gross weight in components (30 lbs per pan/per hour). Open burning are not to exceed a rate at 208 hours per year for each source.
		2c.(S) Propellant powder burns quickly (approximately 1.5 seconds) with a bright yellow flash and a puff of white smoke.

2d.(O) Only one burn per bare pan per day will be allowed o propellant powder. Burning may be repeated in tray within 24 hours, if ash/residue has been removed c saturated with water and the tray has been inspected b a competent person to assure safety of personne When water is applied to ash precautions should b taken to prevent spillage of water. Drain plugs in plan will be inspected to ensure they are closed prior t adding water to pans.

3. Unload propellant and spread no more than 1.5 inches of propellant powder in the bottom of the individual pan. (No dunnage will be used with the propellant powder and no No. 2 fuel will be spread over the material. Propellant containers placed in the pans must be opened prior to ignition to prevent container from becoming heated and possibly being ejected from the pans.

3a.(O) Once the Van, truck or fork lift truck has bee unloaded, move the truck or fork lift truck to at least 5 ft. From where material was unloaded..

3b.(S) Attach ground strap from closed metal (if metal container to tray prior to pouring propellant t minimize potential for static spark. Minimize th distance the propellant is poured.

3c.(S) Use nonferrous tools for spreading powder.

CAUTION *MAINTAIN A LAYER OF PROPELLANT NO MORE THAN 1.5 INCHES. EXCEEDING 1.5 INCHES COULD CAUSE PROPELLANT TO DETONATE.*

4. Transfer Explosive Components to the pans via forklift truck or van truck.

4a.(S) OBSERVE OPERATION 1, STEP 11 OF SOP NC 525, REGARDING MATERIAL HANDLIN(EQUIPMENT.

4b(S) For propellants no more than 70 gross lbs/ per hou total or 35 lbs per pan/per hour may be burned at on time for explosives or ammunition components (on layer of explosive components). No more than 6 gross lbs/per hour or 30 lbs per hour per pan may b detonated at any one time.

4c.(S) Only one burn per day will be allowed on Explosiv Components. Burning may be repeated in trays withi 24 hours, if ash/residue has been removed or saturate with water, and the tray has been inspected by competent person to assure safety of personnel.

5. Unload the explosives or ammunition components spread no more than one layer in the bottom of the pan.

5a.(O) Once the van truck or fork lift truck has been unloaded, move the truck outside the Demo area..

5b.(S) Use nonferrous tools for spreading explosive components.

5c.(O) The explosives or ammunition components will be burned in pans. A layer of cyclone fencing will be placed over the pan and secured to the pan with heavy objects (i.e. angle iron) or c-clamps. The purpose of the cyclone fencing is to contain missiles which might occur if any components detonate instead of burning.

6. In the event an explosives or an ammunition component is expelled outside the pan, great precaution shall be taken in retrieving the component

6a.(S) Prior to removing component, the item will be reviewed by Army Safety, AO Safety and Production Eng. to determine if it can be removed safely for disposition.

6b.(O) DO NOT TOUCH component with bare hands.

6c.(O) Wear appropriate PPE – face shield & leather gloves.

6d.(O) Carefully, pickup component with an aluminum shovel and transfer component to and place it inside the pan that has cooled to ambient temperatures.

6e.(O) Only one burn per day will be allowed on explosives or ammunition components. Burning maybe repeated in trays within 24 hours, if ash/residue has been removed or saturated with water, and the tray has been inspected by a competent person to assure safety of personnel.

K. SPECIAL REQUIREMENTS

Surveillance personnel will be notified prior to commencement of all other open burn activities. Other surveillance activities concerning open burning will be in accordance with SOP IO-0000-V-303.

L. EQUIPMENT/TOOLS/GAGES/SUPPLIES

Description	Qty.	NSN/Part No.
Burning Pans w/lids	2 ea.	NA
Stake Truck	1 ea.	2320-01-090-7907
Forklift Truck, 6000# DED	1 ea.	NA
Forklift Truck, 20,000# DED	1 ea.	NA
No. 2 Diesel Fuel	4 ea., five gal. cans.	NA
Brush	2 ea. at site	NA
Nonferrous tools for spreading propellant or expl.	As Req'd	NA

A. STANDING OPERATING PROCEDURE FOR: B. OPERATION NO. 2

Open Burning of Propellant, Explosives or Ammunition Components

C. LOCATION Demo Field
D. SOP NO. IO-0000-H-013
DATE 14 JUNE 1989
E. REV. NO. 8
DATE 21 January 2015
F. CHANGE NO. __
DATE _____

G. OPERATION: Lay Ignition Train for Open Burn Propellant, Explosive Scrap

H. EXPLOSIVES LIMITS: UNITS: N/A EXPLOSIVES LBS:

70 lbs f/Propellant or 35 lbs per pan/ per hour not to exceed a rate of 208 hours per year
60 lbs gross weight f/Explosives or Ammunition Components or 30 lbs per pan/ per hour not to exceed a rate of 208 hours per year

I. PERSONNEL LIMITS: OPERATORS 2 TRANSIENTS: 2

J.

Step No.	Description	Specific Instructions (S=Safety, Q=Quality, O=Operations, SS =Security
1.	Prepare material for firing train. NOTE: Prepare 1 drum of saturated sawdust for use at the Explosive Treatment Area may be prepared at one (1) time.	1a.(O) Using scoop, place the sawdust into 55-gallon drums identified as to content. Pour No. 2 diesel fuel over the sawdust until it is saturated. 1b.(O) Using lids, cover the drums of saturated sawdust. 1c.(O) Transfer drum of saturated sawdust, via material handling equipment, to the treatment pads as required. 1d.(S) REFERENCE STEP 11 OF SOP NO. 525 CONCERNING MATERIAL HANDLING EQUIPMENT.

2. Contractor Surveillance, Army Safety AO Environmental Manager, the Army QASAS/Transportation Officer and the Fire Department are to be notified prior to the initiating firing train.

3. Weather data will be collected just before the ignition train is laid.

4. Lay an ignition train of sawdust saturated with No. 2 diesel fuel a minimum of 20 feet long in the direction from which the wind is blowing in metal troughs as provided.

4a.(S) Observe No. 8 of General Safety Requirements concerning the ignition train.

4b Have on-site binoculars or spotting device to verify burn completion.

⚠ WARNING ***FAILURE TO MAINTAIN A 20' "IGNITION TRAIN" AND NOT BURNING INTO THE WIND, COULD RESULT IN RAPID INITIATION OF THE PROPELLANT BED, CAUSING A SERIOUS INJURY OR FATALITY.***

4c.(S) Leave the engine running so that a rapid retreat can be made after the trains are ignited.

5. Light the ignition train as follows:
   a. Transfer the safety match transfer container to the ignition end of the ignition train.
   b. Open the safety match transfer container.
   c. Remove a box of safety matches.
   d. Close the safety match transfer container.
   e. Light the match.
   f. Ignite the ignition train.
   g. Return the box of safety matches to the transfer container.

5a.(S) Observe No. 16 of the General Safety Requirements concerning safety matches.

5b.(O) Trains may be ignited by two different persons.

5c.(O) These two (2) different persons (the supervisor and operator) will enter the transportation unit and drive out of the Demo field.

5A. In the event of a misfire, the following procedure will be followed:
   a. Wait for a period of 30 minutes
   b. The supervisor and 1 operator will return to the treatment area. One person should observe from a distance and the other proceed to determine why there was not igniting. Re-light the ignition train in accordance with Step 4 or Step 6.

NOTICE ***PRIOR TO LIGHTING THE "INITIATION TRAIN", START VEHICLE TO ASSURE IT CAN BE DRIVEN FROM SITE IN A TIMELY MANNER. IF IT CANNOT BE MOVED, DAMAGE MAY OCCUR TO THE UNIT.***

6. Alternate method of igniting material especially 70 lbs of propellant is as follows:

a. Transfer an ignitor to the pan of propellant.

b. Prepare ignitor for ignition as follows for electric firing:

(1) Attach M1 flash vented squib lead wire to firing wire.

⚠ WARNING ***RADIO-FREQUENCY ENERGY. ALTHOUGH ELECTROEXPLOSIVE DEVICES (EED), SUCH AS SQUIBS AND DETONATORS, CAN BE FIRED BY RADIO-FREQUENCY.***

(2) Insert squib into bag of smokeless powder and secure bag to squib by taping top of bag to squib lead wires.

(3) Insert bag into ignition train of sawdust saturated with No. 2 diesel fuel as prepared in Step 4 above.

(4) Check the Demo area to insure it is clear of all personnel and vehicles.

(5) All personnel except those directly associated with the firing will retire east of the road barricade.

(6) Supervisor, operator and visiting observers, if present, retire to demo field firing site.

c. Perform the firing as follows:

(1) Attach the wires to the blasting machine for the selected area.

6a.(S) Check the lead wires for stray current with a DuPont Blasting Volt Ohmmeter set as follows:

(1) 1.5 DCV Scale
(2) 1.5 ACV Scale
(3) Pin Plugs in volts

NOTE: There should be no needle movement. If there is needle movement, notify maintenance electrical personnel at phone 7715 to find and eliminate source of stray current.

6b.(S) Check the squib for continuity using a Galvanometer. NOTE: The Galvanometer will be tested prior to use by holding a piece of metal across its two terminals. If this does not cause a wide deflection of the needle (23 to 25 units), the battery is weak and will be replaced. When used in cold climate the galvanometer will be protected from freezing by keeping it under clothing and near the body.

6c.(S) Each squib used in the electric firing system will be individually tested.

6d.(S) Always point the explosive end of the squib away from the body, other personnel and explosives.

6e.(S) Individuals will make use of available protective cover and keep their backs toward the squib when testing for continuity with a galvanometer.

6f.(S) When uncoiling squib lead wires, the squib will not be held directly in the hand, but will be held by the wires approximately 2.5 centimeters (1 inch) from the squib

(2) Actuate the siren for approximately 20 seconds and then actuate the blasting machine.

6g.(S) Lead wires will be straightened out by hand. Do not throw, wave or snap to loosen coils.

6h.(O) Carefully extend squib lead wires to maximum length.

6i.(O) Secure squib to prevent movement by placing in a hole or behind a barricade.

6j.(S) An individual removing the shunt will ground himself/herself to prevent accumulated static electricity from firing the squib by grasping the firing wire.

6k.(O) Remove the shunt.

6l.(O) Hold one squib lead wire to one post of galvanometer and touch other lead wire to other post.

6m(O) If squib is unsatisfactory galvanometer will deflect slightly less than it did when the instrument was tested.

6n.(O) Dispose of defective squibs by placing with material being burned.

6o.(O) Shunt lead wires of all squibs immediately after testing. Wires will remain shunted until connected to the firing circuit.

7. Supervisor, operator and observers, if present, will proceed outside the gate leading to the treatment area being used and remain there until all visible evidence of fire has disappeared.

7a.(S) Persons observing can assist or seek assistance in the event the first person encounters trouble.

8. In the event of a misfire, the following procedure will be followed:

   a. Wait for a period of 30 minutes.
   b. The Supervisor and one (1) operator will return to the treatment area. One (1) person should observe from a distance and the other proceed to determine why the train did not ignite the dunnage or the propellant or explosive components.
   c. Re-lay the ignition train in accordance with Step 4 above.
   d. Light the ignition train in accordance with Step 6 above.

IT IS ABSOLUTELY ESSENTIAL THAT PERSONNEL WAIT AT LEAST 30 MINUTES IN THE EVENT OF A "MISFIRE". APPROACHING THE SITE WITHOUT PRECAUTIONS COULD RESULT IN SERIOUS INJURY OR DEATH.

9. Secure and record weather data after the burn is completed.

K. SPECIAL REQUIREMENTS
None

L. EQUIPMENT/TOOLS/GAGES/SUPPLIES

Description	Qty.	NSN/Part No.
55-gallon Drums,	2 ea.	NA
Scoop (nonsparking)	2 ea.	NA
Diesel Fuel, No. 2	4 ea. 5 gal. cans	NA
Sawdust	110 gal.	NA
Safety Matches	2 boxes	NA
Transfer Container f/Safety Matches	1 ea.	NA
Truck/Pickup	1 ea	NSN 2320-01-090-7882
M1 Flash vented squibs	As Req'd	NA
Plastic bags of smokeless powder	As Req'd	NA
DuPont Blasting Volt Ohmmeter	As Req'd	NA
Metal troughs (approx. 25' long), to hold Firing Train	6 ea.	NA
Galvanometer	As Req'd	NA
Blasting machine	As Req'd	NA

A. STANDING OPERATING PROCEDURE FOR: B. OPERATION NO. 3
Open Burning of Propellant ,Explosives or Ammunition Components

C. LOCATION DEMO FIELD
D. SOP NO. IO-0000-H-013
DATE 14 JUNE 1989
E. REV. NO. 8
DATE 21 January 2015
F. CHANGE NO.
DATE ____

G. OPERATION: Remove, Recover Unburned Propellant, Explosives or Ammunition Components

H. EXPLOSIVES LIMITS: UNITS: N/A EXPLOSIVES LBS: N/A

I. PERSONNEL LIMITS: OPERATORS 4 TRANSIENTS: 0

J.

Step No.	Description	Specific Instructions (S=Safety, Q=Quality, O=Operations, SS =Security
1.	Ash from the combustion will be removed as required (when able to physically scoop ash or at discontinuance of OB) using a non-sparking scoop and placed in 55-gallon open top drums. A sample of ash/residue from the pans will be obtained for analysis for explosives and metals to determine if the ash/residue is a hazardous waste. Providing sufficient ash is present, a scoop of ash will be obtained from each of four corner of ash in each pan. The 4 scoops of ash from each pan will be mixed to allow a composite ash sample from each of the two pans to be obtained. Operator will wear a negative pressure air purifying respirator with HEPA cartridges or a powered air purifying respirator with HEPA cartridges while handling ash. Drum will be labeled as to the source of the ash. Filled drums will be moved to the BG-199-3.	
1a.(O)		The drum will be numbered, the number recorded in the inventory log and a test sample drawn for chemical analysis for the presence of and degree of heavy metals. Drum may be moved to the Bldg. BG-199-3 pending results of the tests.

2. In the event there is any unburned propellant or unexploded explosive or ammunition components Operation 1 & 2 will be repeated.

K. SPECIAL REQUIREMENTS

1. Surveillance-Certified contractor surveillance representatives will assure that the treatment supervisor annotates the Nonconforming Material Removal Request, QC-711 with the statement Destroyed By, signature and date. If multiple days are required to accomplish the destruction, the quantity destroyed each date will be added to the statement for each date. The annotated Form QC-711 becomes the destruction certificate. Surveillance representative must sign the destruction certificate to indicate verification of destruction. A copy of the form is provided to the Army staff QASAS Transportation office.

2. After the emergency burning operation has been completed, the Supervisor will notify the Army Environmental Coordinator and the AO Environmental Manager that the area is available for inspection. The purpose of the inspection is to ensure that current operations are not contributing to past contamination.

L. EQUIPMENT/TOOLS/GAGES/SUPPLIES

Description	Qty	NSN/Part No.
Flashlight	1 ea.	NA
55 Gal. drums (open top) with lids	10 ea.	NA
Test Sample Containers	10 ea.	NA
Metal scratching tool	2 ea.	NA
Certificate of Clearance	50 ea.	NA
Dump truck	1 ea.	2320-01-090-7817
Truck/Pickup	1 ea.	2320-01-090-7882
Inventory log	1 ea.	NA
Forklift Truck, 600#, DED	1 ea.	NA
Forklift Truck, 20,000#, DED	1 ea.	NA
Nonsparking scoop	2 ea.	NA
Cardboard box for unburned Propellant or Explosives components	As Req'd	NA

1. IOWA ARMY AMMUNITION PLANT

STANDING OPERATING PROCEDURE FOR:

EMERGENCY BURNING FOR PROPELLANT, EXPLOSIVEs OR AMMUNITION COMPONENTS.

2. ITEM:	**a. Propellant** **b. N/A** **c. Haz. Class 1.1, Fire Symbol 1** **d. Chemical Hazard Symbol – None**
3. OPERATION	**Open Burning**
4. ESTIMATED DAILY PRODUCTION RATE	**N/A**
5. ORGANIZATION SYMBOL	**CONTRACTOR ENVIRONMENTAL**
6. SOP NO. IO-0000-H-013 **DATE 14 JUNE 1989**	**a. Rev. No. 8** **Date** 21 January 2015 **b. Change No. 1** **Date 8 December 2015**
7. AUTHORITY	**DOD 4145.26-M** **DATE: MARCH 86**
8. PREPARED BY:	**TITLE:** **WASTE DISPOSAL DEPARTMENT** **EXT. 7719**
9. SUBMITTED BY:	**TITLE:** **WASTE DISPOSAL SUPERVISOR** **EXT. 7719**
10. REVIEWED BY:	**TITLE:**

STANDING OPERATING PROCEDURE FOR:

OPEN BURNING OF PROPELLANT, EXPLOSIVE COMPONENTS

11. CONCURRENCES:

OFFICE	SIGNATURE/DATE	TITLE
AMERICAN ORDNANCE SAFETY & HEALTH	**APPROVED PER PILGRIM 11/18/15**	SAFETY MANAGER
AMERICAN ORDNANCE ENVIRONMENTAL	**APPROVED PER PILGRIM 11/17/15**	AO ENVIRONMENTAL
ACO SURVEILLANCE	**REPLIED W/NO COMMENTS 12/8/15**	QASAS
ACO ENVIRONMENTAL	**REPLIED W/NO COMMENTS 11/20/15**	ENVIRONMENTAL COORDINATOR

12. APPROVAL:

OFFICE	SIGNATURE/DATE	TITLE
ACO SAFETY	**REPLIED W/COMMENTS ON 11/19/15**	SAFETY MANAGER

13. ANNUAL REVIEW:

OFFICE	SIGNATURE/DATE	TITLE
DISPOSAL DEPARTMENT		DISPOSAL SUPERVISOR

AMERICAN ORDNANCE
IOWA ARMY AMMUNITION PLANT
CONTRACT NO. _____

MEMO TRANSMITTAL SLIP

Date: 8 December 2015

FROM: AMERICAN ORDNANCE

TO:

1. ACO (3)
2.
3.
4.
5.

Any communication regarding this report will be through the Commander, Iowa Army Ammunition Plant, 17571 DMC Highway 79, Middletown, Iowa 52638-5000.

TRANSMITTED HEREWITH IS STANDING OPERATING PROCEDURE, SOP NO. IO-0000-H-013, REVISION 8. Added critical safety explosive alerts throughout procedure.

bc: DOCUMENT CONTROL (1) W/1 ATT.
(RC) DISPOSAL WASTE DEPARTMENT (1) W/ATT. RETAINED

ATT. ONLY: J. SPENCE (1)
TONY NOLL (1)
STACIE SCHONE (1)
J.CARROLL (1)

PERMIT ATTACHMENT VI-1 – OPEN DETONATION STANDARD OPERATING PROCEDURES (TO BE INCORPORATED THROUGH A PERMIT MODIFICATION REQUEST)

PERMIT ATTACHMENT VII-1 – OPEN DETONATION STANDARD OPERATING PROCEDURES FOR 40MM GRENADES (TO BE INCORPORATED THROUGH A PERMIT MODIFICATION REQUEST)

PERMIT ATTACHMENT VIII-1 – POST-CLOSURE PLAN

APPENDIX I

CLOSURE AND POST-CLOSURE PLANS
-FOR-
TRENCH NO. 5 OF THE INERT LANDFILL
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA

POST CLOSURE PLAN

I. GROUND-WATER MONITORING ACTIVITIES

A. Regulatory Status. That portion of Trench 5 of the inert landfill which contains hazardous waste will be closed with all hazardous wastes remaining in-place. Accordingly, post-closure management of this facility must be maintained through the development of a post-closure plan. This plan will include ground-water monitoring activities in compliance with Part 265, Subpart F. An indicator evaluation monitoring program conducted at the inert landfill utilizing four existing wells has generated some ground-water quality data which failed the Student's t-Test. In accordance with 40 CFR 265.93, a ground-water quality assessment plan has been implemented.

B. Ground-Water Quality Assessment. The ground-water quality assessment will examine the rate and extent of migration of the hazardous waste and concentrations of the hazardous waste in the ground water in the uppermost aquifer and in a deeper aquifer. Results of the assessment will dictate the placement of ground-water monitoring wells and the list of parameters to be monitored during the post-closure care period. The test boring and monitoring well installation plan to be implemented in the ground-water quality assessment is included as Attachment 8.

C. Post-Closure Ground-Water Monitoring Plan. A ground-water monitoring program has been developed in accordance with Part 265,

Subpart F, and is submitted as Attachment 9. A ground-water quality assessment has been initiated in compliance with 265.93(d). If the assessment indicates that no hazardous waste or hazardous waste constituents from the facility have entered the ground water, then the indicator evaluation program outlined in Attachment 9 will be utilized. If the assessment indicates that hazardous waste or hazardous waste constituents have entered the ground water, then determinations required in the assessment plan will continue on a quarterly basis.

II. MAINTENANCE ACTIVITIES

A. Cover. Provisions for settlement due to primary consolidation have been made in the closure plan as outlined in VIII.D. Settlement due to secondary compression will be monitored by conducting surveyed ground profiles of the cover in both the long axis and short axis of the cover. Three such surveys will be conducted in accordance with the following schedule:

Survey No.	Time From Final Cover Placement	Estimated Secondary Compression (%)	
		Edge	Center
1	1 yr	6.5	13.0
2	5 yrs	9.5	15.5
3	10 yrs	10.5	17.0

Additionally, the cover will be visually inspected on a monthly basis for erosion, differential settlement, fractures, and any ponding of water. Particular attention will be made to inspect the clay cover where it terminates over the existing landfill to detect any

settlement which may occur at this boundary. If it is determined, as a result of either the surveys or monthly inspections, that depressions in the cover or development of slopes too flat for adequate runoff have occurred, then the low areas will be filled in with suitable clay materials to preclude ponding or facilitate runoff whichever is appropriate. These regraded areas will be topsoiled and reseeded.

B. Turf. Maintenance of the turf will consist of fertilization and mowing. Fertilizer will be spread annually at a rate of 1 lb nitrogen/1,000 ft^2. During the growing season the grass will not be mowed shorter than 3 inches. Tall fescue is a clumping type grass and does not spread. Accordingly, overseeding will be required each September to fill-in those areas where the grass has not survived the summer.

C. Monitoring Equipment. Monitoring equipment consists of ground-water monitoring wells. Very little maintenance of the wells is anticipated since protective covers will be installed over each well. Should such covers become damaged, they will be repaired or replaced. Each time a monitoring well is sampled, the well will be sounded to determine if siltation has occurred. If siltation has occurred to the extent of affecting the quality of a water sample or of hindering the ability of the well to produce representative ground-water samples, the well will be flushed or jetted out. If it is determined there has been a structural failure of the screen, the

well will be replaced. The surface seal of each monitoring well will be inspected to ensure no cracks have developed or that no separation has occurred between the casing and the surface seal.

D. Potential Leachate Generation. The toe of Trench 5 where it daylights to natural drainage at the southern end will be inspected monthly to determine if any potential leachate is being released to surface drainage. Should any such release of leachate be detected, a sample will be obtained and analyzed for EP Toxicity concentrations of all metals listed in Table 1 of 40 CFR, Part 261, utilizing test methods outlined in "Test Methods for Evaluating Solid Waste," dated November 1986.

E. Inspection Schedule. Monthly inspections will be conducted and recorded on an inspection form and will include a visual inspection of the following items:

1. Security fence for breaches.

2. Cover for erosion, differential settlement, fractures, absence of turf, ponding of water, and development of slopes too flat for adequate drainage.

3. Monitoring wells for integrity of protective cover, presence of a lock, and integrity of the surface seal.

4. Toe of Trench 5 where it daylights to natural drainage at the southern end for release of leachate.

III. OFFICE OF RESPONSIBILITY

The person to contact concerning the hazardous waste disposal unit

during the post-closure care period is:

Mr. Leon Baxter
Industrial Engineer
319/753-7101
Building No. 100-101
Iowa Army Ammunition Plant

IV. POST-CLOSURE NOTICES

A. Notice to Local Land Authority. No later than 60 days after certification of closure, IAAP will submit to Southeast Iowa Regional Planning Commission and to the Regional Administrator, a survey plat indicating the location and dimensions of the landfill cell with respect to permanently surveyed benchmarks. This plat has been prepared and certified by a registered land surveyor (Plate 2). Additionally, a record of the type, location, and quantity of hazardous wastes disposed of within Trench 5 will be submitted.

B. Notice in Deed to Property. Within 60 days of certification of closure, IAAP will record, in accordance with state law, a notation on the deed to the facility property or on some other instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:

1. The land has been used to manage hazardous wastes;

2. Its use is restricted under 40 CFR Subpart G Regulations; and

3. The survey plat and record of the type, location, and quantity of hazardous wastes disposed of within the trench have been filed with Southeast Iowa Regional Planning Commission and with the Regional Administrator.

C. Certification of Notice in Deed to Property. Within 60 days of certification of closure, IAAP will submit a certification signed by the owner and operator that he has recorded the notation specified in **Notice in Deed to Property** to the Regional Administrator. Additionally, IAAP will submit a copy of the document in which the notation has been placed.

D. Certification of Completion of Post-Closure Care. Within 60 days after completion of the established post-closure care period, IAAP will submit to the Regional Administrator a certification that the post-closure care period was performed in accordance with the specifications in the approved post-closure plan. The certification will be signed by the owner.

A52

DEPARTMENT OF THE ARMY
IOWA ARMY AMMUNITION PLANT
17571 STATE HIGHWAY 79
MIDDLETOWN, IOWA 52638-5000

REPLY TO
ATTENTION OF

February 24, 1997

Plant Protection

U.S. Environmental Protection Agency, Region VII
Mr. Ken Herstowski
726 Minnesota Avenue
Kansas City, KS 66101

Dear Mr. Herstowski:

Reference Hazardous Waste Permit, ID No. IA7213820445, and Mason & Hanger-Silas Mason Co., Inc., (Iowa Army Ammunition operating contractor), Environmental, Safety & Health Division File No. 26.10.11.

We are enclosing the operating contractor's correspondence dated February 6, 1996 amending the Closure/Post Closure Plan for the Iowa Army Ammunition Plant (IAAAP) Inert Disposal Area (IDA) Trench No. 5.

We request you review this amendment and grant authorization for implementation into the current Closure/Post Closure Plan.

If you have additional questions, please contact Mr. Leon Baxter, Quality Assurance Office, DSN 585-7101,(319)753-7101, E-mail lbaxter@ria-emh2.army.mil or Mr. Rodger Allison, Plant Protection, E-mail rallison@ria-emh2.army.mil, Plant Protection Office, DSN 585-7130 or commercial (319) 753-7130.

Sincerely,

Leon D. Baxter
Chief Engineer

Enclosure

CF(without enclosure):

Mason & Hanger Corporation, ATTN: Mr. Ron Durbin (via e-mail)

since 1827
MASON & HANGER CORPORATION
IOWA ARMY AMMUNITION PLANT

6 February 1997

ENV97-0039/L

Contracting Officer's Representative
Contract No. DAAA09-94-E-0005
Iowa Army Ammunition Plant
Middletown, IA 52638-5000

Dear Sir:

Subject: Amendment of Closure/Post Closure Plan for Iowa Army Ammunition Plant (IAAAP) Inert Disposal Area (IDA) Trench No. 5

Reference: 40 CFR 265.112(c)(1)(iii)

Enclosed are two (2) copies of the above subject. Please forward one (1) copy to Mr. K. V. Herstowski, US Environmental Protection Agency, 726 Minnesota Avenue, Kansas City, KS 66101 and courteously request authorization pursuant to the above reference to amend the subject closure/post closure plan.

Point of contact is John W. Crowley at (319) 753-7218.

Sincerely,

MASON & HANGER CORPORATION

TR Doel /for

J. E. Shannan
Environmental, Safety &
Health Division Manager

JES/RED/JWC/kl

Enclosure: As Stated

17575 State Highway 79 • Middletown, Iowa 52638-9701 • 1-800-488-9719 • Fax 319-753-7774 • info@teamiowa.com

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ATTACHMENTS

1 SCOPE

1.1 This document serves as an amendment to the closure/post closure plan for the Iowa Army Ammunition Plant (IAAAP) Inert Disposal Area (IDA) Trench No. 5 (see Figures 1 and 2). This plan is prepared pursuant to 40 CFR 265.112(c)(iii) and documents interim closure actions at the aforementioned trench as said actions pertain to the groundwater monitoring requirements of the Resource Conservation & Recovery Act.

2 REFERENCES

2.1 "Closure and Post-Closure Plans for Trench No. 5 of the Inert Landfill--Iowa Army Ammunition Plant, Iowa," US Army Corps of Engineers (Ft. Worth District), April 1988.

3 BACKGROUND INFORMATION

3.1 Construction pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at IDA has altered the closure configuration of Trench No. 5 in the following manner(s):

3.1.1 The steel chain link perimeter fence of Trench No. 5 has been removed.

3.1.2 Monitoring wells ET-1, ET-2, and ET-3 were added in November 1993. Boring logs for monitoring wells ET-1, ET-2, and ET-3 are included in Attachment I.

3.1.3 Monitoring wells ET-1, ET-2, T-2, T-3, JAW-66, and JAW-67 were properly abandoned by Layne-Western, Inc. under subcontract to Harding Lawson Associates in July 1996.

4 GROUNDWATER MONITORING DURING CLOSURE PERIOD

4.1 The following monitoring wells will be monitored in May and November of each year during the IDA closure period:

4.1.1 T-1, G-4, ET-3, T-6, T-7, T-8, T-9, G-5, G-6, G-7, JAW-26, JAW-28, JAW-65, and JAW-27. Table 1 illustrates analyte classifications for each well. Monitoring wells JAW-66 and JAW-67 are slated to be replaced by monitoring wells C95-1 and C95-2 per Mason & Hanger Letter ENV96-0148/L dated 28 August 1996. Monitoring wells T-4 and T-5 are not being monitored during the interim closure period.

4.1.2 Analytical methods for the analyte groups listed in Table 1 shall conform to US Environmental Protection Agency Publication SW-846 "Test Methods for the Evaluation Solid Waste, Physical/Chemical Methods" (most recent edition) or "Standard Methods for the Evaluation of Water and Wastewater" (most recent edition) where appropriate. Specific conductance, pH, groundwater elevation, and temperature will be measured in the field.

4.2 Groundwater samples from Trench No. 5 monitoring wells will be collected using Mason & Hanger Corporation procedure QAS-ENV 0301 (most recent revision).

4.3 Student's t-test will be used on analytical data derived from groundwater sampling per 40 CFR 265.93(b) in order to determine significant changes in groundwater quality. If a change in groundwater quality is determined to be apparent, EPA Region VII will be notified.

5 CHANGES TO PREVIOUS POST CLOSURE PROCEDURES

5.1 Because of the IDA closure actions being performed pursuant to CERCLA, the following tasks cannot be performed pursuant to section/reference 2.1:

5.1.1 Inspection of the Trench No. 5 cap on a monthly basis.

5.1.2 Maintenance of the fence encircling the cap of Trench No. 5.

5.1.3 Seeding of the Trench No. 5 cap with fescue on an annual basis (typically in the Fall).

5.1.4 Mowing of the Trench No. 5 vegetative cover.

5.1.5 Inspection of the IDA monitoring wells listed in section 4.1.1 other than during well monitoring activities; however, maintenance on any well observed to be damaged or in need of restoration will be performed as needed.

6 POST CLOSURE GROUNDWATER MONITORING

6.1 After completion of the IDA closure actions, the IDA will be monitored as a singular landfill site under CERCLA. Included in the IDA closure monitoring under CERCLA is Trench No. 5.

6.2 The procedures detailing the post closure groundwater monitoring efforts are the responsibility of the Corps of Engineers--Missouri River Office (CEMRO). Said document will take the form of an operations & maintenance (O&M) manual forthcoming from CEMRO upon completion of closure activities under CERCLA.

TABLES

TABLE 1:
IAAAP IDA TRENCH NO. 5 ANALYTES

Well	Exp	VOC	SVOC	Metals	Rad	TOC	TOX	pH	GWE	SC
T-1								X	X	X
G-4			X	X				X	X	X
ET-3	X	X	X	X				X	X	X
T-6*						X	X	X	X	X
T-7*						X	X	X	X	X
T-8*						X	X	X	X	X
T-9*						X	X	X	X	X
G-5	X	X	X	X				X	X	X
G-6				X				X	X	X
G-7						X	X	X	X	X
JAW-26	X			X				X	X	X
JAW-27*						X	X	X	X	X
JAW-28	X	X	X	X				X	X	X
JAW-65	X			X				X	X	X
C95-1	X	X	X	X	X	X	X	X	X	X
C95-2	X	X	X	X	X	X	X	X	X	X

Source: USEPA letter from K. V. Herstowski to L. D. Baxter dated 16 June 1995. Analytes for C95-1 and C95-2 taken from previous analytes required for JAW-66 and JAW-67.

*Denotes bedrock aquifer well.

FIGURES

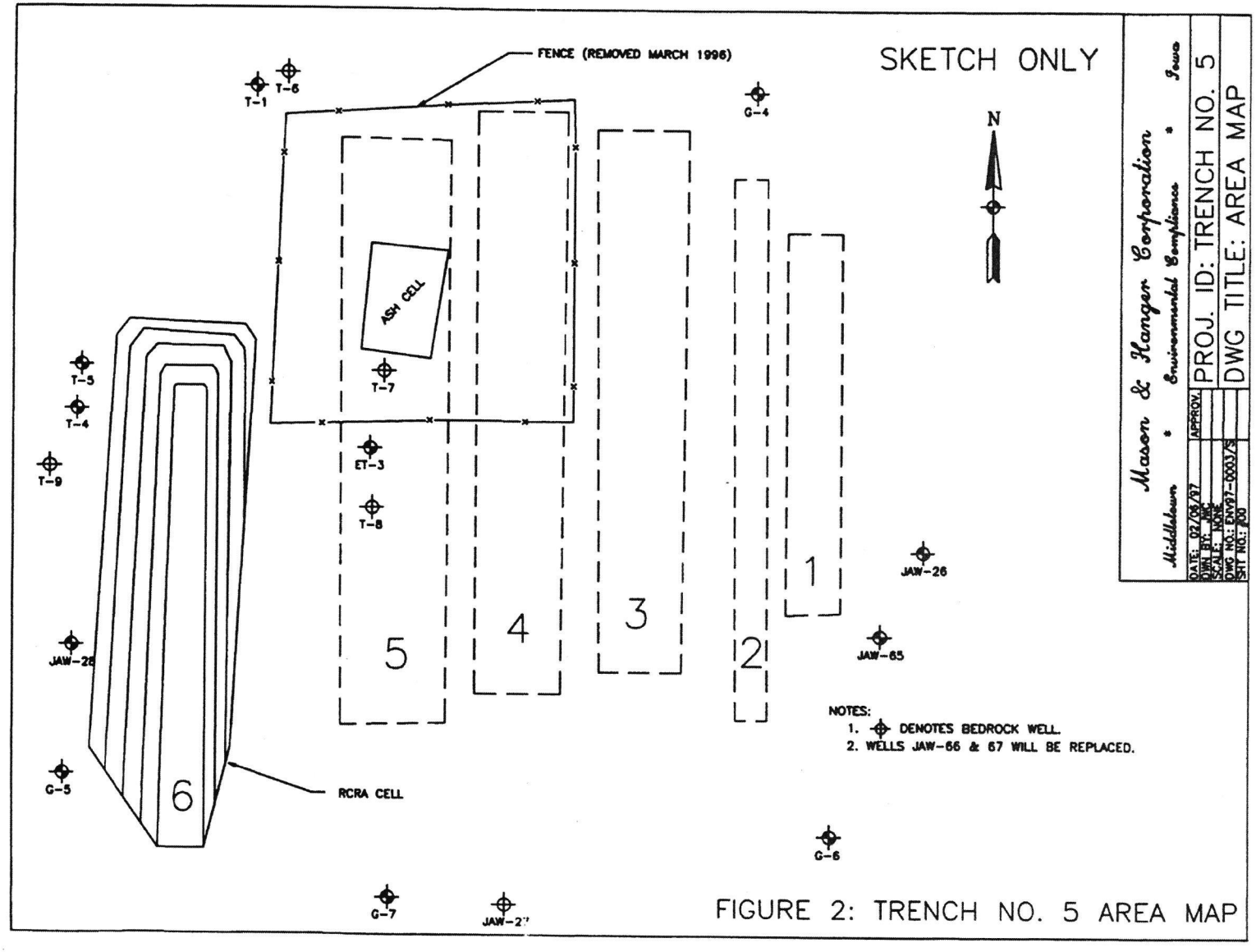


FIGURE 2: TRENCH NO. 5 AREA MAP

ATTACHMENTS

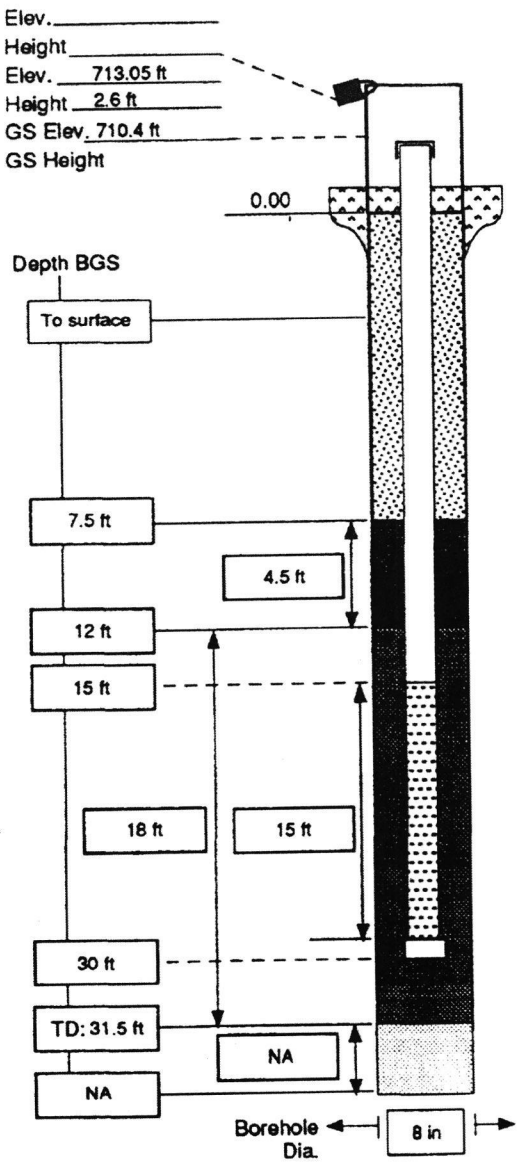
ATTACHMENT I:

BORING LOGS FOR MONITORING WELLS

ET-1, ET-2, AND ET-3

EARTH TECH **Monitoring Well Construction Log - Above Ground**

Project Name: IAAP Accelerated Ground Water Quality Assessment	**Project Number:** 931978-02	**Date:** 11-11- 93
Well South West of Ash Disposal Cell (inside fence)	**Well ID:** ET1	**Sheet** 1 of 1
Driller: Troy Mertens	**Borehole Diameter (in):** 8	**Total Depth (ft):** 31.5
Drilling Agency: Aquadrill	**Date Started:** 11-11- 93	**Depth to Water (ft):** 17
Drilling Equipment: CME75	**Date Finished:** 11-11- 93	**Elevation and Datum:** 713.05 ft TOC
Drilling Method: Hollow Stem Auger	**Logged by:** DBC	**Checked by:** WK
Drilling Fluid: None	**Number of Samples:** 3	**Date:** 10-12-94



PROTECTIVE CSG
Material / Type: Aluminum
Diameter: 4 in x 4 in
Depth BGS: 4.5 ft Weep Hole (Y) N)

GUARD POSTS (Y) N)
No.: 4 Type: Steel

SURFACE PAD
Composition and Size: 4 ft x 4 ft x 2 in (concrete 4000)

RISER PIPE
Type: Schedule 40 PVC
Diameter: 2 in
Total Length (TOC to TOS): 17.5 ft
Ventilated Cap (Y) N)

GROUT
Composition and Proportions: Lafarge Type I concrete and Baroid Benseal bentonite 20:1 ratio
Tremied (Y) N)
Interval BGS: 7.5 ft BGS to surface

CENTRALIZERS
Depth(s) None

SEAL
Type: Baroid Bentonite Plug (3/4 in)
Source: Baroid
Setup / Hydration Time: 1.5 hrs Vol. Fluid Added 10 gal
Tremied (Y (N)

FILTER PACK
Type: Silica Sand No. ϕ
Amt. Used: 5.5 bags
Tremied (Y (N)
Source: Northern Gravel, Muscatine Iowa
Gr. Size Dist.:

SCREEN
Type: Schedule 40 PVC
Diameter: 2 in
Slot Size and Type: 10 slot
Interval BGS: 30 ft BGS to 15 ft BGS

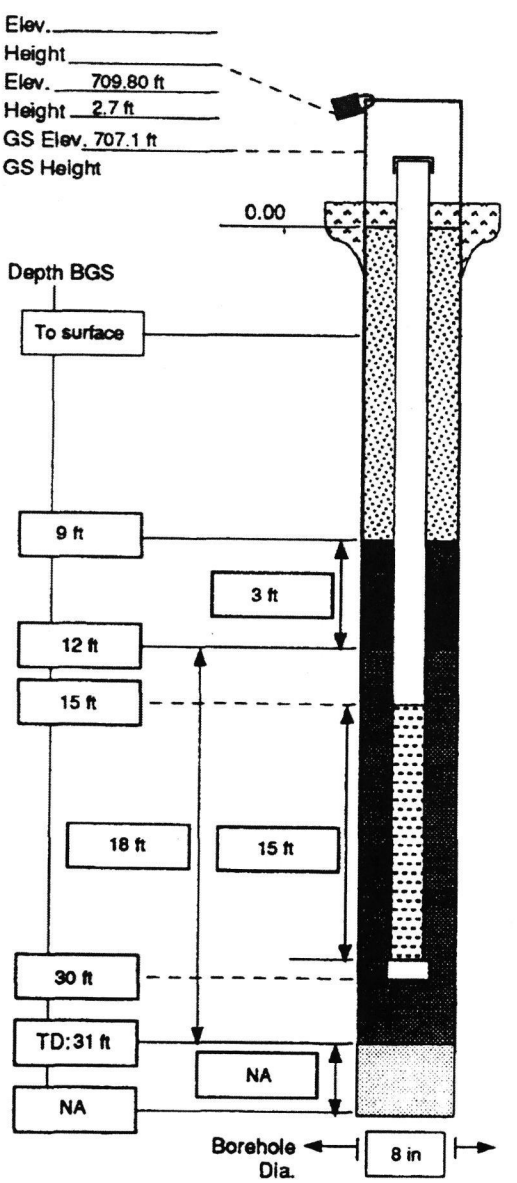
WELL FOOT (Y / N)
Interval BGS: Length
Bottom Cap (Y) N)

BACKFILL PLUG
Material: None
Setup / Hydration Time:
Tremied (Y / N)

EARTH TECH

Monitoring Well Construction Log - Above Ground

Project Name: IAAP Accelerated Ground Water Quality Assessment	**Project Number:** 931978-02	**Date:** 11-11- 93
Well South West Corner of Ash Disposal Cell (outside fence)	**Well ID:** ET2	**Sheet** 1 of 1
Driller: Troy Mertens	**Borehole Diameter (in):** 8	**Total Depth (ft):** 31 ft
Drilling Agency: Aquadrill	**Date Started:** 11-11- 93	**Depth to Water (ft):** 17 ft
Drilling Equipment: CME75	**Date Finished:** 11-12 - 93	**Elevation and Datum:** 709.80 ft TOC
Drilling Method: Hollow Stem Auger	**Logged by:** DBC	**Checked by:** WK
Drilling Fluid: None	**Number of Samples:** 4	**Date:** 10-12-94



PROTECTIVE CSG
Material / Type: Aluminum
Diameter: 4 in x 4 in
Depth BGS: 4.5 ft Weep Hole (Y) N)

GUARD POSTS (Y) N)
No.: 4 Type: Steel

SURFACE PAD
Composition and Size: 4 ft x 4 ft x 2 in (concrete 4000)

RISER PIPE
Type: Schedule 40 PVC
Diameter: 2 in
Total Length (TOC to TOS): 17.5 ft
Ventilated Cap (Y) N)

GROUT
Composition and Proportions: Lafarge Type I concrete and Baroid Benseal bentonite 20:1 ratio
Tremied (Y) N)
Interval BGS: 9.0 ft BGS to surface

CENTRALIZERS
Depth(s) None

SEAL
Type: Baroid Bentonite Plug (3/4 in)
Source: Baroid
Setup / Hydration Time: overnight Vol. Fluid Added 10 gal
Tremied (Y (N)

FILTER PACK
Type: Silica Sand No. ϕ
Amt. Used: 5.5 bags
Tremied (Y (N)
Source: Northern Gravel, Muscatine Iowa
Gr. Size Dist.:

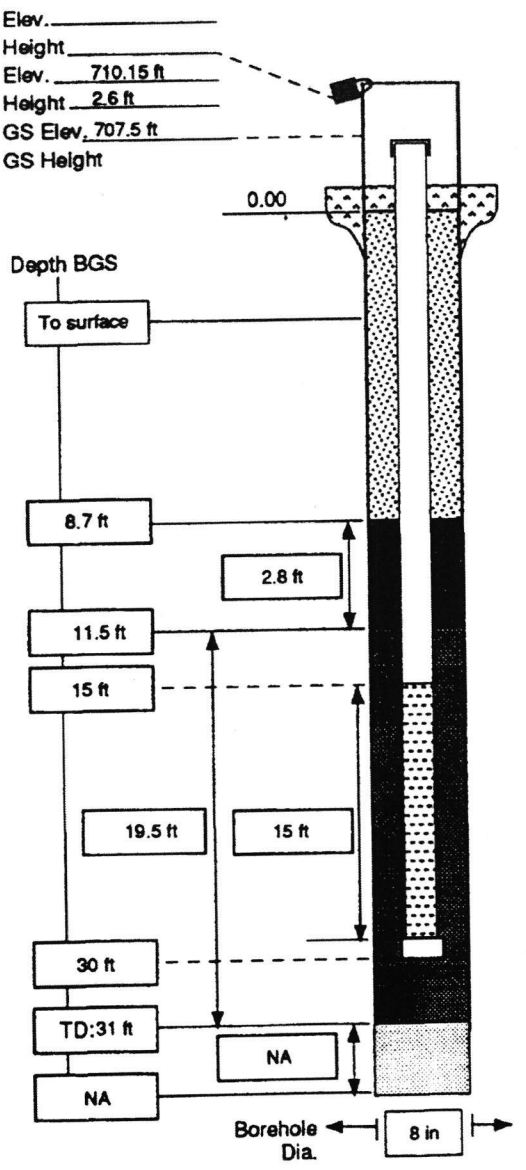
SCREEN
Type: Schedule 40 PVC
Diameter: 2 in
Slot Size and Type: 10 slot
Interval BGS: 30 ft BGS to 15 ft BGS

WELL FOOT (Y / N)
Interval BGS: _____ Length _____
Bottom Cap (Y) N)

BACKFILL PLUG
Material: None
Setup / Hydration Time: _____
Tremied (Y / N)

EARTH TECH **Monitoring Well Construction Log - Above Ground**

Project Name: IAAP Accelerated Ground Water Quality Assessment	**Project Number:** 931978-02	**Date:** 11-12- 93
Well South of Ash Disposal Cell (outside fence)	**Well ID:** ET3	**Sheet** 1 of 1
Driller: Troy Mertens	**Borehole Diameter (in):** 8	**Total Depth (ft):** 31 ft
Drilling Agency: Aquadrill	**Date Started:** 11-12- 93	**Depth to Water (ft):** 19.5 ft
Drilling Equipment: CME75	**Date Finished:** 11-12 - 93	**Elevation and Datum:** 710.15 ft TOC
Drilling Method: Hollow Stem Auger	**Logged by:** DBC	**Checked by:** WK
Drilling Fluid: None	**Number of Samples:** 4	**Date:** 10-12-94



PROTECTIVE CSG
Material / Type: Aluminum
Diameter: 4 in x 4 in
Depth BGS: 4.5 ft Weep Hole (Y) N)

GUARD POSTS (Y) N)
No.: 4 Type: Steel

SURFACE PAD
Composition and Size: 4 ft x 4 ft x 2 in (concrete 4000)

RISER PIPE
Type: Schedule 40 PVC
Diameter: 2 in
Total Length (TOC to TOS): 17.5 ft
Ventilated Cap (Y) N)

GROUT
Composition and Proportions: Lafarge Type I concrete and Baroid Benseal bentonite 20:1 ratio
Tremied (Y) N)
Interval BGS: 8.7 ft to surface

CENTRALIZERS
Depth(s) None

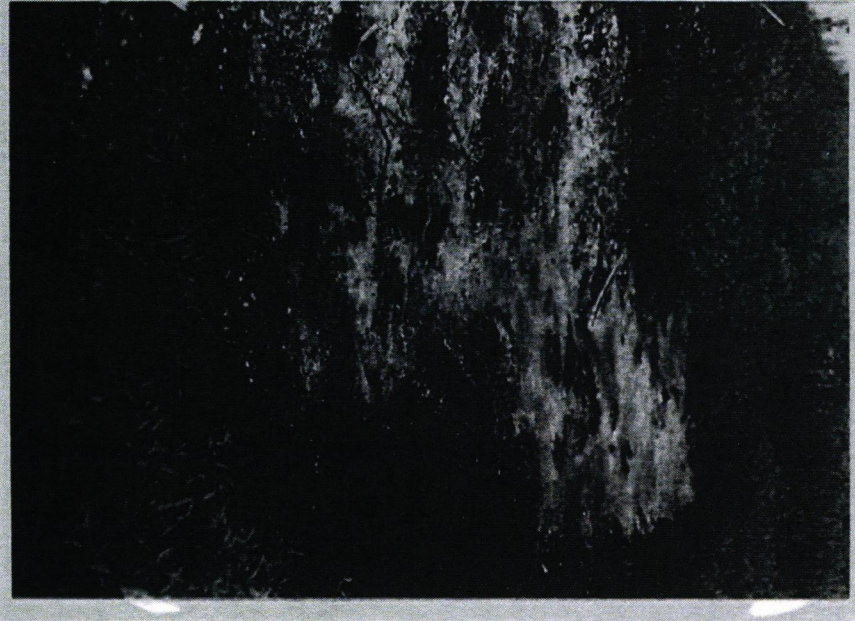
SEAL
Type: Baroid Bentonite Plug (3/8 in)
Source: Baroid
Setup / Hydration Time: 2.5 hrs Vol. Fluid Added 10 gal
Tremied (Y (N)

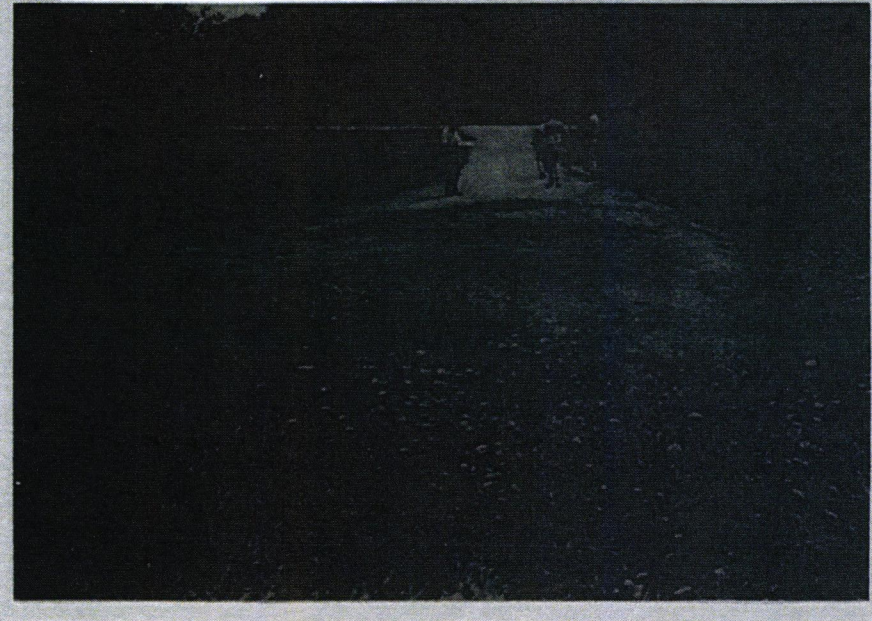
FILTER PACK
Type: Silica Sand No. ϕ
Amt. Used: 5 bags
Tremied (Y (N)
Source: Northern Gravel, Muscatine Iowa
Gr. Size Dist.:

SCREEN
Type: Schedule 40 PVC
Diameter: 2 in
Slot Size and Type: 10 slot
Interval BGS: 30 ft BGS to 15 ft BGS

WELL FOOT (Y / N)
Interval BGS: Length
Bottom Cap (Y) N)

BACKFILL PLUG
Material: None
Setup / Hydration Time:
Tremied (Y / N)





8/12/97 6
Iowa Army Ammunition Plant

Open burning area pad no. 2. Photo facing about southeast. Dark area is where the open top, burning container was located. Light colored area to the right in the photo is a runoff area where burning residue is visibly deposited.

8/12/97 5
Iowa Army Ammunition Plant

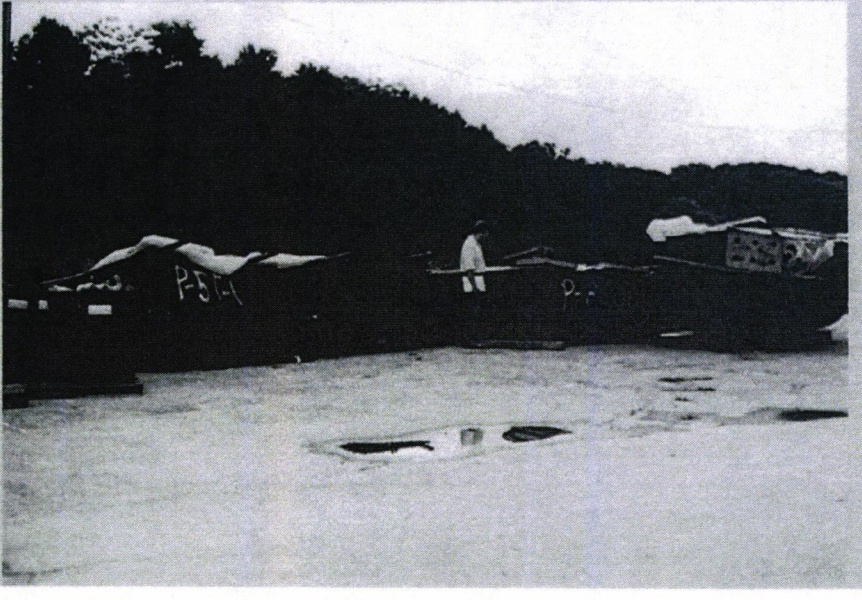
Open burning area pad no. 1. Photo facing about north. The dark area is where the burning took place in a large open top container.

8/12/97 8
Iowa Army Ammunition Plant

Open burning area pad no. 3. Photo facing about south. Dark encircled area is where the open top, burning container was located.

8/12/97 7
Iowa Army Ammunition Plant

Open burning area pad no. 2. Photo facing about south. Light colored residue deposited on the ground seen in photo no. 6.



8/12/97 10
Iowa Army Ammunition Plant

Three of the 17 drums seen in photo no. 9. These three drums had "hazardous waste" labels which were spray painted over.

8/12/97 9
Iowa Army Ammunition Plant

17 drums east of the CWP which contained sand blasting residue. Photo facing about east.

8/12/97 12
Iowa Army Ammunition Plant

Three large open top containers which were used at the open burning pads no. 1-3 seen in photos no. 5-8. The containers are loosely covered with plastic and are each about one-half to two-thirds full of ash and metal pieces. The containers are located northwest of the CWP. Photo facing about northeast.

8/12/97 11
Iowa Army Ammunition Plant

Same three drums seen in photo no. 10. Tape with lettering which reads, "sand cont. w/ explosives".

8/13/97 14
Iowa Army Ammunition Plant

2-05-1 <90 day storage area. Drum without date of accumulation. Drum contains spent wipes contaminated with solvent or adhesive or paint.

8/13/97 13
Iowa Army Ammunition Plant

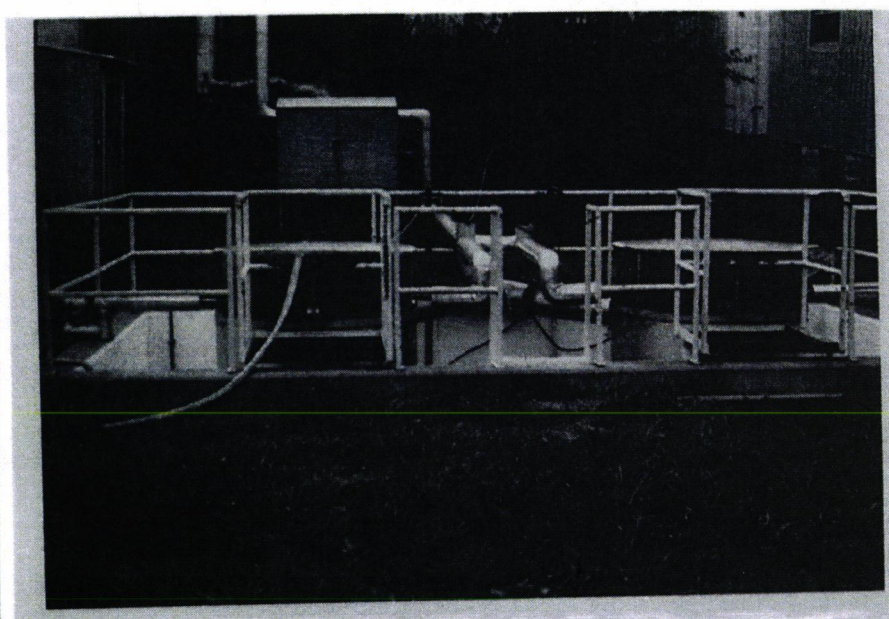
1-03 sump. Tank on the left has about three feet of freeboard. Tank on the right has about five feet of freeboard.

8/14/97 16
Iowa Army Ammunition Plant

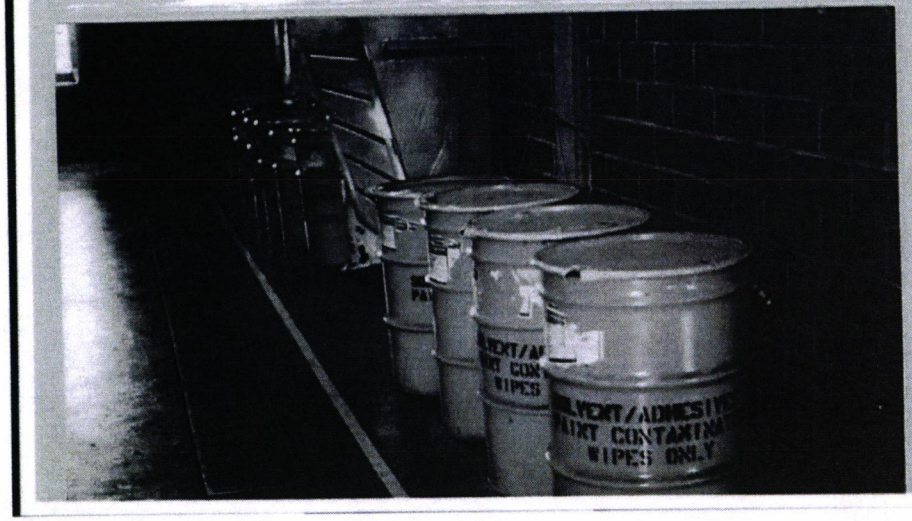
3-05-1 pump room exhaust pipe protruding through the white sheet metal. One pipe is black and pointing straight out, the other pipe is green and bent 90 degrees pointing down. Dark discoloration on the building and the ground are oil stains.

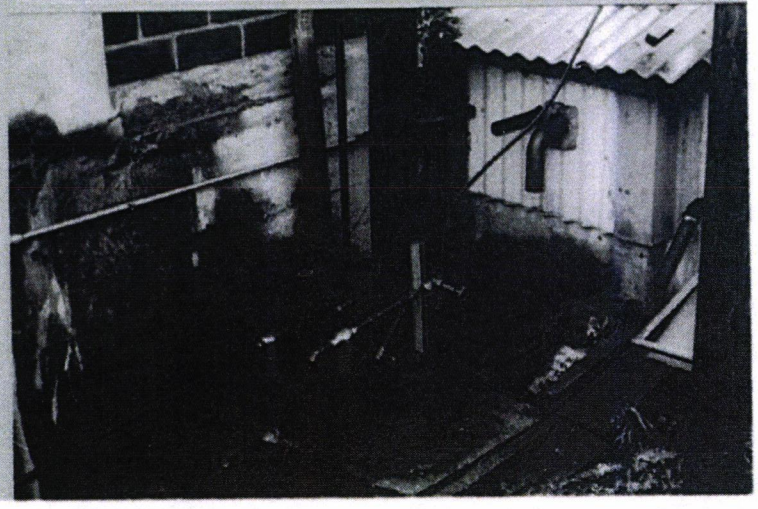
8/13/97 15
Iowa Army Ammunition Plant

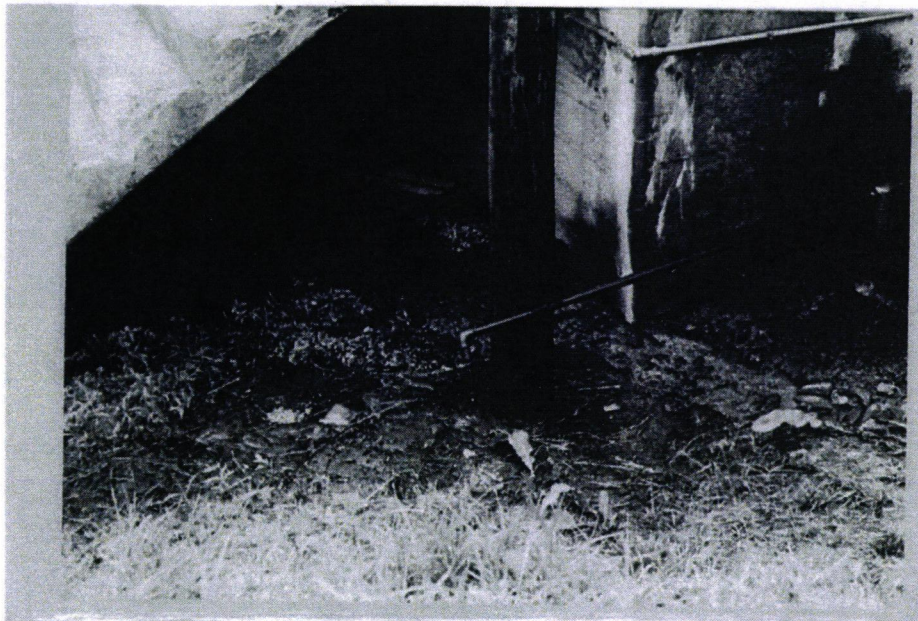
2-05-1 <90 day storage area. 10 drums of spent wipes. The drum in photo no. 14 is in the front right of the photo.




HAZARDOUS


WIPES





8/14/97 18

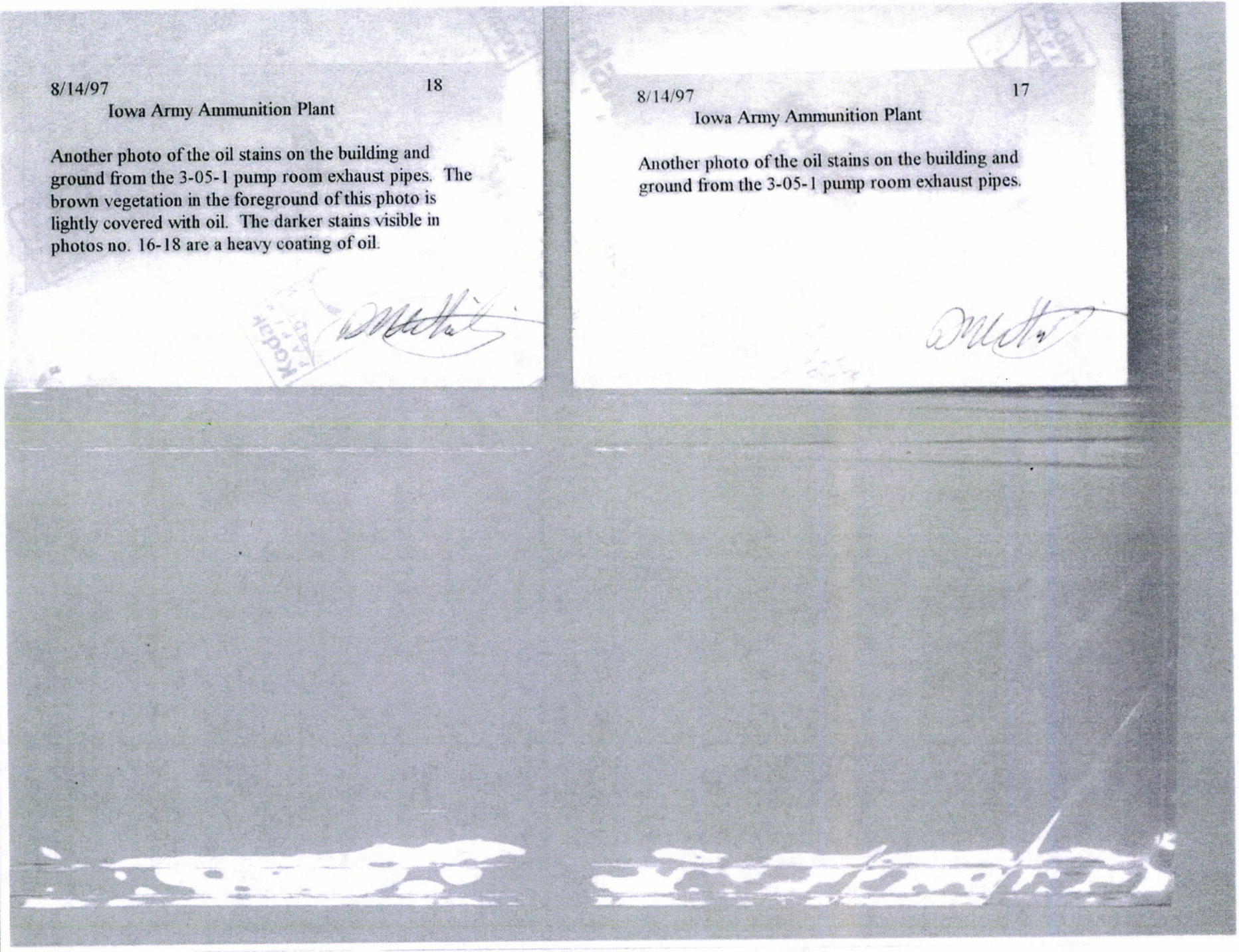
Iowa Army Ammunition Plant

Another photo of the oil stains on the building and ground from the 3-05-1 pump room exhaust pipes. The brown vegetation in the foreground of this photo is lightly covered with oil. The darker stains visible in photos no. 16-18 are a heavy coating of oil.

8/14/97 17

Iowa Army Ammunition Plant

Another photo of the oil stains on the building and ground from the 3-05-1 pump room exhaust pipes.



PERMIT ATTACHMENT VIII-2 – POST-CLOSURE NOTICES

Lynn Slugantz

FILE FOR RECORD 005401
DES MOINES COUNTY, IOWA

'93 FEB 25 A11:23

Deed BOOK 368 PAGE 257 FEES $10.00 Pd

R ___ A ___ I ✓ C ___
ANITA KOHL, RECORDER
0574ak

006630

FILE FOR RECORD
DES MOINES COUNTY, IOWA

'93 APR 19 P1:39

Deed BOOK 368 PAGE 517 FEES $10.00 Pd

R ___ A ___ I ✓ C ✓
ANITA KOHL, RECORDER
2529 bs

DEED NOTIFICATION

In accordance with 40 Code of federal Regulations paragraph 265.119 the following information is to be placed in the deed for Trench Number Five of the Inert Landfill located on the Iowa Army Ammunition Plant:

1. Trench Number Five of subject Landfill has been used to manage hazardous waste and a closure has been performed on the designated area pursuant to the Resource Conservation and Recovery Act.

2. The use of Trench Number Five of the Inert landfill is restricted under 40 Code of Federal Regulations Subpart G regulations.

3. A survey plat is enclosed denoting the area where hazardous waste was placed and subsequently closed. The tract is located in the S.E. 1/4 of the S.W. 1/4 of Section No.1 of Augusta Township, Des Moines County, Iowa Range 4 West, Township 69 north of the 5th principal meridian. This portion of Trench Number Five measured approximately 160 feet long by 100 feet wide and 25 feet deep. The material that was determined to be hazardous waste was incinerator ash generated between November 19, 1980 and October 18, 1983. It was estimated that 145 - 55 gallon barrels of this material was placed in this area as well as other sanitary waste generated at the Iowa Army Ammunition Plant. This waste was considered hazardous due to the lead and cadmium material contained in the incinerator ash.

I declare under penalty of perjury that the foregoing is true and correct.

Entered on FEBRUARY 18, 1993 (Date)

TO: MH-SM CO. PLT MGR.
FM: ACO
FC OF REC: SIGNED PPE
DATE 5-24-93 INITIALS LDB
INFO ___ REC NOT ___
REPLY REQ. ___ DATE DUE ___
REMARKS CC
Lynn Slugantz, EPA

Leon D. Baxter
Leon D. Baxter
Chief Engineer

REC'D. IOWA SEC.
MAY 28 1993

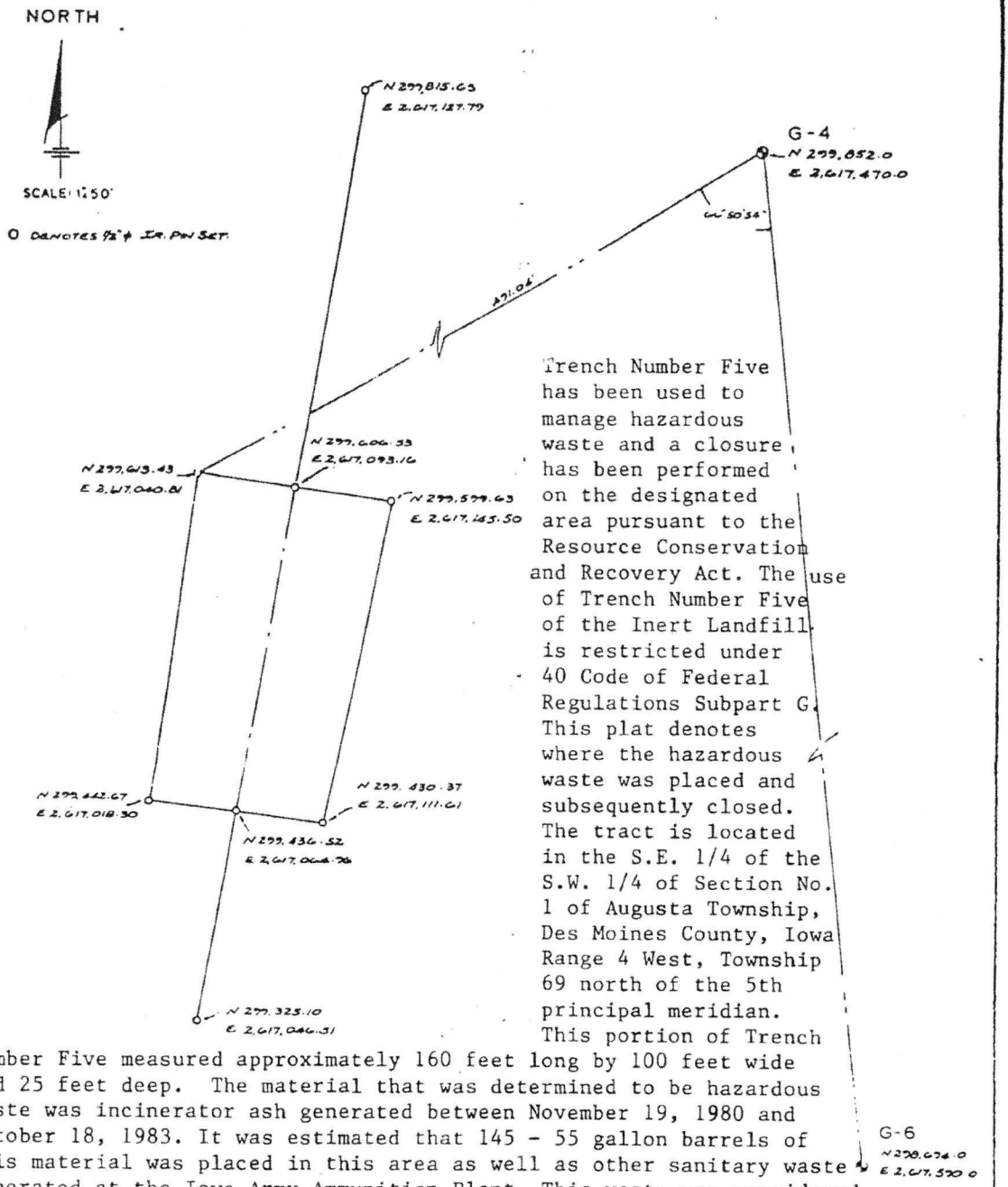
Mail: Leon D. Baxter, Chief Engineer
Dept of the Army
Iowa Army Ammunition Plant
Middletown, Iowa 52638-5000

This deed notification is being re-submitted to place the information on the survey plat as required by EPA, RegionV and to place the section in the legal description.

I declare under penalty of perjury that the foregoing is true and correct.

Entered on April 19, 1993 Leon D Baxter

COORDINATE POINTS
INERT DISPOSAL AREA



Trench Number Five has been used to manage hazardous waste and a closure has been performed on the designated area pursuant to the Resource Conservation and Recovery Act. The use of Trench Number Five of the Inert Landfill is restricted under 40 Code of Federal Regulations Subpart G. This plat denotes where the hazardous waste was placed and subsequently closed. The tract is located in the S.E. 1/4 of the S.W. 1/4 of Section No. 1 of Augusta Township, Des Moines County, Iowa Range 4 West, Township 69 north of the 5th principal meridian. This portion of Trench Number Five measured approximately 160 feet long by 100 feet wide and 25 feet deep. The material that was determined to be hazardous waste was incinerator ash generated between November 19, 1980 and October 18, 1983. It was estimated that 145 - 55 gallon barrels of this material was placed in this area as well as other sanitary waste generated at the Iowa Army Ammunition Plant. This waste was considered hazardous due to the lead and cadmium material contained in the incinerator ash.

REGISTERED LAND SURVEYOR
RICHARD JOHNSON
5144
IOWA

I hereby certify that this plat, map, survey or report was made by me or under my direct personal supervision and that I am a duly Registered Land Surveyor under the laws of the State of Iowa

Richard Johnson

Date 12-13-84 No. 5144

JOHNSON LAND SURVEYING		
I.A.A.P. MIDDLETOWN, IOWA		
SCALE 1" = 50'	DRAWN BY R.J.	DRAWING NUMBER 7317.84
DATE DEC. 13, 1984	APPROVED BY	

PERMIT ATTACHMENT VIII-3 – IDA BOUNDARY FENCE PLAN

IOWA ARMY AMMUNITION PLANT

RECEIVED
JAN 28 2016
SUPERFUND DIVISION

FINAL
REVISION 1

OPERABLE UNIT (OU-4)
REMEDIAL ACTION WORK PLAN

INERT DISPOSAL AREA (IDA)
BOUNDARY FENCE INSTALLATION
at the
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA

Prepared For:

IOWA ARMY AMMUNITION PLANT
17571 DMC HIGHWAY 79
MIDDLETOWN, IA 52638

Prepared By:

Aerostar SES LLC
1006 Floyd Culler Court
Oak Ridge, TN 37830

January 2016

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IOWA ARMY AMMUNITION PLANT

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TABLE OF CONTENTS

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FIGURES

APPENDICES

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LIST OF ACRONYMS

Army	U.S. Army
CAMU	Corrective Action Management Unit
CEA	Cap Extension Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DBH	diameter at breast height
FFA	Federal Facilities Agreement
ft	feet
IAAAP	Iowa Army Ammunition Plant
IDA	Inert Disposal Area
ILF	Inert Landfill
LTM	Long-term Monitoring
LUC	Land Use Controls
NCP	National Contingency Plan
OU-4	Operable Unit 4
RA	remedial action
RACR	Remedial Action Completion Report
RAWP	Remedial Action Work Plan
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Office
Tetra Tech	Tetra Tech, Inc.
USEPA	U.S. Environmental Protection Agency

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1.0 OVERVIEW

1.1 INTRODUCTION

1.1.1 Purpose and Scope

This Remedial Action Work Plan (RAWP) presents the specification and drawings for construction of a boundary fence for the Inert Disposal Area (IDA) at the Iowa Army Ammunition Plant (IAAAP). The boundary fence presented herein meets the requirements of the Operable Unit 4 (OU-4) Remedial Action Completion Report, Volume 4 (RACR) (Tetra Tech, 2014b). The boundary fence will be a physical land-use control to restrict intrusive activities by personnel and equipment onto or near the cap/closure systems. A 42-inch chainlink fence abutting the active test firing range will provide the required access restriction. Presently, remedial activities for the Trench 6 Landfill, Trench 7, the Inert Landfill (ILF), and the Cap Extension Area (CEA) require long-term maintenance (post-closure care), land use controls, and monitoring.

1.1.2 Statement of Basis and Purpose

The U.S. Army (Army) and the U.S. Environmental Protection Agency (USEPA) have selected this remedial action (RA). The remedial action was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) and to the extent practicable, the National Contingency Plan (NCP).

The Army is the lead agency for implementing the remedial action at the IAAAP. As the lead agency for oversight, the USEPA oversees the cleanup activities conducted by the Army to ensure that requirements of CERCLA/SARA, the NCP, and the Federal Facilities Agreement (FFA) between the Army and the USEPA have been met. The State of Iowa is not a signatory to the IAAAP FFA. This RAWP was prepared under the direction of the U.S. Army Environmental Center.

1.2 INERT DISPOSAL AREA BACKGROUND

The IDA is located within the IAAAP in Middletown, IA (Figure 1-1). The site encompasses approximately 20 acres in the western central part of the IAAAP (see Figure 1-2). IAAAP conducted waste management operations, including landfilling, at the IDA from 1941 to 1992. Six landfill trenches were excavated 25-feet (ft) deep for waste disposal. Waste was primarily sanitary, but also included ash from incineration of explosives, demolition debris, and fly ash. General municipal type waste and industrial wastes were disposed in Trenches 1 through 5 and in the north end of a sixth trench.

Beginning in 1997, the Army implemented a non-time critical removal action to begin consolidating contaminated soils, excavated from various sub-sites at the IAAAP, within the IDA. As part of this removal, cleanup and closure activities were initiated at the IDA. A synthetic liner and a leak detection system were installed in the south end of the sixth trench, now called the

Trench 6 Landfill and used for the disposal of medium-level contaminated soils (cumulative excess cancer risk between 10^{-5} and 10^{-6}) excavated as part of the CERCLA remediation of the IAAAP. A former soil borrow area, Trench 7, adjacent to the north end of the Trench 6 Landfill was similarly lined and equipped with leak detection capability. This lined borrow area, designated by USEPA as a Corrective Action Management Unit (CAMU), was used for the stockpiling and treatment of high-level contaminated soils (cumulative excess cancer risk greater than 10^{-5}) excavated as part of the CERCLA remediation of the IAAAP. Both the Trench 6 Landfill and Trench 7 were constructed to meet RCRA Subtitle C landfill requirements.

The four units have been closed and are presently in post closure care. The present status of the units is:

- In 1998, the ILF (Trenches 1 through 5) was capped with a RCRA Subtitle D style cover.
- Closure of the CEA started in May of 2009 and completed in early September 2009 with installation of a RCRA Subtitle C style cover.
- The removal of Trench 7 (CAMU) was initiated during the winter and spring of 2009 and completed in the fall of 2011.
- The Trench 6 Landfill was capped in the fall of 2011 with a RCRA Subtitle C style cover.

Post-closure care is addressed in the OU-4 RACR (Tetra Tech, 2014a) and includes:

- Land Use Controls;
- Long Term Monitoring (groundwater and routine site inspection);
- General maintenance of the road, cap, stormwater control structures, groundwater monitoring wells, settlement monuments, passive gas vents, and benchmarks; and
- Five year reviews.

Historical documents used to develop and guide the implementation of this work plan include:

- *Operable Unit 4 (OU-4) Remedial Action Completion Report, Volume 4. Iowa Army Ammunition Plant, Middletown, Iowa* (Tetra Tech, 2014a);
- *Operable Unit 4 (OU-4) Land Use Controls Implementation Plan for the Inert Disposal Area.* April (Tetra Tech, 2014b).

2.0 BOUNDARY FENCE INSTALLATION

2.1 INTRODUCTION

The boundary fence will be a physical land-use control to restrict intrusive activities onto or near the cap/closure systems. The boundary fence will be a standard, locally available 42-inch chainlink fence. The fence will be located to allow site access for maintenance and repair activities as presented in the RACR (Tetra Tech, 2014a). A State Historic Preservation Office (SHPO) survey is required to be submitted and approved prior to fence installation.

2.2 SURVEYING BOUNDARY FENCE PERIMETER

The first field task is to mark the location of the boundary fence at the site. The proposed alignment is shown on Figure 2-1. Pre-construction surveying will consist of basic transit work to ensure straightness of fence lines, supplemented with GPS to ensure the fence is being installed per the proposed layout and document any variances from the proposed layout.. The proposed alignment was designed to fully enclose the active IDA units while minimizing the total area. The final alignment will be dictated by field conditions with minor modifications for existing topography and to minimize the removal of existing vegetation.

2.3 VEGETATION REMOVAL

Once the boundary fence alignment is staked, brush, branches, and small trees will be removed. Removal will be minimized to allow boundary fence installation. Vegetation will be removed with hand-held brush cutting equipment and chainsaws to provide clearance for small equipment and personnel. All vegetation will be cut at the surface rather than being uprooted. Brush, branches, and small trees will be moved out of the work area and left in place.

The Indiana Bat and Northern Long-Eared Bat summer maternity dates for southern Iowa are April –September. Evergreens (cedars) and deciduous trees under 9-inch diameter at breast height (DBH) may be removed at any time. Deciduous trees over 9-inch DBH that meet the bat habitat criteria may be taken outside of the maternity dates, but must be approved by United State Fish and Wildlife Service. Emergency removal during the maternity dates for deciduous trees over 9" DBH requires a tree inspection for possible bat habitat/use. If possible habitat is present then three evening surveys are required. If the inspection and/or surveys are negative for bat use, the tree may be removed immediately after the 3rd survey or an additional morning survey is required.

2.4 BOUNDARY FENCE INSTALLATION

Boundary fencing will be installed in accordance with the manufacturer's recommendations and the specification in Appendix A. Except where the proposed fence line abuts the active test firing range (a 48-inch 3-barbed wire fence with t-posts), the boundary fencing will be 42-inches high with 11-gauge chainlink fabric. The fencing is estimated to be approximately 3,500 linear feet (Figure 2-1). A survey of the installed fence will be used to document final layout.

The line, corner, and gate posts will be set into concrete footings. Additional details are in the boundary fence specification provided in Appendix A and Figures 2-2 and 2-3.

Warning signs will be installed on the boundary fence approximately every 100 ft. The warning signs will conform to Occupational Safety and Health Administration standard danger design specified by 29 CFR 1926.200b. Thus signs will be at least 14-inches by 17.5-inches and of weather resistant materials. The sign will state "RESTRICTED ACCESS - DO NOT ENTER" in two lines of red capital letters in the lower white section of the sign, with lettering at least 2-inches high. Additionally, signs placed at the entry points will include an appropriate point of contact. The warning sign locations will be shown on the boundary fence as-built drawing.

The Army, AO, and authorized contractor personnel will have keys/responsibility for accessing the gates once installation of the fence is completed.

3.0 REFERENCES

Tetra Tech, 2014a. *Operable Unit 4 (OU-4) Remedial Action Completion Report, Volume 4. Iowa Army Ammunition Plant, Middletown, Iowa.* November 2014.

Tetra Tech, 2014b. *Operable Unit 4 (OU-4) Land Use Controls Implementation Plan for the Inert Disposal Area.* April 2014.

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FIGURES

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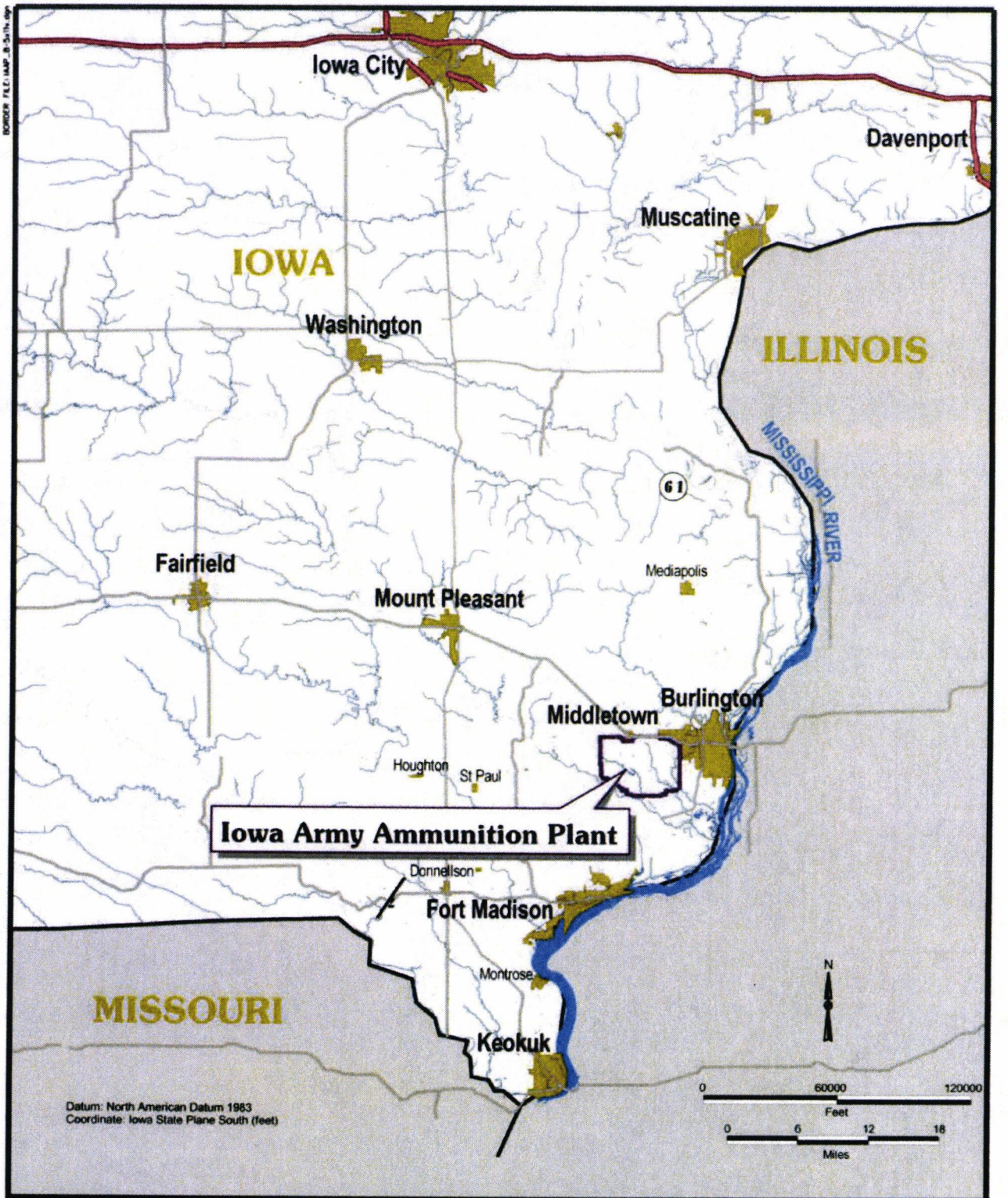

CAD FILENAME:
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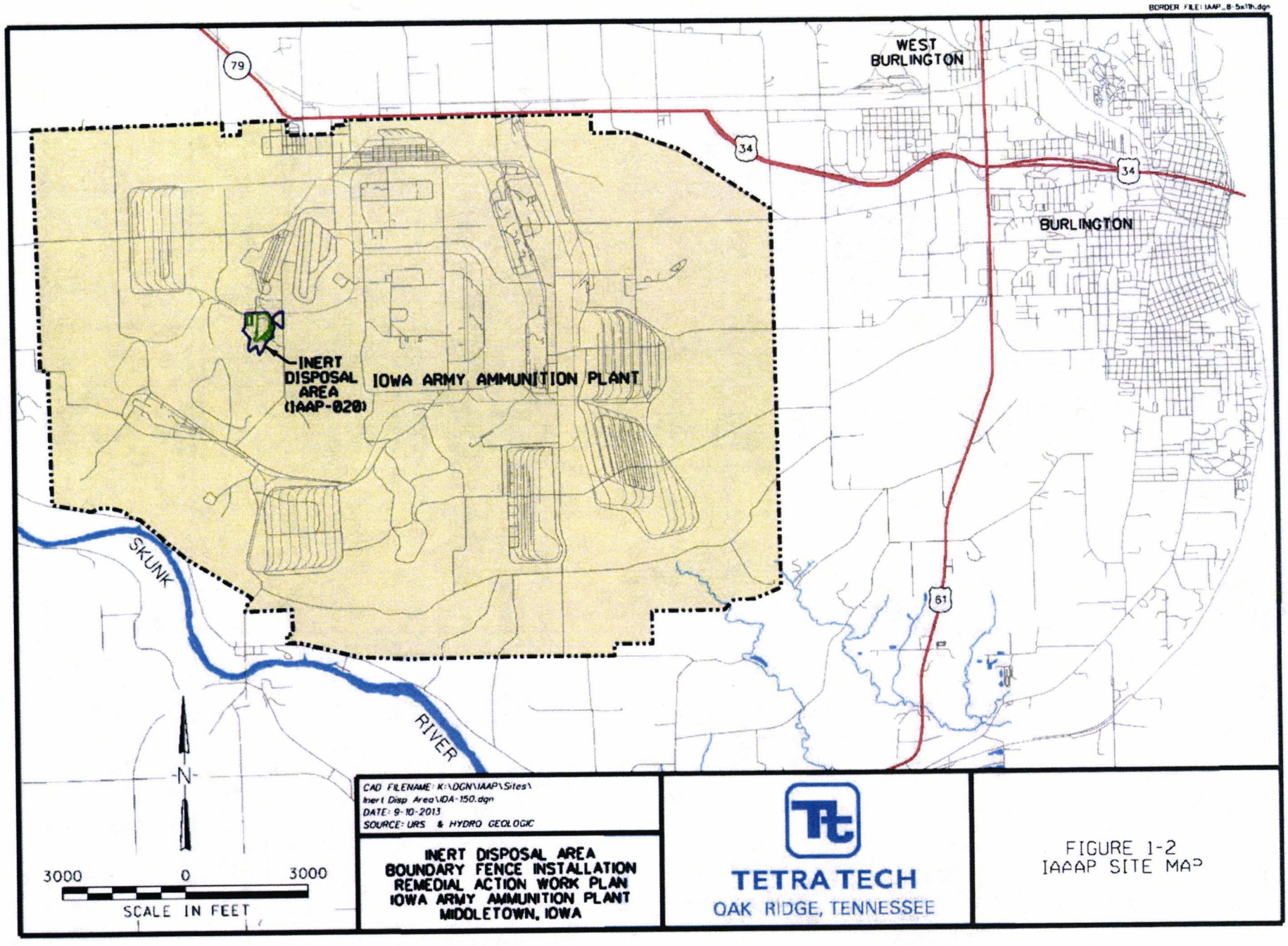
DATE: 9-10-2013
SOURCE: URS

INERT DISPOSAL AREA
BOUNDARY FENCE INSTALLATION
REMEDIAL ACTION WORK PLAN
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA

TETRA TECH
OAK RIDGE, TENNESSEE

FIGURE 1-1
LOCATION MAP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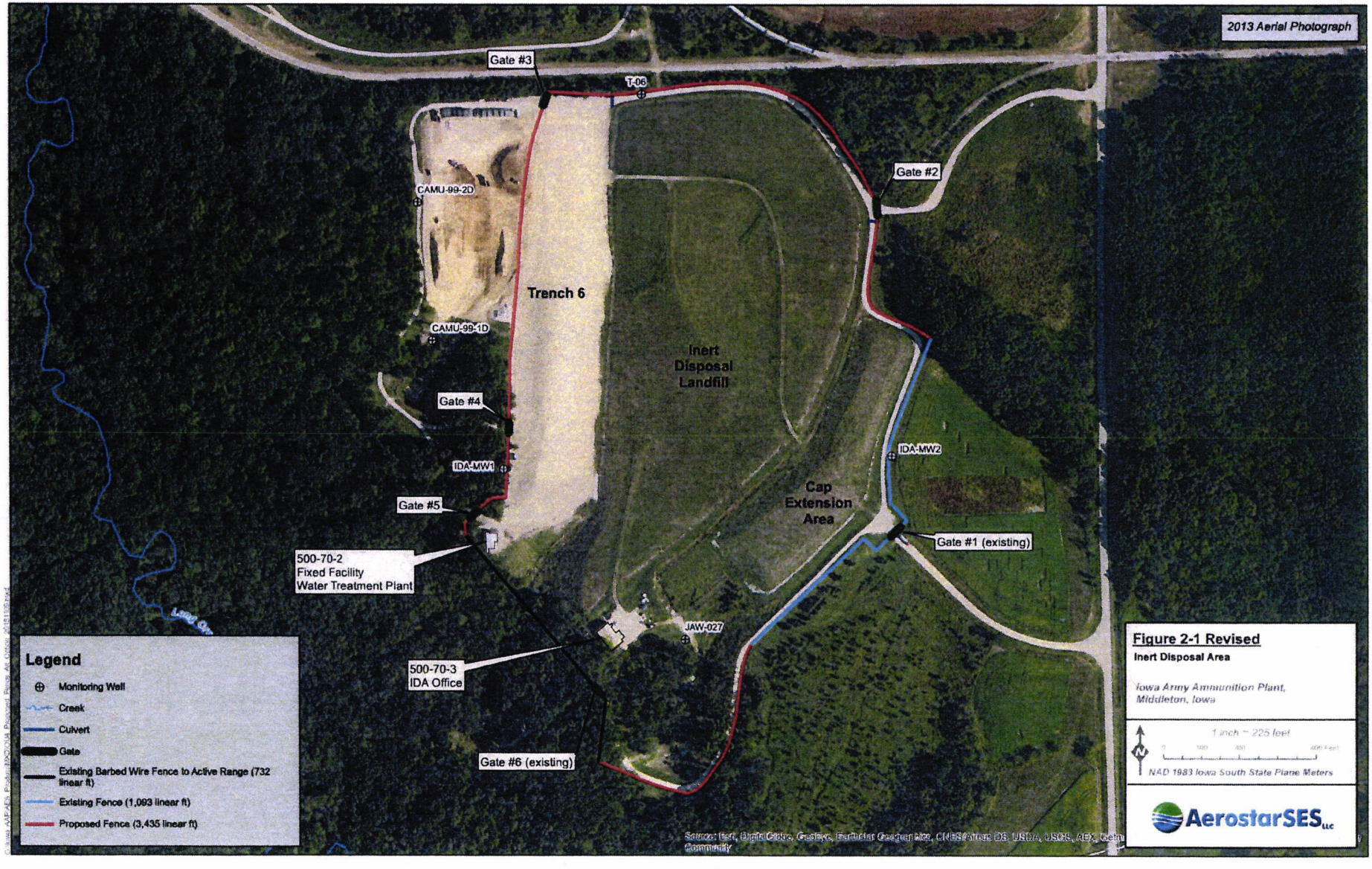
WEST BURLINGTON
BURLINGTON
79
34
34
61
INERT DISPOSAL AREA (IAAP-020)
IOWA ARMY AMMUNITION PLANT
SKUNK
RIVER
N
3000
0
3000
SCALE IN FEET
CAD FILENAME: K:\DGN\IAAP\Sites\Inert Disp Area\IDA-150.dgn
DATE: 9-10-2013
SOURCE: URS & HYDRO GEOLOGIC
INERT DISPOSAL AREA
BOUNDARY FENCE INSTALLATION
REMEDIAL ACTION WORK PLAN
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA
TETRA TECH
OAK RIDGE, TENNESSEE
FIGURE 1-2
IAAAP SITE MAP


2013 Aerial Photograph
Gate #3
T-06
Gate #2
CAMU-99-2D
Trench 6
CAMU-99-1D
Inert
Disposal
Landfill
Gate #4
IDA-MW1
IDA-MW2
Cap
Extension
Area
Gate #5
Gate #1 (existing)
500-70-2
Fixed Facility
Water Treatment Plant
JAW-027
500-70-3
IDA Office
Gate #6 (existing)
Legend
Monitoring Well
Creek
Culvert
Gate
Existing Barbed Wire Fence to Active Range (732 linear ft)
Existing Fence (1,093 linear ft)
Proposed Fence (3,435 linear ft)
Figure 2-1 Revised
Inert Disposal Area
Iowa Army Ammunition Plant,
Middleton, Iowa
1 inch = 225 feet
NAD 1983 Iowa South State Plane Meters
AerostarSES LLC

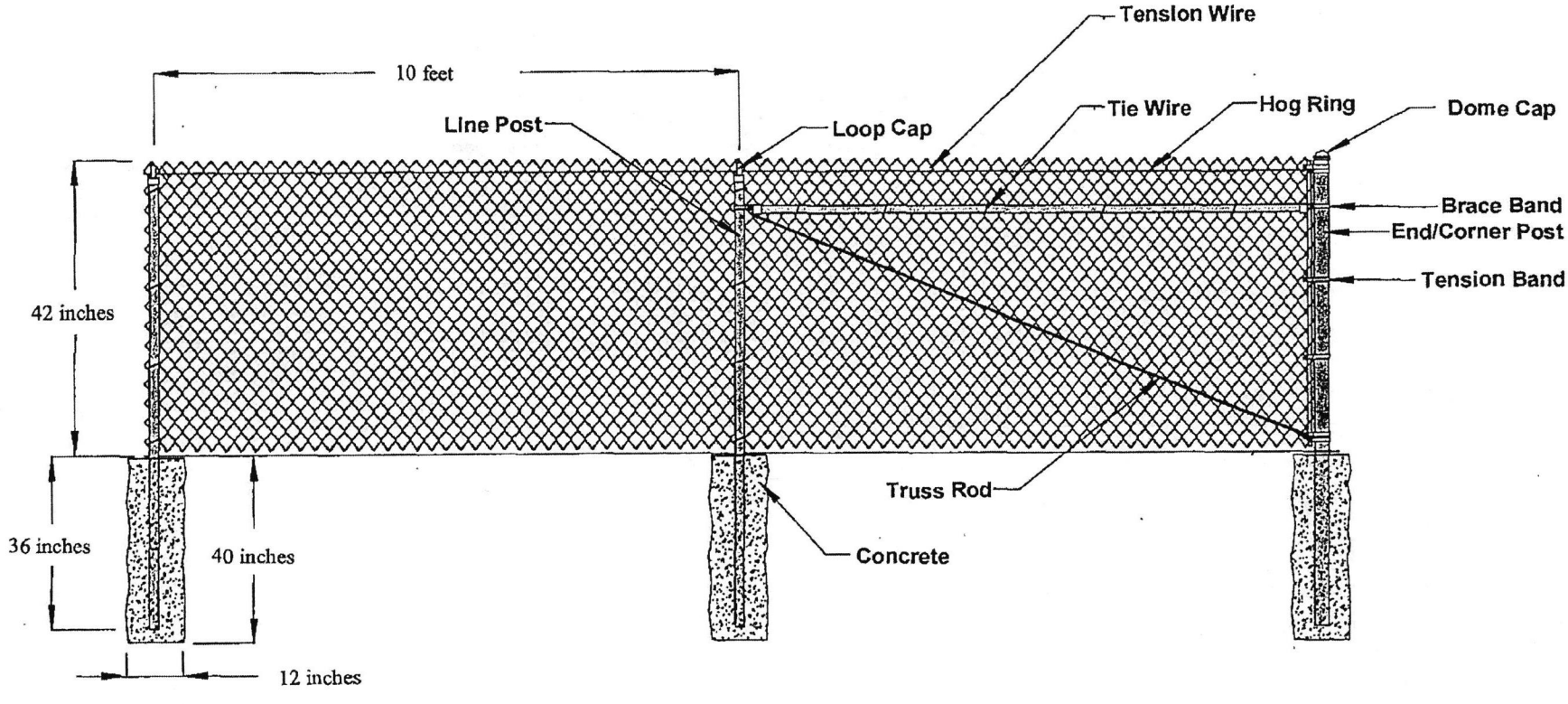


Figure 2-2
Chainlink Fence Detail I
Not to Scale

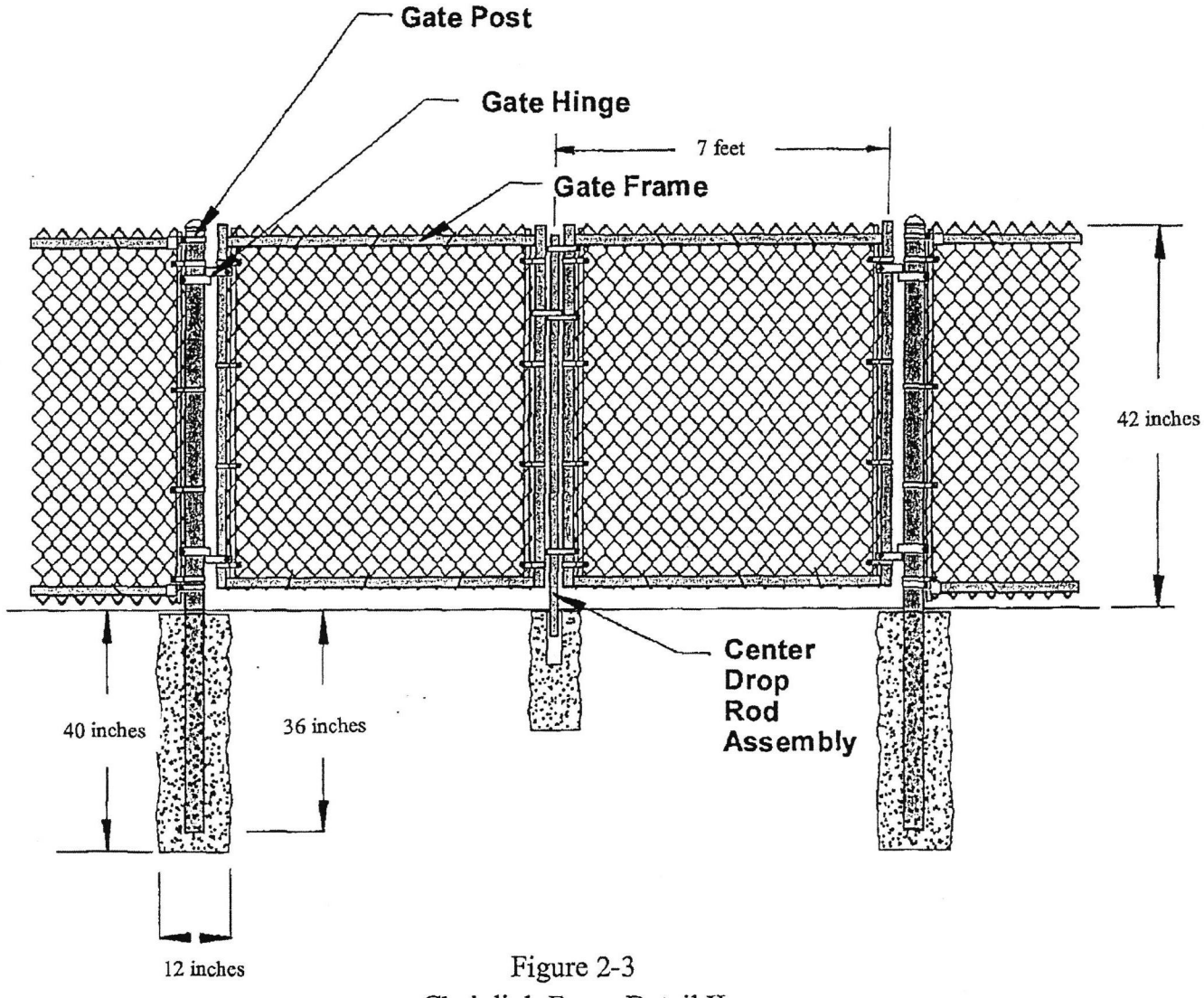


Figure 2-3
Chainlink Fence Detail II
Not to Scale

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APPENDIX A
BOUNDARY FENCE SPECIFICATION

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SECTION 02831
CHAIN LINK FENCE AND GATES

PART 1 GENERAL

1.1 SCOPE

Work consists of constructing a chainlink fence around the perimeter of Inert Disposal Are (IDA) with 5, 14-ft vehicle gates. The Subcontractor shall perform all work as shown on the drawings and specified herein for a complete fence.

1.2 REFERENCES

American Society for Testing and Materials (ASTM)

ASTM A392	Zinc-Coated Chain-Link Fence Fabric
ASTM F1083	Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded for Fence Structures

1.3 SYSTEM DESCRIPTION

A. Height of Fence: 42-inches

B. Line Post Spacing: 10 feet or manufacturer's recommendation

1.4 SUBMITTALS

The Subcontractor shall submit the following for approval by the contractor prior to purchase:

A. Submit Product data on fabric, posts, accessories, fittings, and hardware

B. Submit Drawings indicating plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components, if different from this specification.

PART 2 PRODUCTS

2.1 GENERAL

A. Framing (Steel): ASTM F1083 Schedule 40 galvanized steel pipe

B. Fabric Wire (Steel): ASTM A392 zinc-coated wire fabric

C. Concrete: a locally available pre-mix consisting of a uniformly blended, properly proportioned mixture of stone, gravel, sand, and Portland cement. Concrete shall be "Sackrete" or approved equivalent.

2.2 COMPONENTS

Components shall be as listed as a minimum or as recommended by the manufacturer.

A. Line posts: 1 5/8-inch 16 gauge

B. Corner, terminal, and gate posts: 2.5-inch

C. Top and Brace Rail: 1.25-inch, plain end, sleeve coupled

D. Fabric: 2-inch diamond mesh interwoven wire, 11 gage, top selvage twisted tight, bottom selvage twisted tight

E. Tension Wire: 6 gage steel, single strand

F. Tension Band: 3/16-inch thick steel

G. Tension Strap: 3/32-inch thick steel

H Truss Rods: 3/8-inch diameter steel

I. Tie Wire: Aluminum alloy steel wire

2.3 GATES

A. Provide swinging gates with proper hinges to attach to corner posts. Gates shall have padlock capability (lock by Owner).

B. Double gate shall be 14 feet wide

2.4 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Caps: Pressed steel galvanized; sized to post diameter, set screw retainer

B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel

2.5 FINISHES

A. Components and fabric: Galvanized with 1.2 ounces/square foot coating

B. Hardware: Galvanized with 1.2 ounces/square foot coating

C. Accessories: Same finish as framing

1. Galvanized fabric; galvanized after weaving

2. Fabric shall be fabricated from 11-gauge wire woven in a 2-inch diamond mesh. Fabric height shall be 42 inches.

C. Fabric shall be twisted and barbed on the top selvage and knuckled on the bottom selvage.

PART 3 EXECUTION

3.1 GENERAL

Install framework, fabric, accessories and gates in accordance with manufacturer's guidelines.

3.2 PREPARATION

A. The boundary fence alignment shall be staked by Tetra Tech in cooperation with the Contractor.

B. Brush, branches, and small trees will be removed from the working area.

C. Vegetation removal will be minimized to allow fence installation. Vegetation will be removed with hand-held brush cutting equipment and chainsaws to provide clearance for small equipment and personnel. All vegetation will be cut at the surface rather

than being uprooted. After cutting, brush, branches, and small trees will be moved out of the work area and left in place.

D. The Indiana Bat and Northern Long-Eared Bat summer maternity dates for southern Iowa are generally within the same timeframe, April –September. Evergreens (cedars) and deciduous trees under 9-inch diameter at breast height (DBH) may be removed at any time. Deciduous trees over 9-inch DBH that meet the bat habitat criteria may be taken outside of the maternity dates, but must be approved by United State Fish and Wildlife Service (USFWS). Emergency removal during the maternity dates for deciduous trees over 9" DBH requires a tree inspection for possible bat habitat/use. If possible habitat is present then 3 evening surveys are required. If the inspection and/or surveys are negative for bat use, the tree may be removed immediately after the 3rd survey or an additional morning survey is required.

3.3 INSTALLATION

A. Place fabric on outside of posts and rails.

B. Set intermediate, terminal, gate, and corner posts plumb, in concrete footings with top of footing 2-inches above finish grade.

C. Line post footing depth below finish grade: 24-inches

D. Corner, gate and terminal post footing depth below finish grade: 36-inches

E. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail 1 bay from end and gate posts.

F. Provide top rail through line post tops and splice with 6" long rail sleeves.

G. Install center and bottom brace rail on corner gate leaves.

H. Do not stretch fabric until concrete foundation has cured.

I. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.

J. Position bottom of fabric 2-inches above finished grade.

K. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 16-inches on centers.

L. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.

M. Install bottom tension wire stretched taut between terminal posts.

N. Install gate with fabric overhang to match fence.

3.4 ERECTION TOLERANCES

Tolerances shall be in accordance with manufacturer's guidelines.

End of Section