



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII  
726 MINNESOTA AVENUE  
KANSAS CITY, KANSAS 66101

NOV 29 1995

MEMORANDUM

SUBJECT: Proposal for Corrective Action Management Unit  
Designation, Iowa Army Ammunition Plant Site,  
Middletown, Iowa

FROM: Scott Marquess, RPM *Scott Marquess*  
SUPR/FFSE

TO: Dennis Grams, P.E.  
Regional Administrator

THRU: *MS* Mike Sanderson, Director  
Superfund Division

Category of Removal: Non-time-critical  
CERCLIS ID #: IA7213820234  
Nationally Significant/Precedent Setting: No

I. Purpose

The purpose of this Memorandum is to provide information to enable the designation of a Corrective Action Management Unit (CAMU) at the Iowa Army Ammunition Plant (IAAP) Superfund site in Middletown, Iowa, located in Des Moines County in southeastern Iowa. This designation is made pursuant to the RCRA regulations found at 40 CFR 264.552.

II. Site Conditions and Background

The IAAP is a 20,000 acre Load, Assembly, and Pack (LAP) munitions facility located in southeastern Iowa, 10 miles west of Burlington (see Attachment 1). The IAAP is owned by the U.S. Government and operated by a contractor, currently Mason & Hanger-Silas Mason Co. Inc., for the Department of Army. Since 1941, the IAAP has produced projectiles, warheads, demolition charges, anti-tank weapons, primers, and fuses. The primary source of contamination at the site is attributable to past operating practices where explosives-contaminated wastewaters and

sludges were discharged to uncontrolled lagoons and impoundments on-site. Pink/red wastewaters from TNT operations are considered K047 listed RCRA wastes pursuant to 40 CFR 261.32.

The site was listed on the NPL in 1990, with a Federal Facilities Agreement (FFA) negotiated between EPA and the Army effective December 10, 1990. The state of Iowa is not a party to the FFA. The Remedial Investigation/Feasibility Study (RI/FS) was initiated in 1992. The Draft Final RI was completed in April 1994. Supplemental RI activities are currently being performed by the Army as a result of informal dispute resolution.

The primary contaminants at the site are explosives (RDX, TNT), metals, and VOCs, which are found in soils, groundwater and surface water at the site. The facility operates pursuant to RCRA and NPDES permits. The NPDES permit allows for discharge of explosives constituents to surface water on-site. The Army has previously implemented a time-critical removal action to provide alternate water supplies to approximately 150 residents immediately south of the installation whose private groundwater supply wells were potentially impacted by explosives contamination originating on the IAAP.

The Army has prepared an Engineering Evaluation/Cost Analysis (EE/CA) dated May 15, 1995, in support of a proposal to execute a non-time-critical removal action at two of the most highly contaminated source areas at the IAAP - the former Line 1 Impoundment and the Line 800 Pinkwater Lagoon. The EE/CA was made available for public comment from May 15, 1995 to June 15, 1995, with a public availability session held near the site on June 6, 1995. No substantive public comments were received by the Army during the public comment period.

The former Line 1 Impoundment was an impoundment on Brush Creek which received explosives wastewater discharge from the Line 1 LAP facilities from 1948 to 1957. Explosives soil and sediment contamination extends for approximately 8 acres at the site. The impoundment dam was breached in 1957, allowing impounded wastewaters and sediment to flow into Brush Creek. Approximately 20,000 cubic yards (CY) of soils above the site remediation goals are present at the former impoundment.

The Line 800 Pinkwater Lagoon received explosives wastewater and sludges from various locations at the IAAP from 1943 to the 1970's. It currently holds approximately 6 acres of standing water and contaminated sediments. Approximately 80,000 CY of soils and sediments above site remediation goals are present at the Pinkwater Lagoon.

The Army's proposed removal action calls for excavation of the estimated 100,000 CY of explosive contaminated soils and sediments from the Impoundment and the Pinkwater Lagoon with

various options for on-site disposal of the material. The lowest level contaminated soils will be disposed in the IAAP's existing landfill, the 14 acre Inert Landfill, which will be capped with a geosynthetic liner. These soils pose a potential risk of additional groundwater contamination, but do not pose a carcinogenic risk to human health exceeding  $10^{-6}$ , based on a future industrial use exposure scenario. Since these soils pose no unacceptable risk to human health and the environment, EPA has determined that these remediation wastes do not contain K047 wastes and are not subject to management according to the Hazardous Waste regulations found in subtitle C of RCRA (see correspondence of June 23, 1995; S. Marquess - EPA to L. Baxter - IAAP).

The second tier of contaminated soils to be excavated from the two sites at the IAAP is defined as those at contaminant levels corresponding to a  $10^{-5}$  to  $10^{-6}$  potential human health risk. These soils will be disposed in the Trench 6 Landfill. The Trench 6 Landfill will be constructed on-site adjacent to the Inert Landfill as part of the non-time-critical removal action. It will include liners and leachate collection systems which meet RCRA requirements of 40 CFR 264, Subpart N. The new landfill will have a capacity of approximately 80,000 CY, with capability for expansion. Again, based on risk considerations, EPA has determined that the remediation wastes to be disposed in the Trench 6 Landfill at the IAAP do not contain K047 wastes.

The highest level contaminated soils excavated from the impoundment and lagoon sites will be temporarily stored in a RCRA waste pile unit which will be constructed at the Inert Landfill Area, adjacent to the existing Inert Landfill. These facilities are depicted on Attachments 2 and 3. The temporary stockpile will be constructed pursuant to requirements of 40 CFR Part 264, Subpart L. The purpose of this temporary stockpile unit is to facilitate site-specific evaluation of innovative treatment technologies, primarily biotreatment, as a potential final remedial action, while enabling significant incremental risk reduction during the period of evaluation. Soils to be managed in the temporary stockpile unit will be those: 1) posing a carcinogenic human health risk exceeding  $10^{-5}$ , 2) found to be characteristic wastes according to TCLP methods (see 40 CFR 261.24), 3) containing listed hazardous wastes, and 4) for which constituents are detected at levels which exceed Land Disposal Restriction (LDR) treatment standards found at 40 CFR Part 268, Subpart D. Soils which are determined to be reactive shall not be managed in the stockpile unit and will require special handling precautions. The Army estimates that approximately 10,000 CY of soil will be managed at the stockpile unit for eventual treatment. It is estimated that the 10,000 CY will contain approximately 80% of the total mass of contaminants from the 100,000 CY of soil to be excavated from the impoundment and the lagoon. The stockpile design capacity is 20,000 CY with

expansion capability. The stockpile will effectively contain remediation wastes while treatment alternatives are evaluated. The ultimate disposition of stockpiled remediation wastes will be determined in the Record of Decision (ROD) for the Soils operable unit at the IAAP. The Draft ROD for the Soils operable unit is to be submitted by the Army to EPA pursuant to the IAAP FFA. This ROD will specify treatment and management of the stockpiled remediation wastes along with the eventual closure procedures for the stockpile unit.

The stockpile/CAMU may receive remediation wastes associated with other CERCLA response actions or RCRA Corrective Actions at the IAAP facility. The nature of other remediation wastes which may be temporarily stored in the stockpile will be determined in subsequent RODs for appropriate operable units. These remediation wastes may include environmental media contaminated with volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and/or explosives. Incompatible remediation wastes - those which may exhibit cross-reactivity - shall not be mixed. Additionally, media contaminated with constituents that may require different treatment methods shall be kept separate and identifiable while stored in the CAMU.

Since the stockpile unit may receive media containing listed wastes, or media which may be determined to be characteristic RCRA waste, this Memorandum proposes that the Regional Administrator designate the RCRA waste pile unit at the Inert Landfill area at the IAAP as a CAMU for temporary management of remediation wastes at the site.

### III. Requirements

The temporary RCRA remediation waste pile at the IAAP Inert Landfill area is appropriately designated a CAMU, in accordance with 40 CFR 264.552(c), for the following reasons:

The temporary RCRA waste pile unit is included as a component of the proposed removal action involving the former Line 1 Impoundment, the Line 800 Pinkwater Lagoon, and the Inert Landfill. The RCRA waste pile unit may be designated to temporarily store remediation wastes associated with subsequent operable unit RODs at the IAAP. Soils which may contain hazardous waste will be placed in the remediation waste pile unit. Placement of remediation waste, including hazardous contaminated media, into a remediation waste pile designated as a CAMU shall not constitute land disposal for the purposes of Section 3004(k) of RCRA. Since the unit will serve only as a temporary unit prior to the ultimate treatment of the remediation wastes, and since the remediation wastes will be managed in a protective manner in the interim prior to treatment, it is

not appropriate to apply LDRs in management of these wastes. The operational duration of the remediation waste pile shall be consistent with the final remedial action for the soils to be managed therein, as will be specified in the Soils operable unit ROD for the IAAP. The Draft Soils operable unit ROD shall be submitted by the Army to EPA according to the IAAP FFA.

The EPA believes that designation of a CAMU: 1) will facilitate a reliable, effective, protective, cost-effective remedy at the IAAP in conjunction with the proposed removal action and the ultimate remedial action; 2) will not create unacceptable risks to human health and the environment; 3) will include uncontaminated areas of the facility only when including such areas provides for more protective management of remediation waste than management of such wastes at contaminated areas of the facility; 4) will minimize potential for future releases of hazardous substances from the site; 5) will expedite the timing of a remedial action; 6) will enable the use of innovative treatment technologies to enhance the long-term effectiveness of the remedial action; 7) will minimize the land area of the facility upon which contamination will remain in place after CAMU closure.

If a CAMU were not used at the site, any excavated soil that contained RCRA waste or exhibited the toxicity characteristic would have to be treated prior to placement. Due to the potentially large volumes of contaminated soil involved, such treatment would be potentially cost-prohibitive at this point in time. By designating the CAMU, site risks are significantly minimized while innovative technologies are evaluated to ultimately provide for effective treatment of the soils at costs significantly reduced relative to presently practicable methods.

The CAMU will be located adjacent to the Inert Landfill at the IAAP, in an area in which the underlying groundwater is contaminated. The surface soils in this area are believed to be uncontaminated. Immediately east of the CAMU is the Inert Landfill, which contains municipal and some quantity of industrial wastes from past IAAP operations, and the Trench 6 Landfill, which will be used to contain lower-level remediation wastes. The area of the CAMU is therefore rather isolated and has no other productive foreseeable future land use. The CAMU will serve as a temporary management unit prior to waste treatment, and will not result in permanent contamination of previously uncontaminated areas of the IAAP. The CAMU contributes to the overall remediation strategy for the IAAP by providing for protective waste management while cost-effective treatment technologies are developed.

The Inert Landfill area at the IAAP satisfies the requirements of 40 CFR 264.552(e), described as follows:

The areal configuration of the CAMU constitutes a portion of the IAAP property which is located adjacent to the Inert Landfill in the west-central portion of the IAAP. The CAMU location is depicted in Attachment 3. The general design, operation, and closure of the CAMU shall be consistent with requirements of 40 CFR Part 264, Subpart L - Waste Piles, and have been described by the Army in the EE/CA of May 15, 1995. Additional details of the CAMU closure shall be specified in the IAAP Soils operable unit ROD. The Draft ROD shall be submitted to EPA by the Army pursuant to terms and conditions of the IAAP FFA. Groundwater monitoring for the CAMU shall be sufficient to detect any unforeseen releases of hazardous substances from the CAMU to the uppermost aquifer. The monitoring program shall, in general, be consistent with the substantive standards of 40 CFR 264, Subpart F - Releases from Solid Waste Management Units. Groundwater monitoring shall be conducted by the Army on a quarterly basis during the operational lifetime of the CAMU, with results reported to EPA within 45 days of receipt by the Army. Additional details of the groundwater monitoring plan are to be described in the Action Memorandum for the former Line 1 Impoundment and Line 800 Pinkwater Lagoon removal action.

#### IV. Recommendation

The information presented in this Memorandum proposes the use of property adjacent to the IAAP Inert Landfill for designation as a Corrective Action Management Unit for the Iowa Army Ammunition Plant Superfund Site. This designation is made in accordance with 40 CFR Part 264, Subpart S - Corrective Action for Solid Waste Management Units. This CAMU will serve as a temporary waste management unit for contaminated soils generated as a result of the non-time-critical removal action for the former Line 1 Impoundment and the Line 800 Pinkwater Lagoon at the site, and as specified in subsequent operable unit RODs.

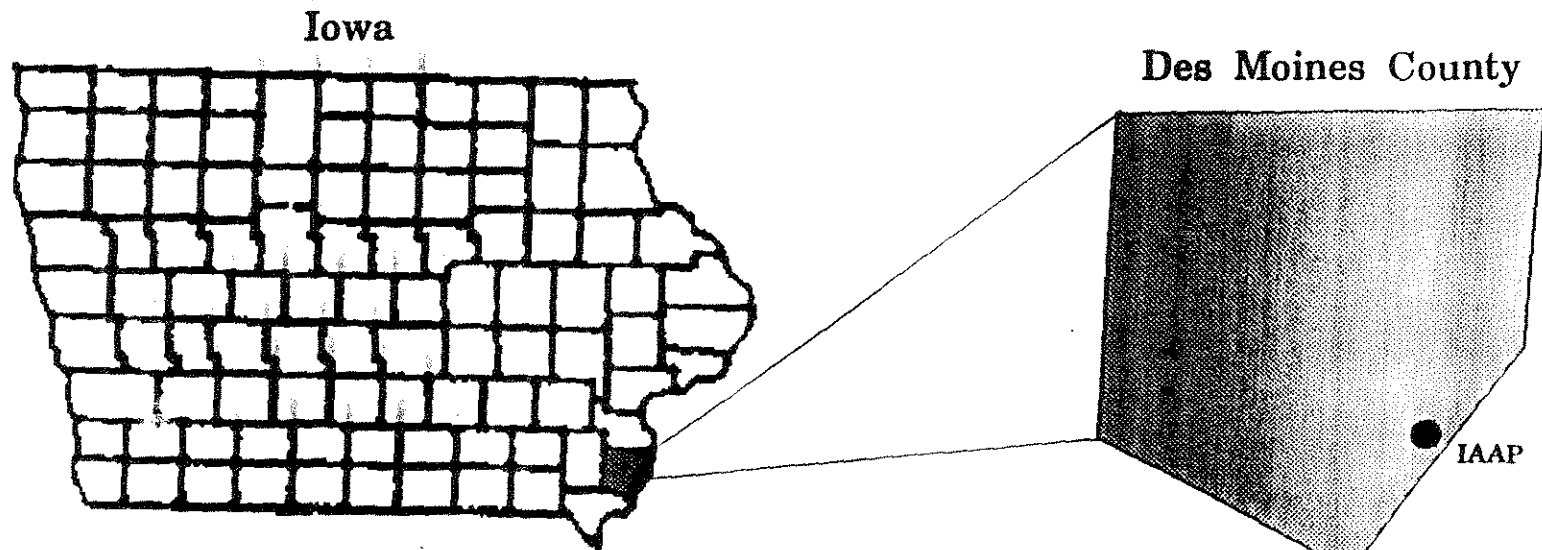
APPROVED:




Dennis Grams, P.E.  
Regional Administrator  
EPA Region VII

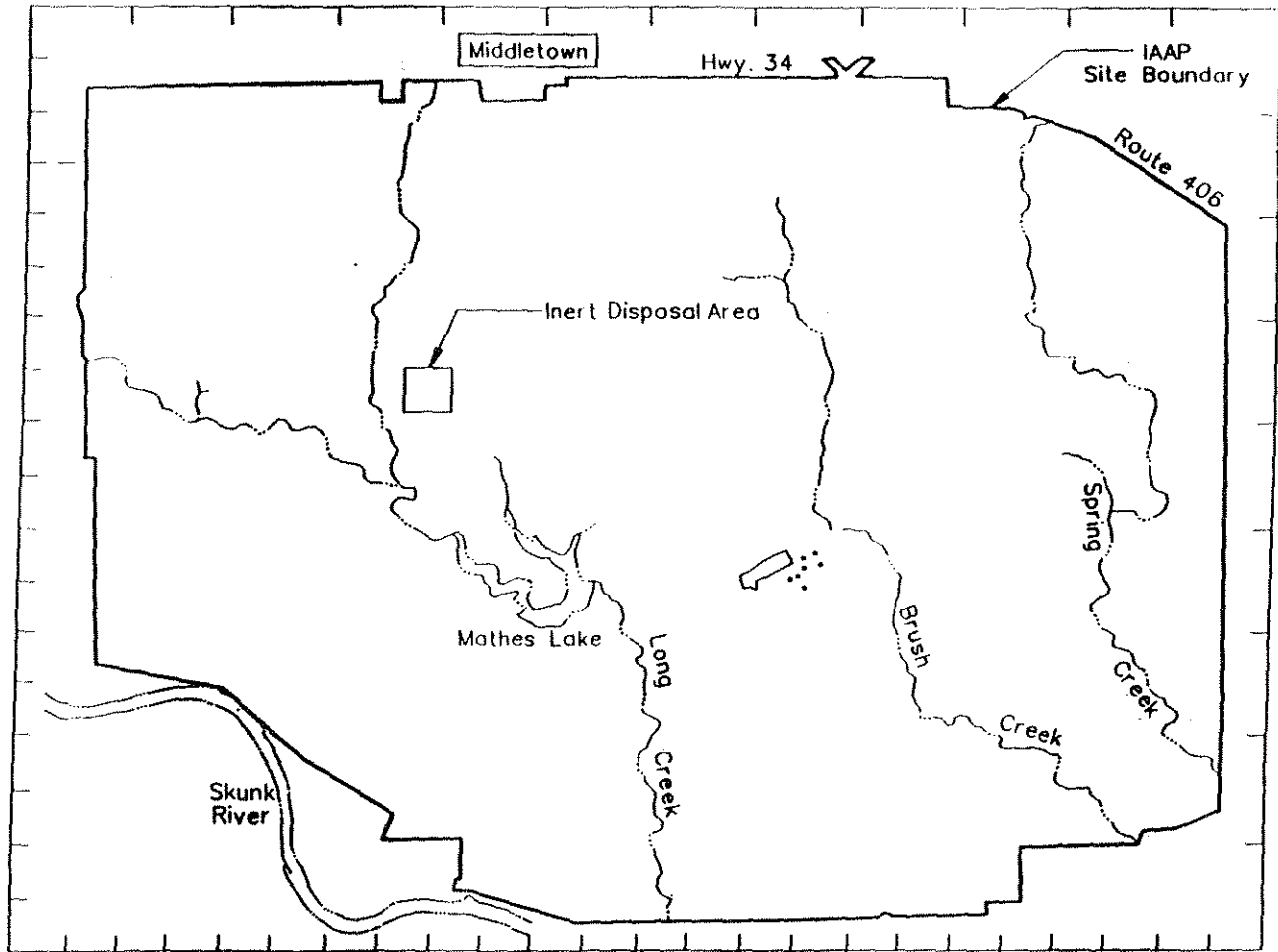
11-28-95  
Date

Attachments




## KEY TO COUNTIES

CONSULTANTS	Project No.: 6102-012	Iowa Army Ammunition Plant Middletown, Iowa	Location of IAAP in relation to the State of Iowa	Attachment 1
		 CDM FEDERAL PROGRAMS CORPORATION <small>a subsidiary of Camp Dresser &amp; McKee Inc.</small>		4/95

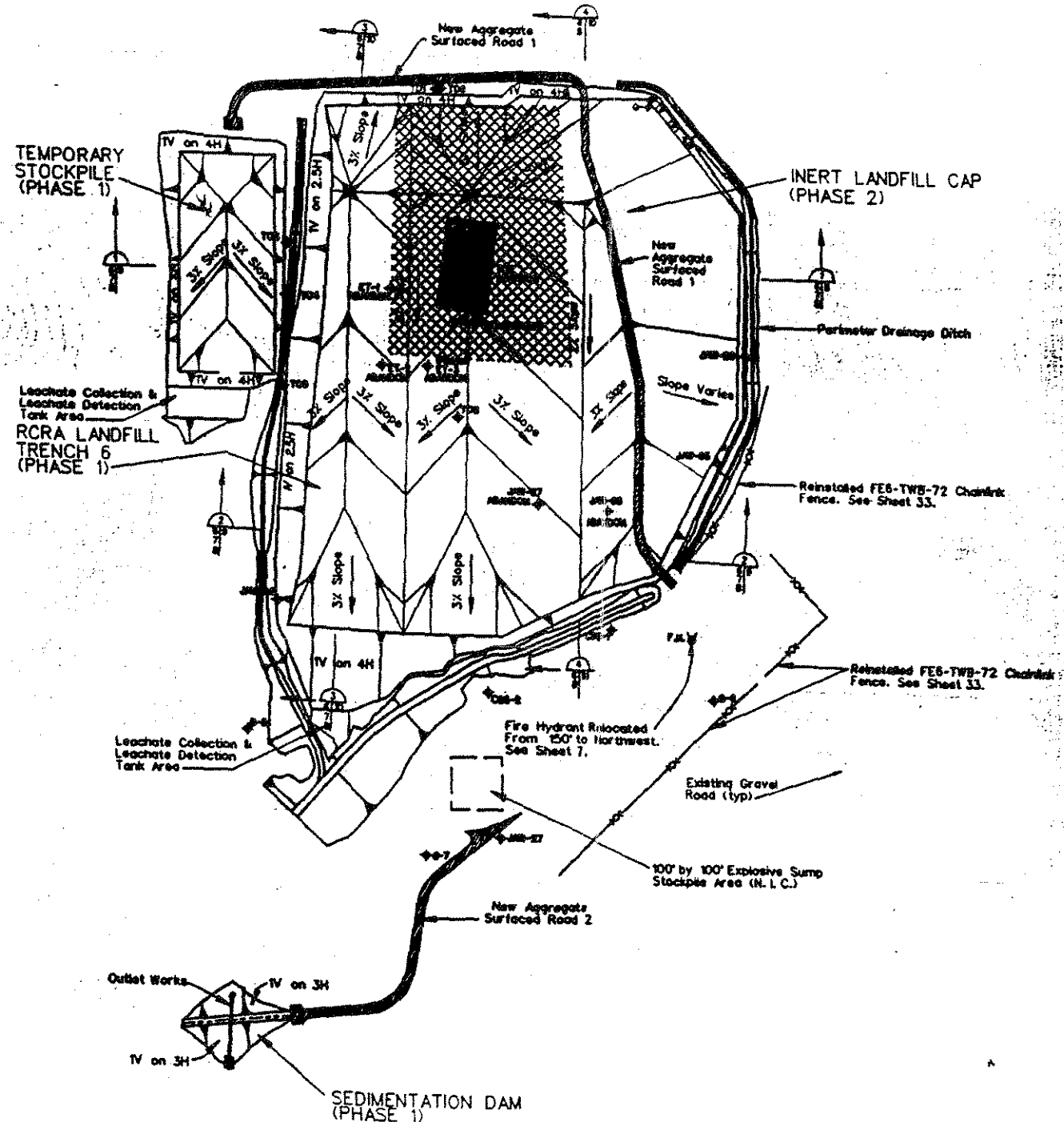


Not to Scale

Source: Dames & Moore

MCS FILE: 6102	Project No: 6102-012	Iowa Army Ammunition Plant Middletown, Iowa	Inert Disposal Area	Attachment 2
		 <b>CDM FEDERAL PROGRAMS CORPORATION</b> <small>a subsidiary of Camp Dresser &amp; McKee Inc.</small>		4/95





**LEGEND**

- Trench Cells
- F.H. Fire Hydrant
- Monitoring Wells
- Existing RCRA Cap
- Existing RCRA Waste Cell

**NOTE:**  
 1. SEE SHEET 33 FOR ADDITIONAL GRADING AND LAYOUT OF AGGREGATE SURFACED ROADS 1 AND 2.  
 2. SEE SHEET 7 FOR INITIAL GRADING AND REMOVAL PLAN FOR INERT LANDFILL AREA.  
 3. SEE SHEET 8 FOR FINAL GRADING PLAN FOR INERT LANDFILL AREA.  
 4. SEE SHEET 9 FOR PLAN OF PERIMETER DRAINAGE DITCHES.  
 5. TYPE OF CAP AND SLOPES OF DRAINAGE DITCHES SHALL NOT INTERFERE WITH MONITORING WELLS MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12.  
 6. TOE OF CAP AND AGGREGATE ROAD SHALL NOT INTERFERE WITH MONITORING WELLS MW-1 & MW-2.  
 7. ALL EXISTING MEMBERSHIP WITHIN THE CAP AREA SHALL BE ABANDONED.

N

300      0      300      600

SCALE      FEET

Source: Corps of Engineers, Omaha District

**Temporary Stockpile of Explosive Contaminated Soil**

**MONITORING WELL REPLACEMENT SCHEDULE**

EXISTING WELLS TO BE ABANDONED	REPLACEMENT WELL	REPLACEMENT LOCATION	REPLACEMENT COORDINATES	
			EAST	NORTH
T08	N/A	N/A	N/A	N/A
T09	N/A	N/A	N/A	N/A
T07	N/A	N/A	N/A	N/A
T06	N/A	N/A	N/A	N/A
ST-1	N/A	N/A	N/A	N/A
ST-2	N/A	N/A	N/A	N/A
ST-3	N/A	N/A	N/A	N/A
JAW-04	CM-2	NEW WELLS FOR TRENCH 6	2,617,180.82	286,704.82
JAW-07	CM-1	NEW WELLS FOR TRENCH 6	2,617,378.84	286,600.80

Iowa Army Ammunition Plant  
 Middletown, Iowa

Project No.: 6102-012

Attachment 3

9/95

**CDM FEDERAL PROGRAMS CORPORATION**  
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MCS FILE SHEET 6