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**AMENDMENT TO CLOSURE PLAN  
INFORMATION AND DATA FOR STORAGE PAD  
NORTH OF PLANT 6 REVISION 3 DECEMBER  
1993**

**12/29/93**

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50  
REPORT**

AMENDMENT TO  
CLOSURE PLAN INFORMATION AND DATA  
FOR STORAGE PAD NORTH OF PLANT 6

Revision 3  
December 1993

Fernald Office  
U. S. Department of Energy  
Fernald Environmental Management Project  
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AMENDMENT TO CLOSURE PLAN INFORMATION AND DATA  
for the  
Storage Pad North of Plant 6  
U. S. Department of Energy  
Fernald Environmental Management Project  
Fernald, Ohio

1.0 INTRODUCTION

Consistent with recent discussions between representatives of the FEMP (Department of Energy [DOE] and Fernald Environmental Restoration Management Corporation [FERMCO]) and the Ohio Environmental Protection Agency Southwest District Office (OEPA/SWDO), this Amendment to the approved closure plan summarizes closure actions that have been performed and provides information and data necessary to complete Resource Conservation and Recovery Act (RCRA) clean closure of the Storage Pad North of Plant 6 (Plant 6 Pad).

1.1 Summary of Closure Activities

The purpose of this summary discussion is to provide a description of the Plant 6 Pad, discuss the basis of the Hazardous Waste Management Unit (HWMU) designation, and summarize the closure activities conducted to date. The Plant 6 Pad is a flat concrete pad eight feet wide and 40 feet long and has a six inch concrete curb along its eastern boundary. The HWMU is bordered by a concrete driveway to the west and by Second Street to the north. It is located on the north side of Plant 6 at the Fernald Environmental Management Project (FEMP) (see Figure 1).

Plant 6 Pad was designated HWMU No. 36 based upon continued storage after production in excess of the 90-day storage limit for hazardous wastes (OAC 3745-52-34 and 40 CFR 262.34). Based on discussions with FEMP personnel, 1,1,1-trichloroethane (TCA) (EPA Hazardous Waste Number [HW No.]

F001/F002) and lead (HW No. D008) were used in the operations at Plant 6 and were suspected in the wastes stored at the Plant 6 Pad. These waste types include a wet filter cake, FEMP Material Code 069, and an oily sludge, FEMP Material Code 039, both of which are from the wastewater treatment system (WWTs) at Plant 6. TCA and lead are the only contaminants of concern (COCs) pertaining to this HWMU.

The closure activities conducted between December 1991 and February 1992 included pressure washing Plant 6 Pad, conducting three rinses, collecting rinseate samples of these rinses to verify decontamination, and collecting twelve soil samples from beneath the pad and adjacent areas (see Figure 2). The samples were analyzed for total lead and TCA.

Lead and TCA contamination were identified in the soils under and adjacent to the Plant 6 Pad. To further characterize the extent of soil contamination, another soil sample was collected (SP13) in November 1993 (see Figure 2). Analysis of SP13 indicated lead contamination in the surface (0"-12") but did not identify TCA contamination above the detection limit (<0.005 mg/kg).

### 1.2 Completion of Closure

Clean closure of Plant 6 Pad will be obtained by demonstrating that the Plant 6 Pad was decontaminated and the TCA and lead contamination in the surrounding soil was not a result of management of hazardous wastes at Plant 6 Pad and is, therefore, not subject to closure.

The approved closure plan information and data (CPID) established clean standards based on Ohio Environmental Protection Agency (OEPA) *Draft Closure Plan Review Guidance from February 8, 1988*. In this Amendment to the approved CPID, the clean standards have been modified to reflect the revised guidance provided in the OEPA *Closure Plan Review Guidance, May 1991* and the *Closure Plan Review Guidance for RCRA Facilities, Interim*

*Final September 1, 1993.* Under the revised guidance, the analyses of the pad decontamination rinseates confirms that the concrete pad is clean.

Information is provided in this document to support the conclusion that soil contamination is not associated with management of hazardous wastes in the HWMU. In accordance with the *Closure Plan Review Guidance for RCRA Facilities, Interim Final September 1, 1993 (section 2.9, pages 16 & 17)*, this document will: identify of an alternative source of contamination, document that there have been no reported releases from the unit, and illustrate that contamination is ubiquitous and extends upgradient from the unit.

As a best management practice, the FEMP will augment the closure by removing elevated levels of TCA and lead contamination east of the storage pad. The elevated TCA and lead contamination will be removed by excavating surface soils from three areas adjacent to Plant 6 Pad (see Figure 3 and discussions in Section 3.2).

A brief summary of each section in this document is described below:

- Section 2 provides the data and information necessary to demonstrate clean closure of the Plant 6 Pad. This includes a review of the analytical results from rinseate and soil sampling during closure, historical analytical data collected from vicinity wells and borings, process knowledge of Plant 6 and Plant 9 operations, and ongoing removal actions impacting the soils under and adjacent to the HWMU.
- Section 3 provides a summary of additional field activities conducted as a best management practice to augment the previous closure action. Soils containing elevated levels of lead and TCA contamination from other sources in the area will be excavated.

- Section 4 summarizes closure certification information.
- Section 5 provides the revised closure schedule.

## 2.0 CLOSURE INFORMATION

### 2.1 Closure Objectives

This Amendment to the approved CPID is in accordance with performance standards described in OAC 3745-66-11 (40 CFR 265.111). The following standards have been adopted from the approved CPID:

- Minimizing the need for further maintenance by demonstrating that the storage pad is decontaminated and HWMU activities did not contribute to media contamination. RCRA Post-Closure maintenance of the pad is not required because no hazardous wastes or unacceptable levels of contamination will remain after closure.
- Controlling, minimizing, or eliminating, to the extent necessary to protect human health and the environment, the escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere.

### 2.2 Analytical Data Collected From Closure Activities

This section provides a discussion of decontamination rinseate and soil samples collected as part of the closure activities. The discussion includes a review of the analyses.

#### 2.2.1 Decontamination Rinseate Analyses

The clean up levels in the approved CPID (0.05  $\mu\text{g}/\text{L}$  for TCA and 5.0  $\mu\text{g}/\text{L}$  for lead) have been revised in this Amendment to the CPID based upon new OEPA guidance. In accordance with *OEPA Closure Guidance Documents - May 1991 and September 1993*, the revised clean up levels were determined based on the lesser of 1.0 mg/L or 15 times the Maximum Contaminant Level (MCL)

as listed in OAC 3745-81-12 and 40 CFR 141.12 for TCA and OAC 3745-81-11 and 40 CFR 141.11 for lead.

The Plant 6 Pad was washed with pressurized water in accordance with the approved closure plan. The pad was rinsed three times. After each rinse a rinseate sample was collected and analyzed for TCA and lead (see Table 4). Based on a review of the rinseate analyses, the COCs are below the revised cleanup levels for TCA ( $\leq 1.0$  mg/L) and lead ( $\leq 0.75$  mg/L). These results verify that the Plant 6 Pad has been cleaned. The cleaned Plant 6 Pad will remain in place until final disposition under the Interim and Final RODs for OU3.

### 2.2.2 Soil Sample Analyses

Lead (EPA HW No. D008) is the only inorganic contaminant of concern for this unit. A total of 30 soil samples were collected from thirteen sample locations around Plant 6 Pad from December 1991 to November 1993 (see Figure 1). The analytical data from soil samples SP6, SP7, SP8, SP12, and SP13 indicate total lead concentration above the FEMP background mean plus two standard deviations for total lead (27.285 mg/kg)<sup>1</sup> in the surface soils east of the pad ranging from 29.4 mg/kg to 226 mg/kg (see Table 1). The lead concentrations from analyses of soil samples SP1, SP2, SP3, SP4, SP5, SP9, SP10, and SP11 indicate that total lead concentrations in soils beneath the Plant 6 Pad and beneath the paved area west of the pad are less than the FEMP background.

TCA (EPA HW Nos. F001/F002) is the only organic contaminant of concern for this unit. TCA contamination was found in the soil beneath the pad, beneath the paved driveway west of the pad and in one location in the

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<sup>1</sup> "CERCLA/RCRA Background Soil Study Report" dated March 19, 1993 provides the methodology used to generate the background soil data. The mean plus 2 standard deviations (27.285 mg/kg) for lead contamination in area background soil was calculated for comparison to analyses of soils collected during closure.

unpaved area east of the pad. The information provided below is detailed in Table 1:

- Analytical data from soil samples SP1, SP3, and SP4 indicate TCA contamination in the soil beneath the pad ranging from 0.001 to 0.002 mg/kg. These are estimated values reported below the detection limit of 0.006 mg/kg. No TCA contamination was reported in soil sample SP2.
- Sample points SP5, SP9, and SP10, located west of the pad beneath the paved driveway, have TCA contamination ranging from 0.002 to 0.012 mg/kg. Values reported below the detection limit, which varied from 0.005 to 0.006 mg/kg, are estimated.
- TCA was not detected in soils from sample points SP6, SP7, SP11, SP12 and SP13 located in the unpaved area east of the pad. Although the detection limits for samples SP6, SP7, SP11 and SP12 are much higher (0.55 to 0.99 mg/kg) than SP6 and SP13 (0.005 mg/kg), the reported values were below the established detection limit at the time of analyses and the soils are considered free of inorganic contaminants in accordance with Section 3.11.2 of the *OEPA Closure Guidance Documents - May 1991 and September 1993*.
- The analytical data from sample point SP8 indicates an isolated point of elevated TCA soil contamination in the unpaved area east of the pad ranging from 1.1 mg/kg to 9.4 mg/kg.

### 2.3 Historical Analytical Data Collected From Wells and Borings

This section discusses the FEMP historical analytical data obtained from wells and soil borings located in the vicinity of Plant 6 Pad (see Figure 1). The data indicates that TCA contamination is ubiquitous and upgradient from the unit.

### 2.3.1 Perched Groundwater Well Data

Lead analyses reported for groundwater from seven wells located in the vicinity of Plant 6 Pad are provided in Table 2. The well data was compared to the maximum contaminant level (MCL) for total lead (0.05 mg/L) as listed in OAC 3745-81-11 and 40 CFR 141.11. None of the wells exceeded the MCL for lead.

Results of TCA analyses for the seven wells are also provided in Table 2. TCA contamination was reported at concentrations ranging from 0.002 mg/L to 0.420 mg/L. Well W1117 analysis did not detect TCA. The groundwater data was also compared to the MCL for TCA (0.20 mg/L) as listed in OAC 3745-81-12 and 40 CFR 141.12. Two wells, W1145 and W1149, contained concentrations of 0.3 and 0.42 mg/L, respectively, which exceed the MCL.

### 2.3.2 Soil Boring Data

Analytical data from eleven soil borings in the vicinity of Plant 6 Pad are provided in Table 3. The boring data was compared to the FEMP background mean plus two standard deviations (27.285 mg/kg) for total lead in soil. Soil boring B1327, located northwest of Plant 6 Pad, has a lead concentration of 116 mg/kg. The other ten borings were either below the FEMP background level or were not analyzed.

Analyses from borings B1324, B1565, and B1612 have TCA contamination with levels ranging from 0.001 mg/kg to 0.190 mg/kg. The boring data compared to the groundwater data indicates comparable levels of contamination in soils and perched ground water.

## 2.4 Process Knowledge of Plant 6 and Plant 9 Operations

Plant 6 operated from the 1950's to 1989. The operations included machining, casting, decladding and degreasing uranium products. The degreasing operations utilized TCA solvent. In addition the maintenance

activities in Plant 6 used TCA as a parts cleaner. Plant 6 also operated a waste water treatment system which generated wet filter cake and oily sludge wastes. These wastes were drummed and stored on the Plant 6 Pad. In 1989, the drum material was identified as a hazardous waste because process knowledge suspected TCA and lead contamination in the filter cake and sludge.

The *FEMP Upset Spill Control Document* lists two minor releases from drums stored on Plant 6 Pad in 1982. However, the leaking material was identified as "used oil from the scrap pickling operation" and not as a RCRA hazardous waste. In addition, discussions with FEMP personnel indicate undocumented releases of TCA inside of Plant 6 prior to 1989. The solvent was dumped into the clarifier pit located in the degreasing area inside of Plant 6. The clarifier pit is a concrete pit which extends 12 feet below the floor level. The pit has visible cracks that have allowed accumulated solvent material to seep into the perched groundwater.

Plant 9 is located north of Plant 6 (Figure 2). Analyses of soil borings B1324 and B1565, located in the vicinity of the southeast corner of the building, indicate elevated levels of TCA contamination. The maintenance department in Plant 9 utilized TCA as a degreaser and parts cleaner. The operations in Plant 9 included machining, casting, and decladding uranium metals which utilized TCA as a coolant. The Plant 9 sump system, including the southeast controlled pad and diked pad sumps, received used coolant prior to discharge for treatment.

## 2.5 Process Knowledge of Lead Contamination in the Soil

Paint removal operations at the FEMP utilized grit blast technology prior to 1990. These activities removed paint from the cooling towers, high lines, and fire hydrants and scattered grit blast and lead contaminated paint chips throughout the FEMP. A clean up plan was drafted in February 1990 to define the scope of grit blast removal at the FEMP. The clean up plan directed that grit blast be removed in areas with lead contamination

in excess of 500 parts per million (ppm), leaving behind surficial contamination in excess of the FEMP background level (27.285 ppm).

Process knowledge indicates that lead paint and grit blast were scattered throughout the FEMP process area. Soil analyses in the vicinity of Plant 6 Pad indicates surficial lead contamination below the 500 ppm clean up level and would not have been removed under the grit blast cleanup plan. In addition, the Plant 6 Pad is located within one block of the east cooling tower and below overhead high lines.

The use of leaded gasoline in vehicles and equipment at the FEMP was common prior to the availability of unleaded gasoline. Stormwater runoff carried leaded gasoline residues from the streets and deposited them in the adjacent soils. The rainwater from Second Street collects in a channel adjacent to Plant 6 Pad where it is diverted to a storm sewer catch basin northeast of SP11 (see Figure 2).

Lead contamination can be expected in the surface soils adjacent to Plant 6 Pad because of its close proximity to paint removal operations and a stormwater catch basin.

## 2.6 Removal Actions Impacting the Unit

*Removal Action No. 1 (RA 1): Contaminated Water Beneath FEMP Buildings* is an ongoing removal action which removes contaminated perched groundwater from beneath FEMP buildings. The removal action has been pumping contaminated perched groundwater from beneath Plant 6 and Plant 9 since 1988. The removal action pumps 500 gallons of groundwater per week, on average, for treatment at the Plant 8 wastewater treatment system (WWTS). The WWTS removes TCA from the groundwater before releasing it to the Great Miami River. When production ceased, process losses were eliminated and the primary source of TCA contamination was essentially removed. Although RA 1 actions were not designed nor intended to remove soil contamination, the continued removal of contaminated perched water under Plant 6 and

Plant 9 will reduce potential migration of TCA contamination from the area around Plant 6 Pad.

*Removal Action No. 17 (RA 17), Improved Storage of Soil and Debris*, provides specific criteria for the improved management of contaminated soil and debris and identifies options for its disposition including decontamination, offsite disposal, or storage in controlled stockpiles or an improved storage facility. The soil excavated during closure of this HWMU will be managed in accordance with RA 17, which was approved by OEPA in December 1992.

## 2.7 Conclusions

The Plant 6 Pad has been cleaned and will remain in-place until final disposition under the OU3 ROD. Soil contamination found in the vicinity of Plant 6 Pad is not associated with the HWMU and, therefore, closure has been achieved.

Consistent with the guidance provided in the *Closure Plan Review Guidance for RCRA Facilities, Interim Final September 1, 1993 (section 2.9, pages 16 & 17)*, the hazardous waste management activities at the Plant 6 Pad are not the source of TCA and lead contamination in the soil. This conclusion is based on the following:

- First, no releases of RCRA hazardous waste have been documented from the Plant 6 Pad and visual inspections during closure did not identify any evidence of previous spills.
- Second, alternative sources of TCA soil contamination have been identified from Plant 6, Plant 9, and FEMP maintenance operations.
- Third, alternate sources of lead contamination have been identified from surface deposition of lead paint resulting

from grit blast operations prior to 1990 and from leaded gasoline previously used in site vehicles.

- Fourth, discussions in Sections 2.2 through 2.5 of this Amendment provide sufficient evidence to characterize the TCA and lead contamination as being ubiquitous and extending upgradient of the unit.

Although the data from SP7, SP11, and SP12 have detection limits (0.50 to 0.99 mg/kg) an order of magnitude higher than concentrations identified under Plant 6 and Plant 6 Pad (0.005 to 0.006 mg/kg), no additional sampling is needed to evaluate TCA contamination in the unpaved area east of Plant 6 Pad. Sample points SP6 and SP13, also located in the unpaved area east of the pad, indicate no contamination above the detection limit of 0.005 mg/kg. Although the detection limits for SP7, SP11 and SP12 are slightly high, analysis of these samples still show that TCA contamination does not exist at concentrations high enough to justify excavation as a best management practice (as found in sample point SP8 located in the unpaved area next to the north wall of Plant 6 [see Figure 2]). Extensive TCA contamination at lower concentrations (ranging from 0.001 to 0.420 ppm) in the area of Plant 6 and Plant 9 is not being remediated as part of this closure because the Plant 6 Pad HWMU was not the source of the contamination. Additionally, the sample results as reported, meet the OEPA criteria for clean closure. Therefore, it is not necessary to determine if low concentrations of contamination are present at sample points SP7, SP11, and SP12.

Soil remediation is not required for closure of this unit; therefore, the widespread contamination in the soil around Plant 6 Pad will be remediated under the Final RODs for OU3 and OU5 and no additional soil removal is required for RCRA closure. However, as a best management practice, the FEMP will augment the previous closure actions by excavating isolated areas containing surficial (at a depth of 0 to 12 inches) lead contamination exceeding the FEMP background limit (27.285 mg/kg) and the

elevated level of TCA contamination found at SP8 (9.4 mg/kg) (see further discussions in Section 3.0).

### 3.0 ADDITIONAL FIELD ACTIVITIES

The FEMP will conduct limited soil excavations to remove isolated areas of elevated lead and TCA contamination identified in the area east of the Plant 6 Pad. This action will be conducted as a best management practice and will augment the previous closure actions conducted between December 1991 and February 1992. Although this action is not required for RCRA closure, certification of RCRA closure will be deferred until this additional action is completed. Information concerning the results of these additional actions will be included as an attachment to the report prepared to certify closure of the Plant 6 Pad.

#### 3.1 Summary of Proposed Excavations

Three areas adjacent to Plant 6 Pad (Areas I, II, III) will be excavated to remove lead contamination in excess of the FEMP background concentration (27.285 mg/kg) to a depth of one foot. In addition, an elevated level of TCA at SP8 will be excavated to a depth of four feet (see Figure 3).

The soil adjacent to Plant 6 Pad will be excavated as follows:

1. Area I, encompassing SP8, will be excavated between Plant 6 Pad and the empty Ammonium Hydroxide Storage Tank containment wall, north of Plant 6 (see Figure 3). The gravel will be raked aside to expose the soil. The soil will be excavated to a depth of four feet to remove TCA and lead contamination. The soil will be placed into an approved storage container and managed as a hazardous waste in accordance with RA 17. Container leakage inspections will be required prior to moving the containers into RCRA storage.
2. Unless stains or anomalies are visible in the trench, the excavation will be complete and a verification sample will be

collected from the bottom of the trench and sent to the lab to analyze for total lead. The sample will be taken from the center of the excavation.

3. Area II, encompassing SP6, SP7, and SP13, will be excavated from the northern edge of Area I and will extend approximately 30 feet north to 2nd Street (see Figure 3). The gravel will be raked aside to expose the soil. The excavation will be four feet wide and approximately one foot deep to remove surficial lead contamination. The excavated soil will be placed onto impervious sheeting adjacent to the excavation. The stockpile will be covered and managed in accordance with RA 17 pending waste characterization. The soil will not be disposed in other excavations within the FEMP site. The soil will be analyzed by toxicity characteristic leaching procedure (TCLP) for lead to determine whether it is a hazardous (i.e.,  $\geq 5.0$  mg/L) or solid waste. When the excavation is completed using the criteria in Step No. 2, three samples will be collected from the bottom of the excavation and sent to the lab to analyze for total lead.
4. Area III, encompassing SP12, will be excavated from the eastern edge of Area II and will extend approximately fifteen feet east (see Figure 3). The soil will be managed in the same manner as Step No. 3. When excavation is complete using the criteria in Step No. 2, two samples will be collected from the bottom of the excavation and analyzed for total lead.
5. Soil excavations in Areas II and III will be declared complete if lead analyses in the verification sample is below 27.285 mg/kg is achieved.
6. If the verification sample analyses identify lead contamination in excess of 27.285 mg/kg, additional

contaminated soils will be excavated and final samples will be collected for characterization. Residual lead contamination present after the second excavation will be removed under the Final RODs for OU3 and OU5.

The soil excavated from Areas II and III will be managed in accordance with RA 17. If the soil is characterized as a hazardous waste, then it will be placed into an approved container and stored in a RCRA facility at the FEMP. If the soil is characterized as a non-hazardous solid waste, then it will be placed onto a controlled stockpile in accordance with RA 17. The soil will not be disposed of in other excavations at the FEMP site. The excavations will be backfilled with gravel removed from the surface and soil from a designated stockpile located on-site in accordance with RA 17 (approved by the OEPA in December 1992).

### 3.2 Soil Sampling and Analyses

Sampling and analyses of verification soil samples to be taken from the bottom of the three excavations will be conducted following the same procedures provided in the approved CPID Sampling and Analyses Plan (SAP). The SAP addresses the following:

- Quality Assurance/Quality Control (QA/QC)
- Soil Sampling Procedures
- Sample Handling Procedures
- Waste Management
- Sampling Equipment
- Report of Findings
- Health and Safety
- Decontamination Procedures for Sampling Equipment

The following samples will be collected from the three areas identified in Figure 3:

- One soil sample will be collected from Area I.
- Three soil samples will be collected from Area II.
- Two soil samples will be collected from Area III.
- Duplicate samples will be collected as required for QA/QC.

## 4.0 CLOSURE CERTIFICATION

### 4.1 RCRA Closure Standards

Closure of Plant 6 Pad can be certified after OEPA approval of this Amended CPID. Although the removal of contaminated soils is not required for closure (see discussions in Section 2.7), the FEMP proposes to delay certification of closure until the results are available from the excavation of contaminated soils adjacent to the Pad (See discussions in Section 3).

The closure certification will be made as described in Sections 4.2 through 5.0 of the approved CPID and listed below.

#### 4.1.1 Completion of Storage Pad Decontamination

The clean up levels in the approved CPID (0.05  $\mu\text{g/L}$  for TCA and 5.0  $\mu\text{g/L}$  for lead) were revised based upon new OEPA guidance. In accordance with *OEPA Closure Guidance Documents - May 1991 and September 1993*, the revised clean up levels presented in this Amendment to the approved CPID were determined based on the lesser of 1.0 mg/L or 15 times the MCL as listed in OAC 3745-81-12 and 40 CFR 141.12 for TCA and OAC 3745-81-11 and 40 CFR 141.11 for lead.

Based on a review of three decontamination rinseate analyses, the COCs are below the revised cleanup levels for TCA ( $\leq 1.0$  mg/L) and lead ( $\leq 0.75$  mg/L) and the Plant 6 Pad has been cleaned.

### 4.2 Certification Inspections

Certification inspections by an independent engineer were conducted during previous RCRA closure activities conducted between December 1991 and February 1992. The major emphasis of closure inspections was to ensure

that the following activities were conducted in accordance with the approved CPID:

- sample collection techniques used throughout the closure process.
- cleaning and decontamination of the pad.
- characterization, labeling and storage of waste waters.

#### 4.3 Certification Documents

RCRA closure certification documentation shall include a daily log of activities, field notes recorded by the owner and or the owner's representative during closure activities, copies of the laboratory analyses reports, copies of the hazardous waste manifests (if utilized), and chain of custody forms used for sample handling and tracking. All RCRA closure certification documentation shall be compiled and retained at the FEMP for inspection/access by OEPA.

4.4 Statement of Certification

The DOE and an independent, qualified, registered, Professional Engineer, will submit certification of closure within 60 days after completing the actions specified in this Amendment to the approved Closure Plan Information and Data for the Storage Pad North of Plant 6. The Certification will meet the requirements of OAC 3745-50-42(D) and OAC 3745-66-15 and 40 CFR 270.11(d) and 40 CFR 265.115, respectively. The certification statements will be worded as follows:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

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U. S. Department of Energy

"I hereby certify that the hazardous waste management unit has been closed in accordance with the specifications in the approved closure plan, as amended."

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Ohio Registered Professional Engineer

4.5 Post-Closure Plan

This HWMU will be clean closed and post-closure care requirements are not applicable.

4.6 Notice In Deed

A notation in the property deed is required under OAC 3745-66-19 (B) (1) which involves post-closure care. Since post-closure care is not applicable to this unit, a notice in deed will not be required.

**5.0 CLOSURE SCHEDULE**

It is anticipated that the FEMP will initiate field work to excavate contaminated soils adjacent to Plant 6 Pad during the 1994 fiscal year (FY94). Assuming no modifications to the plan are required, closure certification will be completed within 240 days from the date of OEPA approval of this Amendment to the approved CPID. The schedule for additional field activities and closure certification is provided in Table 5.

The OEPA's facility inspector shall be contacted at least five (5) business days in advance of all activities associated with excavation and sample collection activities.

Table 1: Closure Soil Sample Analyses

Plant 6 Pad Area Sample Point Numbers	Totals Analyses (mg/kg)		
	Lead	1,1,1-TCA	TCA Detection Limit
Clean Level	27.285	Detection	
SP1-1 (0"-12")	5.30	0.001*	0.006
Duplicate of SP1-1	8.20	ND	0.006
SP1-2 (12"-24")	10.20	0.001*	0.006
SP2-1 (0"-12")	10.80	ND	0.006
SP2-2 (12"-24")	11.00	ND	0.006
SP3-1 (0"-12")	11.20	0.001*	0.006
SP3-2 (12"-24")	5.40	0.002*	0.006
SP3-3 (24"-36")	12.80	ND	0.006
SP4-1 (0"-12")	6.30	ND	0.006
Duplicate of SP4-1	6.40	ND	0.006
SP4-2 (12"-24")	7.10	0.002*	0.006
SP5-1 (0"-12")	ND (<10.70)	0.004*	0.006
Duplicate of SP5-1	11.40	0.002*	0.006
SP5-2 (12"-24")	11.60	0.003*	0.006
SP5-3 (24"-36")	21.10	0.003*	0.006
SP6-1 (0"-12")	39.70	ND	0.005
SP7-1 (0"-12")	226.00	ND	0.500
SP7-2 (12"-24")	23.80	ND	0.990
SP7-3 (24"-36")	12.10	ND	0.990
SP8-1 (0"-12")	35.80	8.80	0.500
SP8-2 (12"-24")	24.10	1.10	0.500
Duplicate of SP8-2	19.00	1.70	0.500

Shaded areas indicate concentration exceeds the clean level.  
 \*Values are below the detection limit and are, therefore, estimated.

ACRONYMS:

ND - Not Detected      TCA - Trichloroethane      SP - Sample Point

Revision 3: 12/93

**Table 1: Closure Soil Sample Analyses (continued)**

Plant 6 Pad Area Sample Point Numbers	Totals Analyses (mg/kg)		
	Lead	1,1,1-TCA	Laboratory Detection Limit
Clean Level	27.285	Detection	
SP8-3 (24"-36")	15.50	9.40	0.500
SP9-1 (0"-12")	20.50	0.009	0.005
SP10-1 (0"-12")	10.50	ND	0.005
SP10-2 (12"-24")	ND (<10.60)	0.012	0.005
Duplicate of SP10-2	19.60	0.002*	0.005
SP10-3 (24"-36")	ND (<10.60)	0.007	0.005
SP11-1 (0"-12")	14.60	ND	0.500
SP11-2 (12"-24")	11.90	ND	0.500
SP11-3 (24"-36")	8.28	ND	0.500
SP12-1 (0"-12")	29.40	ND	0.500
Duplicate of SP12-1	42.30	ND	0.500
SP13-1 (0"-12")	27.2	ND	0.005
SP13-2 (12"-24")	9.50	ND	0.005
SP13-3 (24"-36")	8.66	ND	0.005
Duplicate of SP13-3	8.23	ND	0.005

Shaded areas indicate concentration exceeds the clean level.  
 \*Values are below the detection limit and are, therefore, estimated.

**ACRONYMS:**

ND - Not Detected      TCA - Trichloroethane      SP - Sample Point

Revision 3: 12/93

Table 2: Historical Perched Groundwater Analyses

Well Numbers	Totals Analyses (mg/L)		
	Matrix	Lead	1,1,1-TCA
Maximum Contaminant Level	liquid	0.05	0.20
W1117 (sampled 06-21-90)	liquid	NA	ND
W1117 (sampled 09-18-90)	liquid	NA	ND
W1145 (sampled 07-23-90)	liquid	0.007	0.30
W1145 (sampled 10-29-90)	liquid	0.042	NA
W1148 (sampled 07-24-90)	liquid	NA	0.031
W1148 (sampled 02-03-93)	liquid	NA	0.073
W1149 (sampled 07-24-90)	liquid	0.002	0.42
W1149 (sampled 02-03-93)	liquid	0.002	0.19
W1149 (sampled 07-10-93)	liquid	NA	0.039
W1324 (sampled 07-25-90)	liquid	NA	0.14
W1606 (sampled 06-28-91)	liquid	NA	0.009
W1607 (sampled 02-02-91)	liquid	NA	0.002

\*Shaded areas indicate concentration exceeds the MCL.

ACRONYMS:

ND - Not Detected  
NA - Not Analyzed

TCA - Trichloroethane    W - Well (mg/l)

Revision 3: 12/93

**Table 3: Historical Soil Boring Analyses**

Boring Numbers	Totals Analyses (mg/kg)		
	Matrix	Lead	1,1,1-TCA
Clean Level	Solid	27.285	Detection
B1324 (4.5' to 5.0')	Solid	NA	0.068
B1327 (0"-6")	Solid	116.00	NA
B1327 (6"-12")	Solid	22.80	NA
B1562 (Unknown Depth)	Solid	ND	ND
B1563 (Unknown Depth)	Solid	ND	NA
B1565 (2.0'-2.5')	Solid	ND	0.002
B1565 (3.0'-3.5')	Solid	NA	0.001
B1566 (Unknown Depth)	Solid	0.20	NA
B1567 (Unknown Depth)	Solid	ND	NA
B1568 (Unknown Depth)	Solid	ND	NA
B1569 (Unknown Depth)	Solid	ND	ND
B1570 (Unknown Depth)	Solid	ND	ND
B1612 (Unknown Depth)	Solid	NA	0.19

\*Shaded areas indicate concentration exceeds the clean level.

**ACRONYMS:**

ND - Not Detected  
 NA - Not Analyzed

TCA - Trichloroethane    B - Boring (mg/kg)

Revision 3: 12/93

Table 4: Plant 6 Pad Rinseate Analyses

COCs	Clean Level (mg/L)	First Rinse (mg/L)	Second Rinse (mg/L)	Second Rinse (Duplicate) (mg/L)	Third Rinse (mg/L)
TCA	1.00	0.00694 U	0.005 U	0.005 U	0.005 U
Lead	0.75	0.0034 U	0.003 U	0.003 U	0.003 U

COCs - Contaminants of Concern

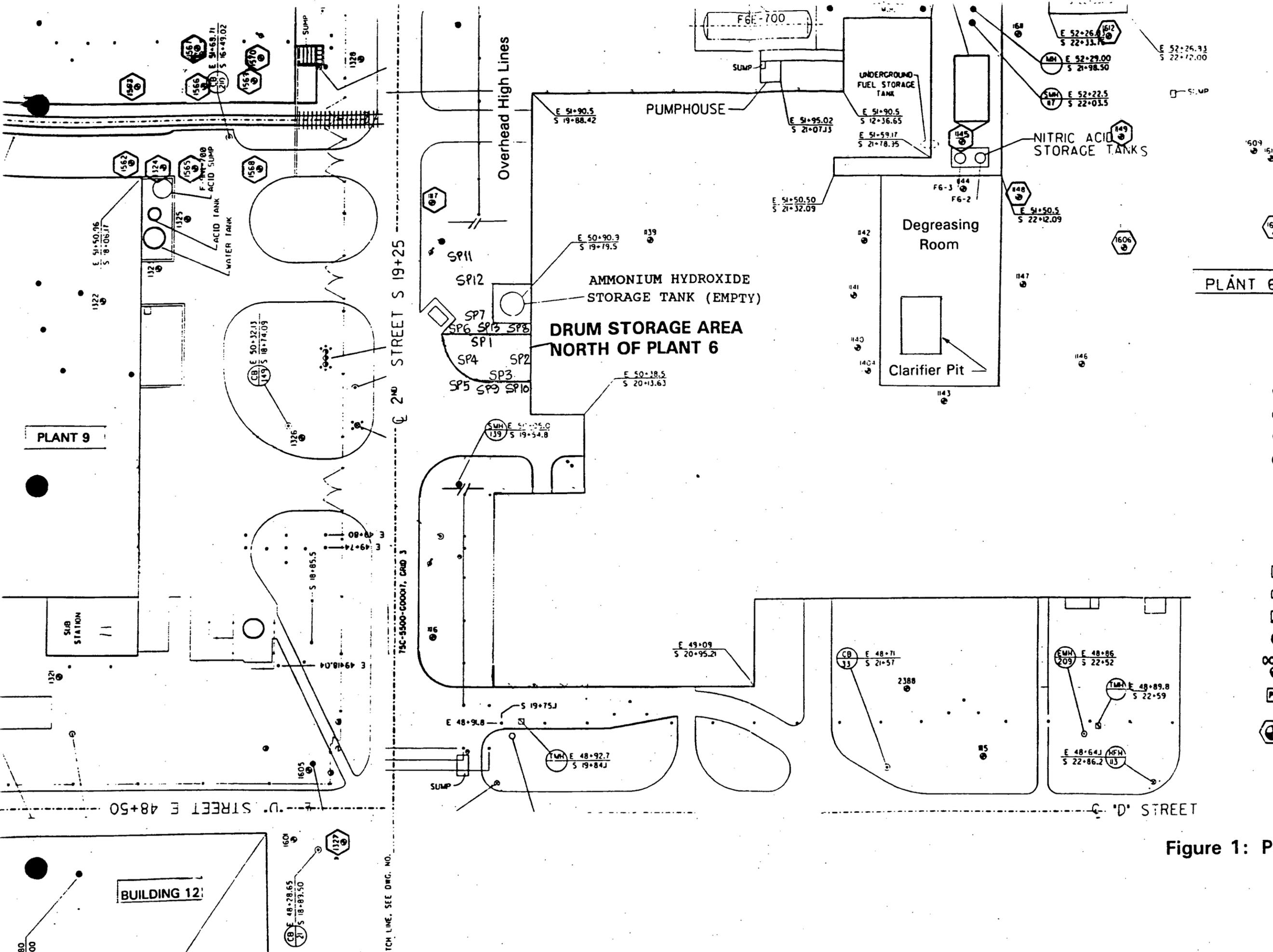
TCA - 1,1,1-Trichloroethane

U - Analyte undetected; associated numerical value is quantitation limit

Table 5: Schedule for Field Activities and Closure Certification

Action	Cumulative Days to Complete
● Begin field work.....	0
● Mobilize work force.....	30
● Excavate Areas I, II, and III; containerize soil; collect and analyze soil samples; review analytical results; and excavate additional soil, if necessary (Section 3.2).....	105
● Collect, analyze and review second set of soil samples - if additional soils were excavated (Section 3.2).....	165
● Complete all field work.....	180
● Compile certification documents and submit closure certification statement.....	240 <sup>1</sup>

<sup>1</sup> Maximum days after OEPA Approval.



PLANT 6

PLANT 9



Figure 1: Plant 6 Pad Area

NOT TO SCALE

0032

Figure 2: Storage Pad North of Plant 6

-5027

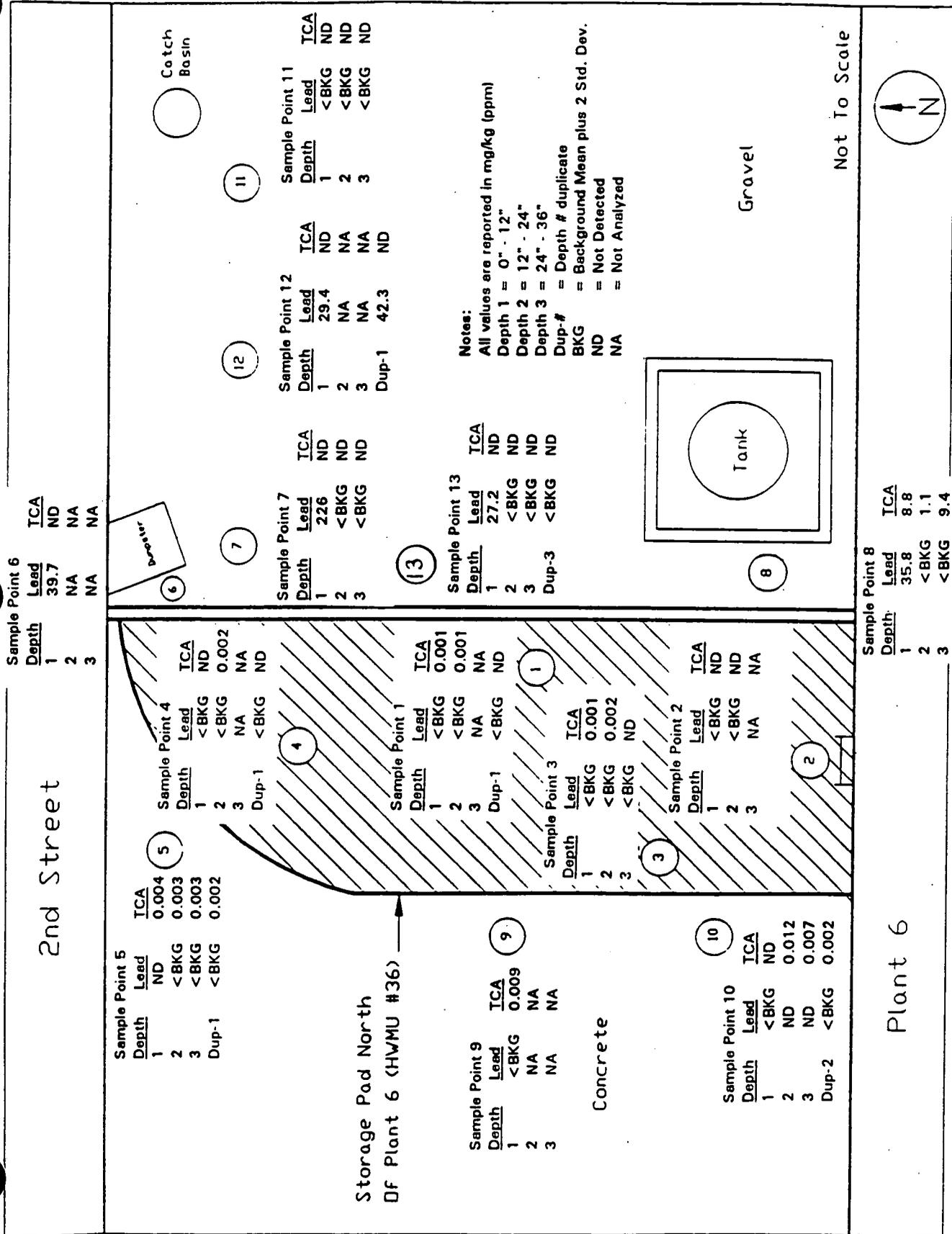


Figure 3: Areas of Excavation Adjacent to Plant 6 Pad -5027

