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**CLOSURE CERTIFICATION REPORT FOR HAZARDOUS WASTE
MANAGEMENT UNIT NUMBERS 31/32 - BULK STORAGE TANKS T-5
AND T-6**

09/05/96

**DOE-1302-96
DOE-FN EPAS
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REPORT**



Department of Energy

**Ohio Field Office
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SEP 5 1996
DOE-1302-96

**Mr. Donald Schregardus, Director
Ohio Environmental Protection Agency
P.O. Box 1049
1800 Watermark Drive
Columbus, OH 43266-1049**

Dear Mr. Schregardus:

**CLOSURE CERTIFICATION REPORT FOR HAZARDOUS WASTE MANAGEMENT UNIT
NUMBERS 31/32 - BULK STORAGE TANKS T-5 AND T-6**

Enclosed is the Closure Certification Report for Hazardous Waste Management Unit (HWMU) Nos. 31/32 - Bulk Storage Tanks T-5 and T-6. This certification report is submitted as the final requirement of the September 30, 1991, Ohio Environmental Protection Agency (OEPA) approved Closure Plan Information and Data (CPID) package and in compliance with the June 1996 Director's Findings and Orders.

Certification is being provided that the HWMU Nos. 31/32 field work was completed as stated in the approved CPID and all closure standards were met. This closure also followed the amendment to the CPID submitted in November 1993. This closure certification was delayed because of issues with HWMU No. 54 containing hazardous waste in the same secondary containment as HWMU Nos. 31/32. These issues have been addressed and certification of HWMU Nos. 31/32 can now be completed.

If you have any questions, please contact Mr. Robert Danner (513) 648-3167.

Sincerely,



Jack R. Craig
Director

FEMP:Danner

Enclosure: As Stated

cc w/o enc:

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**FERNALD ENVIRONMENTAL MANAGEMENT
PROJECT**

**Hazardous Waste Management Unit Nos. 31 and 32
Bulk Storage Tanks T-5 and T-6
Closure Certification Report**

August 1996

U.S. DEPARTMENT OF ENERGY

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ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
COC	Constituents of Concern
CPID	Closure Plan Information and Data
cm	centimeters
DOE	Department of Energy
FEMP	Fernald Environmental Management Project
HWMU	Hazardous Waste Management Unit
OAC	Ohio Administrative Code
OEPA	Ohio Environmental Protection Agency
OU	Operable Unit
PPE	Personal Protective Equipment
psi	pounds per square inch
RA	Removal Action
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
TSCA	Toxic Substances Control Act
WWTS	Wastewater Treatment System

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1.0 INTRODUCTION

1.1 Purpose

This Certification Report documents the actions taken to clean close the Hazardous Waste Management Units (HWMU) No. 31/32, Bulk Storage Tanks T-5/T-6, in accordance with the approved Closure Plan Information and Data (CPID, Rev. 2) package. The CPID (Rev. 2) was approved by the Ohio Environmental Protection Agency (OEPA). An amendment to this approved CPID was submitted in November 1993. It was later determined that this amendment was not necessary and the changes to the approved CPID would be addressed in this certification report. Therefore, the amendment is for informational purposes only.

This Certification Report contains a closure certification statement and a Professional Engineer's certification statement that closure of Bulk Storage Tanks T-5/T-6 was accomplished in accordance with the approved CPID, as required under Ohio Administrative Code (OAC) 3745-66-15. A copy of the Professional Engineer's log of field activities is not enclosed, but is available upon request.

This Certification Report was prepared in accordance with the September 1993, Interim Final, Closure Plan Review Guidance for Resource Conservation and Recovery Act (RCRA) Facilities (OEPA Guidance).

Closure activities completed for the Bulk Storage Tanks T-5/T-6 met the performance standards (OAC 3745-66-11 and 40 Code of Federal Regulations [CFR] 265.11) presented in the CPID. This Certification Report explains the field changes to the CPID required to meet the above standards.

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1.2 Background

Clean closure of Tanks T-5/T-6 was achieved using the cleaning methods stated in the approved CPID (January 1991, Rev. 2) with some additional cleaning required as stated in the amendment to the CPID submitted on November 18, 1993. The CPID stated that HWMUs No. 31/32 would be clean closed by rinsing the tanks and secondary containment, and sampling the soil to detect any leaks from the unit. The ancillary equipment would be dismantled and characterized for disposition. The tanks and secondary containment would then be left in place, until final disposition under the Interim Record of Decision (ROD) for Operable Unit 3 (OU3).

Visual inspections of the interior of Tanks T-5/T-6 were conducted in April 1992, and found only minimal waste residues remaining in the tanks. As stated in the approved CPID Tanks T-5/T-6, Tank T-3, and the secondary containment for these tanks were cleaned and rinseate samples taken to insure closure requirements were obtained as set forth in the OEPA guidance document. The ancillary equipment was dismantled and containerized for characterization and disposition. The criteria in the approved CPID were met, except removal of contaminated soil, which is discussed in Section 2.3.

Discussions with the OEPA on the certification of these units and a newly identified HWMU within the same secondary containment (HWMU No. 54, Thorium Nitrate Tank T-2), resulted in the decision that Tanks T-5 and T-6 could not be considered clean closed until the hazardous waste in Tank T-2 was addressed. The removal and disposition of the hazardous waste from Tank T-2 was completed on November 15, 1995, under FEMP Removal Action No. 9 (see Reference 3). During this removal action the secondary containment for these tanks held rain water and a sample of the rain water was collected. Analysis for the constituents of concern for HWMU No. 54 was performed on this sample to confirm the containment had not been contaminated by this unit. The sample results showed no contamination from HWMU No. 54. These results, in addition to the previous analysis for the COCs in Tanks T-5/T-6 show that the secondary containment meets the closure requirements of the approved CPID. The results of the secondary containment sample collected after the removal of the Tank T-2 waste can be found in the February 1996 Thorium Nitrate Solidification Project Final Report (Reference 3).

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1.3 Unit Description

HWMUs 31/32 include Tanks T-5, T-6, ancillary piping, and secondary containment dike. Tanks T-5 and T-6 are located in a diked tank storage area west of the Fernald Environmental Management Project (FEMP) Pilot Plant along with three other tanks, T-2, T-3, and T-4. Tank T-2 is HWMU No. 54 at the FEMP and was addressed as a separate action. Tank T-3 is not part of the HWMUs but is located within the same secondary containment. Because the tanks are linked by piping, Tank T-3 was to be rinsed and sampled to insure no hazardous waste had been transferred to this tank. Tank T-4 does not contain hazardous waste and is not connected to any of these tanks by piping.

The ancillary piping which is part of this unit includes the piping between Tanks T-5 and T-6 and the transfer pump. The transfer pump, like T-3, was a suspect part of the units. The pump was to be rinsed and sampled to ensure the hazardous waste from Tanks T-5 and T-6 had not contacted it. The samples showed that the pump did contain hazardous waste constituents, but these constituents were not associated with HWMU Nos. 31/32. The primary COCs for HWMU Nos. 31/32 were not present in the rinseate of the pump. The RCRA metals contamination that was present in the pump was associated with other Pilot Plant processes which used this pump. The rinseate results for this pump are presented in Attachment 2.

From the time of their installation in 1969 until about 1980, Tanks T-5/T-6 were used for storage of thorium nitrate solutions. The tanks are believed to have been empty from about 1980 until April 1984. From April 1984 until they were emptied in 1989, the tanks were used to store mixed solvent wastes. Tanks T-5 and T-6 were classified as HWMUs for unpermitted storage of hazardous waste (OEPA codes F001) over 90 days.

The mixed waste solvents were removed from Tanks T-5/T-6, drummed in 1989, and placed in storage on-site as mixed waste. The drums of waste were bulked with other ignitable waste and shipped to the Toxic Substance Control Act (TSCA) incinerator at the DOE Oak Ridge, Tennessee facility on August 7, 1995.

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2.0 SUMMARY OF CLOSURE ACTIONS

The closure activities completed for the Bulk Storage Tanks T-5/T-6 complied with the following performance standards (OAC 3745-66-11 and 40 CFR 265.111) as presented in the CPID.

- Minimized the need for further maintenance by decontaminating Tanks T-5 and T-6, and placing associated piping into approved storage containers.
- Controlled, minimized, or eliminated, 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. In the event of an unexpected occurrence, the FEMP would have submitted a notification to OEPA, no more than 30 days after the occurrence.
- * Conducted closure actions in accordance with the approved CPID.

A chronology of the closure activities performed on HWMUs No. 31/32 is listed below. These activities include the activities stated in the approved CPID, the amendment to the CPID, submitted in November 1993, to the CPID, and other activities required to achieve closure of these units.

- | | | |
|--------------|---|--|
| January 1992 | - | Five soil samples were collected from the perimeter around the secondary containment structure as specified in the approved CPID. The samples showed levels of metals contamination above background, as established by the CERCLA/RCRA Soil Background Study (March 1993) performed at the FEMP, but below regulatory limits. A discussion of this contamination is provided in Section 2.2. The analytical results are provided in Attachment 1. |
| April 1992 | - | Tanks T-3, T-5, and T-6 were inspected for residual waste. Tank |

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T-5 was found to have waste residues on the bottom and Tanks T-3 and T-6 were empty.

- The inlet piping to Tank T-3 was disconnected, flushed with deionized water and sampled. The sample results are presented in Attachment 2.
- The transfer pump was disconnected and flushed with deionized water and a sample collected. The sample showed elevated levels of regulated metals not associated with Tanks T-5 and T-6. Sample results are provided in Attachment 2. The transfer pump remains in place and will be removed and containerized for characterization as a separate action.
- Tank T-3 was flushed with deionized water, and rinseates sampled and were found to meet the closure requirements set forth in the approved CPID. The sample results are provided in Attachment 2.
- Tanks T-5 and T-6 were high pressure washed 3 times with deionized water and flushed after each wash with deionized water. Samples of the third flush were collected and found to still contain COCs above the closure requirements set forth in the approved CPID.
- The secondary containment was high pressure washed 3 times with deionized water as described in the approved CPID and rinsed after each wash with deionized water. A sample of the third rinse was collected. Analytical results showed the containment met the closure requirements set forth in the approved CPID. Sample results are provided in Attachment 2.
- Tank T-6 was rinsed with potable water for verification sampling. The sample could not be collected because the bottom discharge valve was clogged.

March 1994

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- Tank T-5 was reinspected after the cleaning and thought to be clean of staining and residual material. Upon further inspection with better lighting some staining was found on the walls and a film was found on the bottom of Tank T-5.
- April 1994
- Tank T-5 interior was scraped with a wire brush tool to remove residues from the sides and bottom of the tank.
 - 5 gallons of rinseate containing black granular material from the scraping of the tank was vacuumed from Tank T-5.
- June 1994
- Tank T-5 was steam cleaned and the condensate sampled. T-5 was rinsed 3 times with potable water and a sample was collected from the third rinse.
 - Tank T-6 was steam cleaned but the bottom valve was still plugged.
 - A new valve assembly was installed on Tank T-6. T-6 was then drained and the rinseate drummed.
 - Tank T-6 was steam cleaned again and was rinsed 3 times with potable water. The third rinse was sampled but was dark brown in color indicating contamination was still present.
- July 1994
- Tank T-5 was rinsed and sampled again because the last sample exceeded the laboratory holding time limits. Sample was clear and contained no particulates.
 - Tank T-6 was steam cleaned and rinsed 3 times with potable water. A sample of the third rinse was collected; it was clear. This sample was found to meet the closure requirements set forth in the approved CPID. The results of this verification sample are provided in Attachment 2.
 - The top of Tank T-6 was sealed.

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- September 1994
- The July sample from Tank T-5 was found to exceed the closure requirements. Steam cleaning was discontinued on-site for safety reasons.
 - Tank T-5 was hot water washed using a Kelly Scrubber Unit. This unit used water at a pressure of 130 - 240 PSI at a temperature ranging from 105° F - 190° F.
 - Tank T-5 was cleaned again with the Kelly Scrubber using approximately 5 gallons of "Blue Gold" brand heavy duty degreaser detergent.
 - Tank T-5 was rinsed 3 times with potable water. The third rinse was sampled and found to meet the closure requirements set forth in the approved closure plan. The sample results are provided in Attachment 2.
 - The top of Tank T-5 was sealed.
- August 1995
- Rinse water from cleaning HWMU Nos. 31/32 was stored as mixed waste pending sampling for characterization and disposition. This water was found to meet the criteria for treatment through the on-site Granulated Activated Carbon (GAC) wastewater treatment system (WWTS) and has been treated through it.

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2.1 Constituents of Concern

Table 2-1 lists the constituents of concern as they appear in the approved CPID. This list and the sample results are further explained in the rinseate results presented in Attachment 2.

Table 2-1

<u>Compound</u>	<u>MCL/MCLG¹</u> <u>(mg/L)</u>	<u>Decontamination Action Limit²</u> <u>(mg/L)</u>
Benzene ³	0.005	0.075
Carbon tetrachloride ³	0.005	0.075
Chlorobenzene ³		1.0
Chloroform ³	0.10	1.0
Chloromethane ³		1.0
Cresol (total) ³		1.0
1,2-Dichlorobenzene		1.0
1,4-Dichlorobenzene ²	0.75	1.0
1,1-Dichloroethane		1.0
1,2-Dichloroethane ²	0.005	0.075
1,1-Dichloroethene ³	0.007	0.105
2,4-Dinitrotoluene ²		1.0
Hexachlorobenzene		1.0
Hexachloro-1,3-butadiene ²		1.0
Hexachloroethane ³		1.0
Methyl ethyl ketone ³		1.0
Methylene chloride		1.0
Nitrobenzene ³		1.0
Pentachlorophenol ³		1.0
Pyridine ³		1.0
Tetrachloroethylene ²		1.0
1,1,1-Trichloroethane	0.2	1.0
1,1,2-Trichloroethane		1.0
Trichloroethylene ²	0.005	0.075
1,1,2-Trichloro-1,2,2-Trifluoroethane		1.0
Trichlorofluoromethane		1.0
Vinyl Chloride ²	0.002	0.03
Arsenic ³	0.05	0.75
Barium ³	1.0	1.0
Cadmium ³	0.01	0.15
Chromium ³	0.05	0.75
Lead ³	0.05	0.75
Mercury ³	0.002	0.03
Selenium ³	0.01	0.15
Silver ³	0.05	0.75

Notes: ¹ Maximum Contaminant levels or Maximum Contaminant Level Goal as defined by Section 4.1.1 of the Amendment to the CPID.
² Basis for determining Decontamination Action Levels is discussed in Section 4.1.1 of the Amendment to the CPID
³ TCLP Listed Compounds.

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2.2 Field Changes

Four field changes to the approved CPID were implemented to enhance safety and improve the methods for closure of HWMUs 31/32.

The first field change was related to soil sampling. The approved CPID called for four soil samples to be taken under the secondary containment structure, by boring through the bottom of the structure and obtaining samples through the concrete. These samples were not collected. After further evaluation of the project it was necessary to leave the secondary containment intact to prevent a potential release to the environment from the thorium nitrate liquid contained in Tank T-2. Not taking these samples in no way adversely affected the closure of these units. The soil samples from the perimeter had previously indicated soil contamination above the background levels established in the CERCLA/RCRA Background Soil Study (March 1993) which was not associated with these units. Therefore, it was expected that the soil under the containment structure would exhibit the same contamination which will be addressed under the CERCLA remedial activities.

Second, by visual inspection, it was determined that there were waste residues adhering to the bottom and sides of Tank T-6. A field change was implemented to add additional washes and rinses to clean Tank T-6. A new drain valve assembly was installed on Tank T-6 which eliminated the clogging problem when draining the rinseates from the tank. Tank T-6 was cleaned twice more using steam, and then the tank was rinsed and sampled. The second steam cleaning was to unclog the new drain valve, which had been plugged with waste residues. The final steam flush, rinsing, and verification samples were performed on July 6, 1994, and indicated that the tank met clean standards. These changes were discussed and a summary transmitted to OEPA on March 30, 1994 (see Attachment 3).

Tank T-5 was washed using the methods prescribed in the approved CPID and the Amendment to the CPID submitted on November 18, 1993. These methods worked as planned as an initial cleaning method, but the tank did not meet the clean standards. Due to site safety problems with the steam cleaning, hot pressurized water (containing approximately five gallons of "Blue Gold" brand detergent) was then used as the final cleaning method. After the hot pressurized detergent wash, Tank T-5 received three cold water rinses. The third and final rinse was the final verification rinse. Tank T-5's final verification rinse and sampling were performed on September 14, 1994. This final rinseate sample met the closure requirements set forth in the approved CPID.

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As a final notation to the field changes, the secondary containment pad under the transfer pump was not high pressure washed with the rest of the structure. The transfer pump is still in place and therefore the concrete under it could not be washed. However, the rinses following the pressure wash of the secondary containment contacted the pad under the pump. The final rinse sample was taken from water that contacted the entire secondary containment pad, including the area under the pump. Therefore, the verification rinse was representative of the entire containment structure including the area under the pump.

2.3 Soil Contamination Issues

Soil samples collected around the secondary containment of Tanks T-5 and T-6 show that regulated metals contamination is above background levels established in the CERCLA/RCRA Background Soil Study (March 1993), but below RCRA regulatory level. The metals contamination in the soil did not come from HWMUs No. 31/32. The soil sample data is summarized in Attachment 1.

Metals contamination above background levels are present in the soils on the west side of the Pilot Plant, adjacent to HWMUs Nos. 31/32. This contamination is attributed to years of production operations in the Pilot Plant area, and releases from the Pilot Plant Temporary Sump. That sump was removed as a contamination source on August 11, 1993, under Removal Action No. 24, Pilot Plant Sump. The OU5 Remedial Investigation/Feasibility Study (RI/FS) shows a wide range of contamination in the area of the Pilot Plant. Pilot Plant area contamination maps of the metals contamination levels are attached (Attachment 3) and show the nature and extent of this contamination. This suggests that the Pilot Plant operation was the source of this metals contamination in the soil adjacent to HWMU Nos. 31/32.

A mass balance calculation (Attachment 4) between the original tanks contents and the soil contamination levels further confirms that the soil contamination did not originate from hazardous waste storage in HWMU Nos. 31/32. This mass balance was performed as suggested in the 1993 OEPA Guidance. This mass balance explanation, coupled with the spill records showing no large spills associated with HWMU Nos. 31/32 occurred, proves HWMU Nos. 31/32 could not have caused these levels of metals contamination in the soil.

Tanks T-5/T-6 are in a secondary containment structure, which has prevented spills from these tanks from reaching the environment. Visual inspections and photographs confirm that the secondary containment structure is in good condition and capable of containing any releases

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that may have occurred from these tanks.

The metals contamination found in the soil will be addressed under the OU5 ROD. The soil in the area of the Pilot Plant (which includes the metals-contaminated soil discussed here) will be excavated in accordance with the OU5 ROD. This excavation will remove the metals contamination to limits determined to be protective of human health and the environment and effectively remediate this soil contamination.

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3.0 MATERIALS AND WASTES GENERATED DURING CLOSURE ACTIVITIES AND DISPOSITION OF WASTE STREAMS

Activities performed under this HWMU closure generated both low-level radioactive and mixed wastes. Ancillary piping from these HWMUs was removed, containerized, and will be dispositioned pending characterization. As described in the CPID (Rev. 2) the original mixed waste spent solvent was shipped to and incinerated at the TSCA incinerator at the DOE Oak Ridge, Tennessee facility. The sludge residue was drummed and will be treated as mixed waste under Removal Action No. 9 and the FEMP Site Treatment Plan. The rinse water was drummed and treated through the on-site granulated activated carbon system and the WWTS. Used personnel protective equipment (PPE) was characterized as low-level waste for final disposition at the Nevada Test Site (NTS). A summary table of wastes generated by these closure activities is listed below.

Waste Management Summary

Container Type	Amount	Contents	Disposition
Drums	2 drums	Ancillary Piping	Storage pending characterization and disposition.
Drums	269 drums	Mixed Waste Solvent	Incinerated at the TSCA facility at Oak Ridge, Tennessee.
Drums	Approximately 3500 gallons	Rinse Water	Was stored as mixed waste until it was treated through on-site WWTS.
Drums	9 drums	Sludge	Storage as mixed waste pending treatment under R.A. No. 9.

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CERTIFICATION STATEMENTS

The following pages are the DOE closure certification statements (following the format in OAC 3745-50-42(D)) and a Professional Engineer's certification statement documenting that HWMUs No. 31/32, Bulk Storage Tanks T-5/T-6, were closed in accordance with the approved CPID as required under OAC 3745-66-15.

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INDEPENDENT ENGINEER'S CERTIFICATION STATEMENT

Based on observations in the field and information provided to me, I hereby certify that the Bulk Storage Tanks T-5/T-6, Hazardous Waste Management Unit Nos. 31/32, at the Department of Energy (DOE) Fernald Environmental Management Project (FEMP), have been closed in accordance with the specifications in the September 30, 1991, OEPA approved CPID. Deviations are documented and discussed in the Certification Report. Closure activities were initiated and completed based on the approved CPID.



David G. Uetrecht, Jr.

Ohio Registration No. E-47837

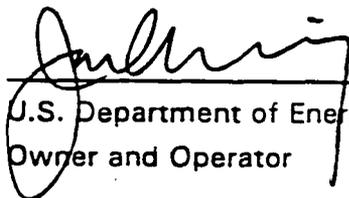
ADENA Utilities Engineering, Inc.



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CERTIFICATION OF OWNER AND OPERATOR

"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."



U.S. Department of Energy, Fernald Office
Owner and Operator

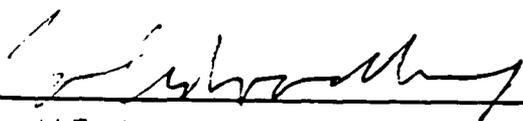
9/5/96

Date Signed

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CERTIFICATION OF CO-OPERATOR

"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."



Fernald Environmental Restoration
Management Corporation, Co-Operator

8/19/96

Date Signed

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ATTACHMENT 1 - Soil Sampling Results

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Soil Sample, Boring, and Well Analyses

Well, Boring & Sample Point Numbers		BULK STORAGE TANKS T5 & T6 - TOTAL METALS ANALYSES ¹								
	Matrix	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	
Background mean + 2 standard deviations	solid	8.601	174.516	0.784	16.303	27.285	0.157	0.546	1.409	
W1247 (12-04-90)	liquid	0.3380	1.317	0.33	0.156	ND	ND	ND	0.174	
W1249 (07-15-90)	liquid	ND	0.047	0.003	0.022	ND	ND	ND	0.012	
B1250 (0"-6")	solid	6.30	95.50	8.40	23.80	30.30	0.34	NA	0.0029	
B1250 (6"-12")	solid	6.50	88.80	4.50	23.40	15.90	1.10	NA	ND	
W1251 (01-08-91)	liquid	0.29	0.684	0.016	0.104	ND	ND	ND	0.153	
B1252 (0"-6")	solid	7.40	401.00	4.70	24.40	NA	0.50	NA	ND	

¹ - Liters of solvent per Kilogram of soil NA - Not Analyzed ND- Not Detected B- Boring (mg/kg) W- Well (mg/L)
 SP-Sample Point Shaded values exceeding of soil background and maximum contamination limits

Well, Boring & Sample Point Numbers

BULK STORAGE TANKS T5 & T6 - TOTAL METALS ANALYSES¹

Well, Boring & Sample Point Numbers	Matrix	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
B1252 (6"-12")	solid	6.70	406.00	3.00	19.70	26.70	0.37	NA	2.60
B1258 (TCLP)	solid	0.081	0.701	0.005	ND	0.047	ND	0.0980	ND
B1259 (TCLP)	solid	ND	0.891	0.013	0.137	ND	ND	0.1600	0.1040
B1260 (0"-6")	solid	5.70	336.00	5.40	19.40	117.00	0.43	NA	ND
B1260 (6"-12")	solid	3.90	317.00	3.40	18.60	15.50	0.27	NA	3.10
B1411 (9'-6" to 10')	solid	2.20	364.00	4.50	21.20	9.30	0.24	NA	2.20
B1411 (10'-0" to 10'-6")	solid	3.70	3610.00	4.20	19.80	16.90	0.22	NA	ND
B1504 (TCLP)	solid	0.127	1.54	0.005	ND	ND	ND	0.111	ND
B1674 (TCLP)	solid	ND	1.07	0.012	0.154	ND	ND	ND	0.152
W4103 (05-03-89)	liquid	0.0048	0.0841	0.0036	ND	0.0025	0.0003	0.002	ND

1 - Liters of solvent per Kilogram of soil NA - Not Analyzed ND- Not Detected B- Boring (mg/kg) W- Well1 (mg/L)
 SP-Sample Point Shaded values exceeding of soil background and maximum contamination limits

Well, Boring & Sample Point Numbers		BULK STORAGE TANKS T5 & T6 - TOTAL METALS ANALYSES ¹									
	Matrix	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver		
SP 1-1 (0"-12")	solid	6.84	18.20	0.35	5.56	32.00	0.06	0.37	2.29		
SP 1-2 (12"-24")	solid	5.72	189.00	7.51	29.40	17.40	0.06	0.42	1.23		
SP 2-1 (0"-12")	solid	20.60	75.90	0.30	16.10	21.10	0.06	1.83	1.00		
SP 3-1 (0"-12")	solid	4.73	245.00	0.35	75.40	88.00	0.28	0.38	3.60		
SP 3-2 (12"-20")	solid	4.58	102.00	0.31	28.40	23.50	0.06	0.43	1.03		
SP 3-4 (0"-12")	solid	3.56	298.00	0.36	60.80	82.70	0.18	0.36	1.18		
SP 4-1 (0"-12")	solid	3.30	53.20	0.35	19.40	41.20	0.18	0.45	1.13		
SP 4-2 (12"-24")	solid	7.55	82.60	0.36	12.70	24.10	0.06	1.56	1.20		
SP 4-3 (24"-36")	solid	4.86	73.50	0.36	16.30	13.40	0.05	0.44	1.19		
SP 4-4 (24"-36")	solid	4.47	66.30	0.36	12.80	12.30	0.06	0.34	5.03		
SP 5-1 (0"-12")	solid	29.10	37.00	0.32	6.94	43.90	0.22	0.45	1.06		

1 - Liters of solvent per kilogram of soil NA - Not Analyzed ND - Not Detected B - Boring (mg/kg) W - Well (mg/L)
 SP - Sample Point Shaded values exceeding of soil background and maximum contamination limits

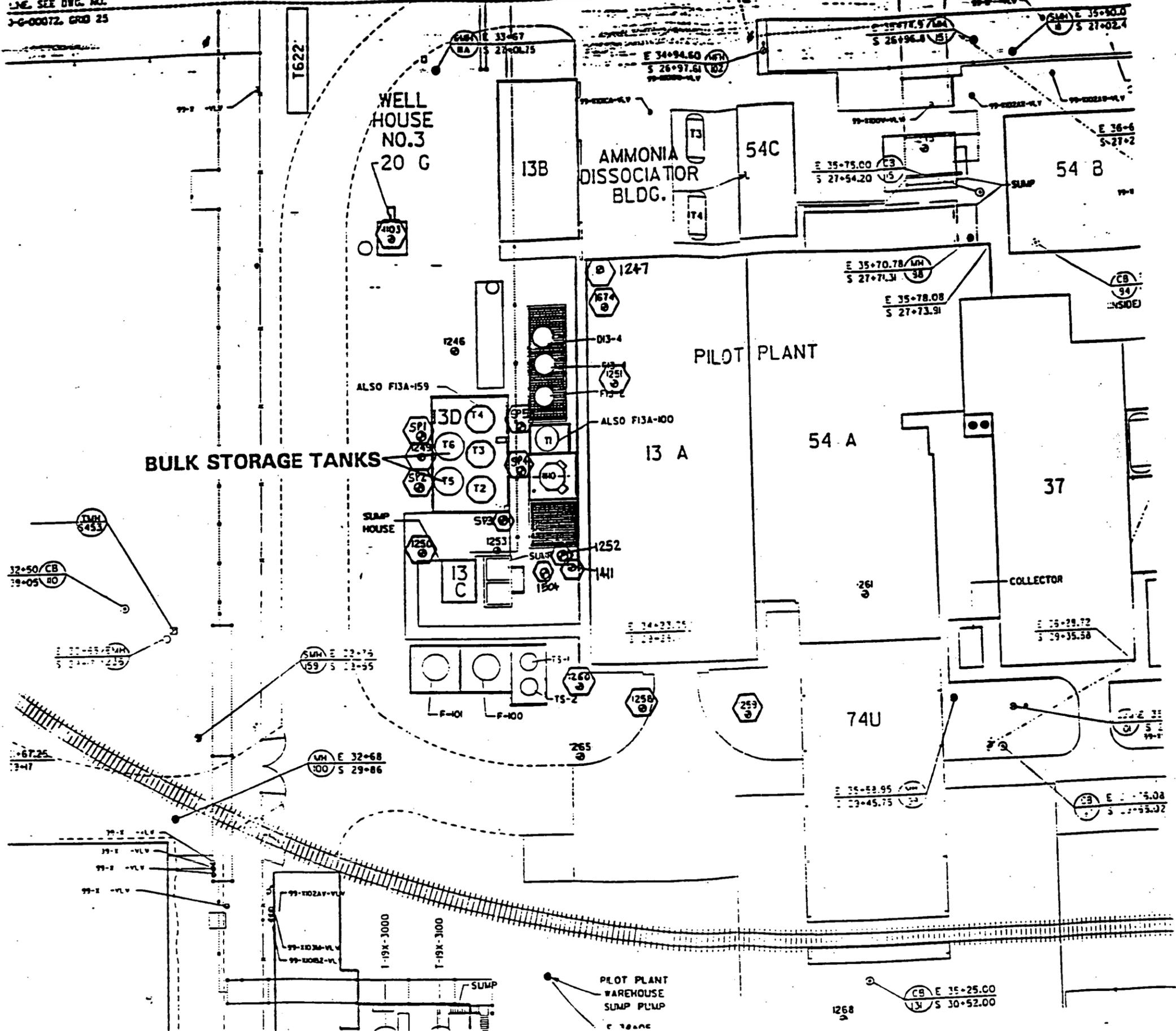


FIGURE 1: Pilot Plant West Area
Tanks T5/T6

LEGEND

- POST INDICATOR VALVE (P.I.V.)
- FIRE HYDRANT (F.H.)
- MANHOLE (MH)
- CATCH BASIN (CB)
- LAMP POLE
- UTILITY POLE
- POWER POLE w/LAMP
- ELECTRICAL POWER POLE
- PIPE SUPPORT
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- VALVE BOX
- MONITORING WELL
- ELECTRICAL PULLBOX
- WELL/BORING WITH ANALYSIS

NOT TO SCALE

Amendment to Closure Plan Information and Data
Storage Tanks T-5 & T-6
28

7831

HWMU No. 31 and 32
Bulk Storage Tanks T-5 and T-6
Closure Certification Report

ATTACHMENT 2 - Verification Rinse Results

000027

FINAL RINSEATE ANALYSES

7831

COMPONENT BEING EVALUATED

T-3 Piping

TANK T-3

PUMP

Sample No.:	92-138A-4068	92-138A-4069	92-138A-4070	92-138A-4071	
Date Collected:	04/15/92	04/15/92	04/15/92	04/15/92	
Description:	T-3 INLET	Tank T-3	Tank T-3-DUP	TRANS. PUMP	DECONTAMINATION ACTION LIMIT (DALX1)
ANALIS No.:	920415-078	920415-079	920415-080	920415-081	
ITAS ID	1990-001	1990-002	1990-003	1990-004	
Matrix:	Liquid	Liquid	Liquid	Liquid	
Contaminant of Concern	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
BENZENE	5 U	5 U	5 U	50 U	75.00
CARBON TETRACHLORIDE	5 U	5 U	5 U	50 U	75.00
CHLOROBENZENE	2 J	1 J	1 J	50 U	1000.00
CHLOROFORM	NR	NR	NR	NR	1000.00
CHLOROMETHANE	10 U	10 U	10 U	100 U	1000.00
CRESOL (TOTAL)	NR	NR	NR	NR	1000.00
1,2-DICHLOROBENZENE	NR	NR	NR	NR	1000.00
1,4-DICHLOROBENZENE	10 U	10 U	10 U	NR	1000.00
1,1-DICHLOROETHANE	NR	NR	NR	NR	1000.00
1,2-DICHLOROETHANE	5 U	5 U	5 U	50 U	75.00
1,1-DICHLOROETHYLENE	5 U	5 U	5 U	50 U	105.00
2,4-DINITROTOLUENE	10 U	10 U	10 U	NR	1000.00
HEXACHLOROBENZENE	10 U	10 U	10 U	NR	1000.00
HEXACHLORO-1,3-BUTADIENE	10 U	10 U	10 U	NR	1000.00
HEXACHLOROETHANE	10 U	10 U	10 U	NR	1000.00
2-BUTANONE (MEK)	10 U	10 U	11 U	100 U	1000.00
METHYLENE CHLORIDE	10 U	10 U	10 U	100 U	1000.00
NITROBENZENE	10 U	10 U	10 U	NR	1000.00
PENTACHLOROPHENOL	52 U	52 U	52 U	NR	1000.00
PYRIDINE	10 U	10 U	10 U	NR	1000.00
TETRACHLOROETHYLENE	5 U	5 U	5 U	50 U	1000.00
1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	620 U	1000.00
1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	50 U	1000.00
TRICHLOROETHYLENE	NR	NR	NR	NR	75.00
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NR	NR	NR	NR	1000.00
TRICHLOROFLUOROMETHANE	10 U	10 U	10 U	100 U	1000.00
VINYL CHLORIDE	10 U	10 U	10 U	100 U	30.00
METALS (Totals)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
ARSENIC	0.50 U	0.50 U	0.50 U	0.50 U	0.75
BARIUM	0.01 U	0.01 U	0.01 U	2.38	1.00
CADMIUM	0.01 U	0.01 U	0.01 U	0.03	0.15
CHROMIUM	0.025 U	0.025 U	0.025 U	109.00	0.75
LEAD	0.10 U	0.10 U	0.10 U	0.10 U	0.75
MERCURY	0.0002 U	0.00024	0.00025	0.015	0.03
SELENIUM	0.50 U	0.50 U	0.50 U	4.02	0.15
SILVER	10 U	10 U	10 U	NR	0.75

(J) Estimated value
 (NR) Not Reported and not listed as a Tentatively Identified Compound therefore it is below the detection limit and is considered not present.
 (R) Rejected
 (U) Not detected at concentration listed

(1) Limits modified to reflect guidance provided in the Ohio EPA Closure Plan Guidance Documents - May 1991 and September 1993.

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FINAL RINSEATE ANALYSES

7831

TANK T-5

TANK T-6

Sample No.	200094624	200073602	
Date Collected	09/14/94	07/06/94	
Description	T5-R2	T6-R2	DECONTAMINATION
LAB NO.	ITAS No. 6131-002	CTC	LIMIT (DAL)(3)
Matrix	Liquid	Liquid	
Contaminant of Concern	(ug/L)	(ug/L)	(ug/L)
Benzene	10 U	5 U	75
Carbon Tetrachloride	10 U	5 U	75
Chlorobenzene	10 U	10 U	1000
Chloroform	NR	NR	1000
Chloromethane	NR	NR	1000
Cresol (Total)	NR	0.1 U (2)	1000
1,2 - Dichlorobenzene	NR	NR	1000
1,4 - Dichlorobenzene	10 U (2)	0.1 U (2)	1000
1,1 - Dichloroethane	5 U (2)	NR	1000
1,2 - Dichloroethane	5 U (2)	NR	75
1,1 - Dichloroethylene	NR	NR	105
2,4 - Dinitrotoluene	10 U (2)	0.1 U (2)	1000
Hexachlorobenzene	10 U (2)	0.1 U (2)	1000
Hexachloro- 1,3 - Butadiene	10 U (2)	0.1 U (2)	1000
Hexachloroethane	10 U (2)	0.1 U (2)	1000
Methyl ethyl ketone	200 U	21	1000
Methylene Chloride	5 BJ	5 U	1000
Nitrobenzene	10 U (2)	0.1 U (2)	1000
Pentachlorophenol	52 U (2)	0.1 U (2)	1000
Pyridine	10 U (2)	0.2 U (2)	1000
Tetrachloroethylene	NR	5 U	1000
1,1,1 Trichloroethane	320	120	1000
1,1,2 Trichloroethane	10 U	10 U	1000
Trichloroethylene	NR	5 U	75
1,1,2 - Trichlor 1,2,2 -Trifluoroethane	10 U	5 U	1000
Trichlorofluoromethane	20 U	5 U	1000
Vinyl Chloride	10 U (2)	NR	30
METALS	(mg/L)	(mg/L)	(mg/L)
ARSENIC	0.50 U (2)	ND	0.75
BARIUM	0.01 U (2)	ND	1.00
CADMIUM	0.01 U (2)	ND	0.15
CHROMIUM	0.03 U (2)	ND	0.75
LEAD	0.10 U (2)	ND	0.75
MERCURY	0.00 U (2)	ND	0.03
SELENIUM	0.50 U (2)	ND	0.15
SILVER	0.02 U (2)	ND	0.75

(U) Analyte Was Not Detected at Listed Detection Limit
 (BJ) Estimated value
 (ND) Not Done
 (NR) Not Reported and not listed as a Tentatively Identified Compound
 therefore it is below the detection limit and is considered not present.

(1) Contaminants of Concern list are taken from the November 1993 unapproved amendment to the CPID.

(2) Sample result from rinse collected in 1992 after initial decontamination attempts, sample data is also provided in reference 2.

(3) Limits modified to reflect the revised guidance provided in the Ohio EPA Closure Plan Review Guidance Documents - May 1991 and September 1993.

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FINAL RINSEATE ANALYSES

7831

COMPONENT BEING EVALUATED

PAD

PAD DRAIN PIPE

Sample No.	4200	92-138A-4072	
Date Collected	04/30/92	04/15/92	
Description	Pad Rinse 3	PAD DRAIN PIPE	DECONTAMINATION
ANALIS No.	920430-056	920415-082	ACTION
ITAS ID	2018-005	1990-005	LIMIT (DAL)(1)
Matrix	Water	Liquid	
Contaminant of Concern	(µg/L)	(µg/L)	(ug/L)
BENZENE	5 U	5 U	75.00
CARBON TETRACHLORIDE	5 U	5 U	75.00
CHLOROBENZENE	5 U	2 J	1000.00
CHLOROFORM	NR	NR	1000.00
CHLOROMETHANE	10 U	10 U	1000.00
CRESOL (TOTAL)	NR	NR	1000.00
1,2-DICHLOROENZENE	NR	NR	1000.00
1,4-DICHLOROENZENE	10 U	10 U	1000.00
1,1-DICHLOROETHANE	NR	NR	1000.00
1,2-DICHLOROETHANE	5 U	5 U	75.00
1,1-DICHLOROETHYLENE	5 U	5 U	105.00
2,4-DINITROTOLUENE	10 U	10 U	1000.00
HEXACHLOROENZENE	10 U	10 U	1000.00
HEXACHLORO-1,3-BUTADIENE	10 U	10 U	1000.00
HEXACHLOROETHANE	10 U	10 U	1000.00
2-BUTANONE (MEK)	10 U	10 U	1000.00
METHYLENE CHLORIDE	5 U	10 U	1000.00
NITROENZENE	10 U	10 U	1000.00
PENTACHLOROPHENOL	52 U	52 U	1000.00
PYRIDINE	10 U	10 J	1000.00
TETRACHLOROETHYLENE	5 U	5 U	1000.00
1,1,1-TRICHLOROETHANE	5 U	5 U	1000.00
1,1,2-TRICHLOROETHANE	5 U	5 U	1000.00
TRICHLOROETHYLENE	NR	NR	75.00
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NR	NR	1000.00
TRICHLOROFLUOROMETHANE	10 U	10 U	1000.00
VINYL CHLORIDE	10 U	10 U	30.00
METALS (Totals)	(mg/L)	(mg/L)	(mg/L)
ARSENIC	0.50 U	0.50 U	0.75
BARIUM	0.09 R	0.01 U	1.00
CADMIUM	0.01 U	0.01 U	0.15
CHROMIUM	0.039	0.025 U	0.75
LEAD	0.109	0.10 U	0.75
MERCURY	0.0002 U	0.0002 U	0.03
SELENIUM	0.50 U	0.50 U	0.15
SILVER	0.02 U	0.02 U	0.75

(J) Estimated value
 (NR) Not Reported and not listed as a Tentitively Identified Compound
 therefore it is below the detection limit and is considered not present.
 (R) Rejected
 (U) Not detected at concentration listed

(1) Limits modified to reflect guidance provided in the Ohio EPA Closure Plan Guidance Documents - May 1991 and September 1993.

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HWMU No. 31 and 32
Bulk Storage Tanks T-5 and T-6
Closure Certification Report

ATTACHMENT 3 - OU5 Soil Contamination Isopleths

000031

LEGEND FOR SOIL CONTAMINATION PLOTS

 Isoconcentration Contour

Contour Intervals (mg/kg):

Arsenic - 10 & 25

Barium - 100, 300 & 500

Cadmium - 2, 5, & 10

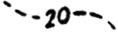
Chromium - 20 & 50

Lead - 30, 50, 100, 500, & 1000

Mercury - 0.5, 2, & 4

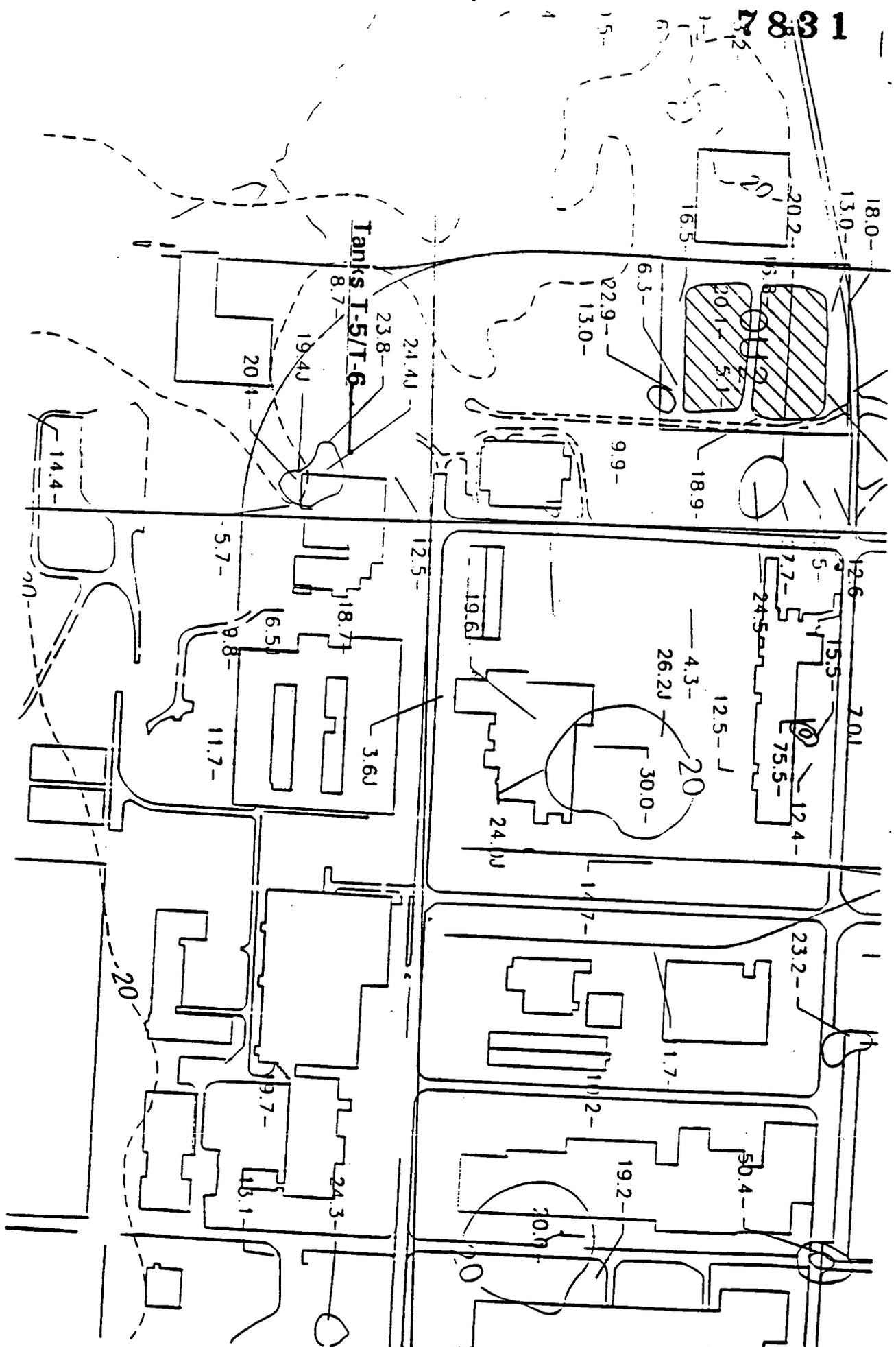
Silver - 5, 10, & 20

Selenium - 1 & 5

 20 mg/kg Uranium Envelope Contour

DATA QUALIFIERS

- NV Not Validated Datum
- Data Validated, No Qualifiers Applied
- J Estimated Value
- U Non-Detect, Detection Limit is Shown
- R Rejected Datum



Tanks T-5/T-6

PLATE D-91: CHROMIUM IN SURFACE SOIL (MG/KG), 0 - 0.5 FOOT

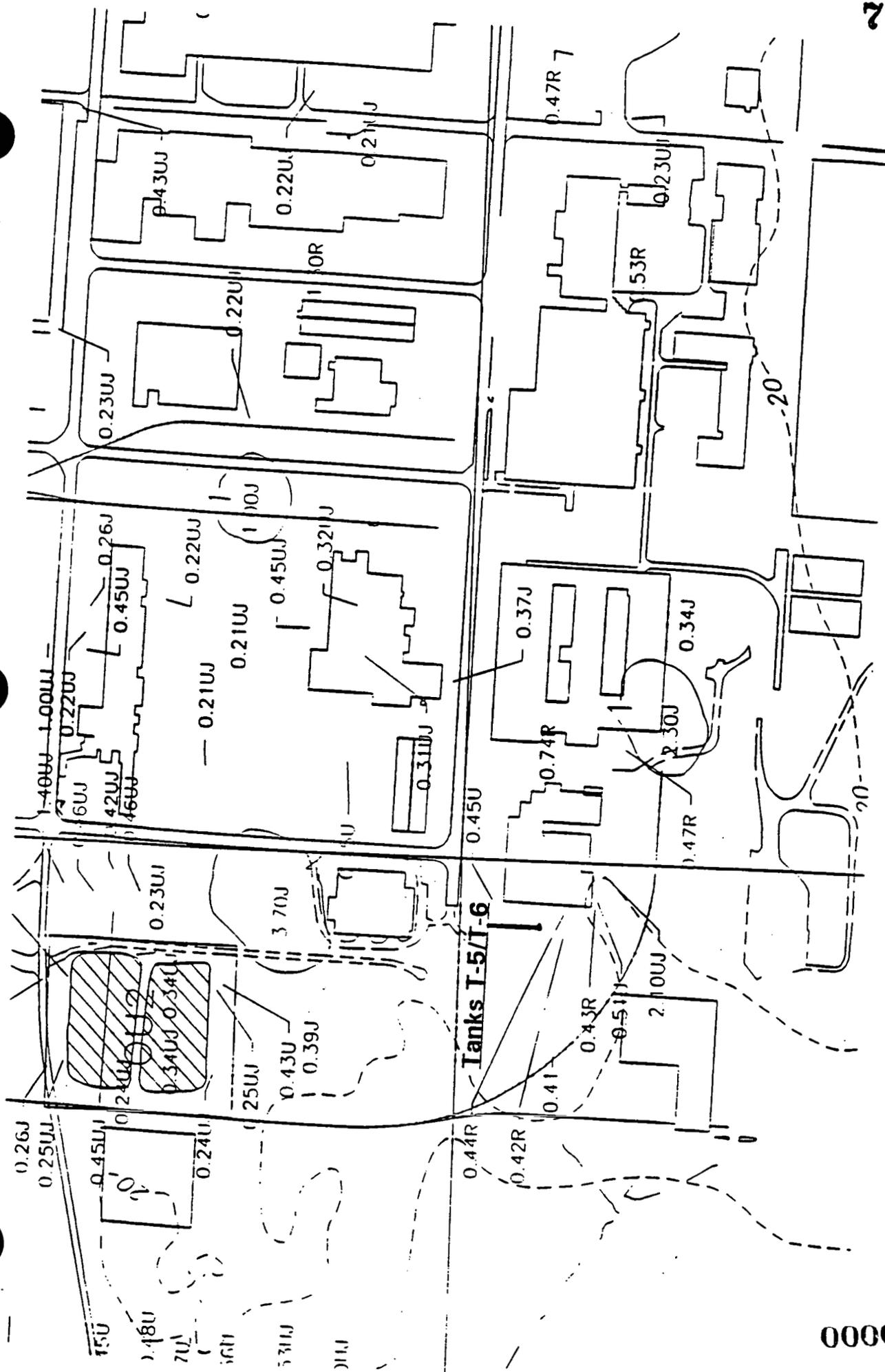


PLATE D-113: SELENIUM IN SURFACE SOIL (MG/KG), 0 - 0.5 FOOT

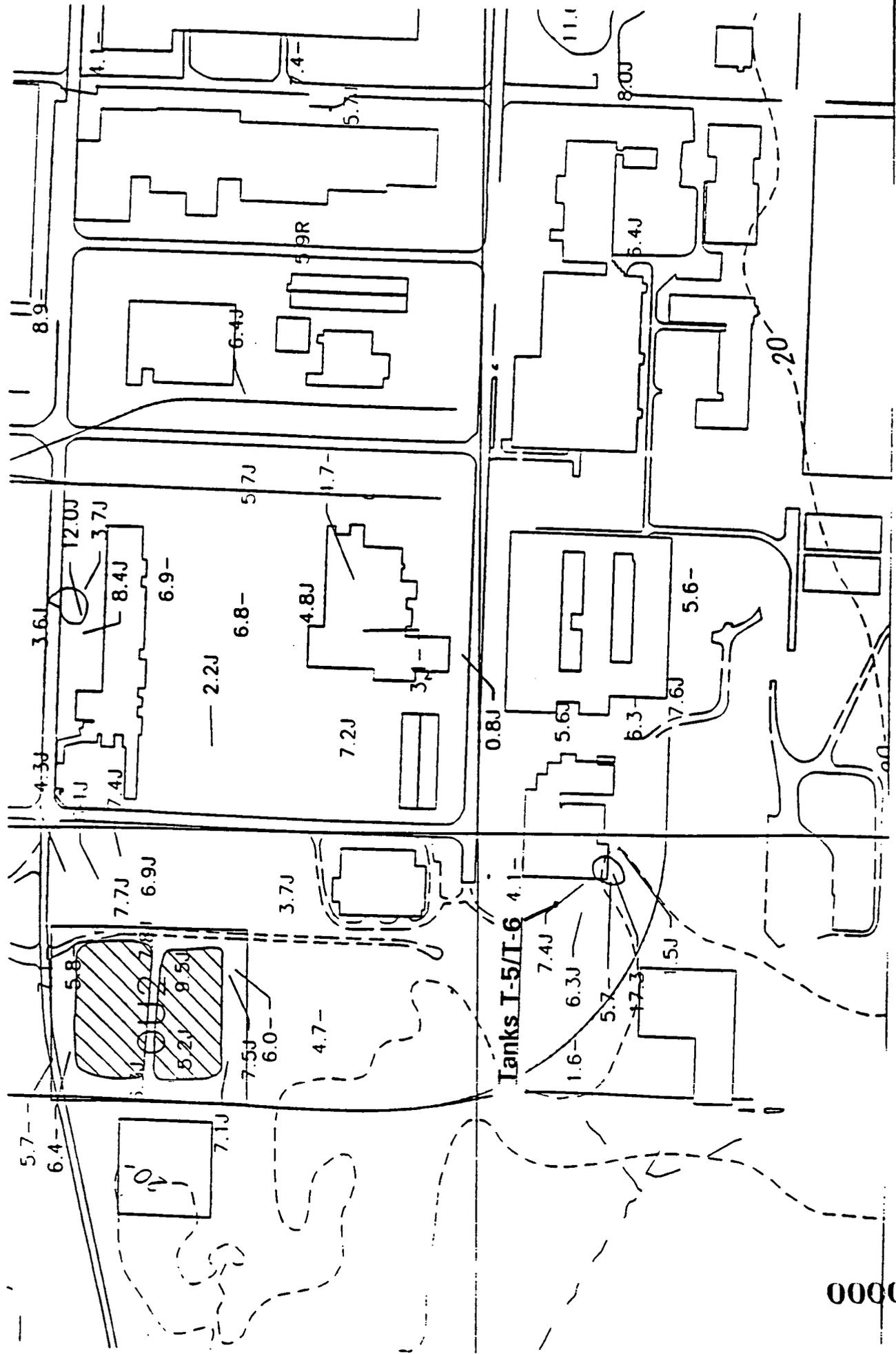


PLATE D-77: ARSENIC IN SURFACE SOIL (MG/KG), 0 - 0.5 FOOT

7831

HWMU No. 31 and 32
Bulk Storage Tanks T-5 and T-6
Closure Certification Report

ATTACHMENT 4 - Mass Balance Discussion

000041

HWMU No. 31 and 32
Bulk Storage Tanks T-5 and T-6
Closure Certification Report

Mass Balance Discussion

The mass balance was calculated in accordance with the Interim Final Closure Plan Guidance (Sept. 1993). The guidance indicates that contamination, which all or part of originates from a source (the former production area in general and specifically the Pilot Plant and Pilot Plant Sump) other than the unit being closed, is not subject to the closure requirements. This requires at a minimum the identification of alternative sources of contamination and documentation that no releases from the unit caused the contamination. Detailed arguments from proving the contamination did not come from the unit is also required. One guidance suggested argument is a mass balance analysis. The mass balance presented in the amendment to the closure plan is based on the tanks contents metals concentrations compared to the soil contamination levels. The mass balance calculates the amounts of Tanks T-5 and T-6 contents spilled into one kilogram of soil to produce the concentrations found in the soil around the Pilot Plant area. The spill records attached show there was no spills from T-5 and T-6 which could have produced the levels of metals contamination present in the soil. The greatest single spill quantity was 4-6 ounces. The amendment to the closure plan compares the mercury concentration in the soil to that in the tanks' contents. Mercury was used to show that even metals of the lowest concentration in the soil would have required a spill from these tanks of a greater magnitude than was every recorded. Therefore; it is concluded that this soil contamination is not part of the Tank T-5 and T-6 (HWMUs 31/32) closure.

Metals Contamination In Tank vs. Soil

Tank Contents, Soil Concentration, and Spill Required to Generate Contamination in the Soil									
Contamination and Spillage	Matrix	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Silver	Selenium
Max. Soil Contamination (mg/kg)	solid	29.10	298.00	7.51	75.40	88.00	0.26	1.83	5.03
Max. Tank Concentration (mg/L)	liquid	0.46	<2.00	<3.00	3.00	9.00	0.001	<0.20	<0.70
Amount of Spillage Required (L) ¹	liquid	63.26	> 149.00	>2.50	25.13	9.78	260.00	>9.15	>7.19

¹ - Liters of solvent per Kilogram of soil

HWMU No. 31 and 32
Bulk Storage Tanks T-5 and T-6
Closure Certification Report

ATTACHMENT 5 - OEPA Correspondence



State of Ohio Environmental Protection Agency

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

ENV. ENG. SDS DEPT

JAN 28 9 39 AM '92

George V
Gov
Donald R. Schrec
Dir

Q: Store 1 R
7831

CLOSURE PLAN APPROVAL

RECORDS JOP

CERTIFIED MAIL

September 30, 1991

RE: CLOSURE PLAN
U.S. DOE - FEMP
OH6 890 008 976/05-31-0681

Gerald W. Westerbeck
U.S. DOE - FEMP
P.O. Box 398705
Cincinnati, Ohio 45239-8705

Dear Mr. Westerbeck:

On September, 28 1989, U.S. DOE - FEMP submitted to Ohio EPA a closure plan for hazardous waste storage tanks T-5 and T-6 located at 7400 Wiley Road, Fernald, Ohio. Revisions to the closure plan were received on June 12, 1990, July 9, 1990 and January 22, 1991. The closure plan was submitted pursuant to Rule 3745-66-12 of the Ohio Administrative Code (OAC) in order to demonstrate that U.S. DOE - FEMP's proposal for closure complies with the requirements of OAC Rules 3745-66-11 and 3745-66-12.

The public was given the opportunity to submit written comments regarding the closure plan of U.S. DOE - FEMP in accordance with OAC Rule 3745-66-12. The public comment period extended from August 18, 1989 to September 18, 1989. No comments were received by Ohio EPA in this matter.

Based upon review of U.S. DOE - FEMP's submittal and subsequent revisions, I conclude that the closure plan for the hazardous waste facility at U.S. DOE - FEMP as modified herein meets the performance standard contained in OAC Rule 3745-66-11 and complies with the pertinent parts of OAC Rule 3745-66-12.

The closure plan submitted to Ohio EPA by U.S. DOE - FEMP is hereby approved with the following modifications:

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

OHIO EPA

SEP 30 91

By: Maria Cavina Date 9-30-91

ENTERED DIRECTOR'S JOURNAL

CONTROL NO.: 010001

SD NO.: SD-EES-031-CPA-10006

REVISION: -

SUPERSEDES: -

ISSUE DATE: SEP 30, 1991

REVISION DATE: -

000045
10-5-91

SEE OVER



Gerald W. Westerbeck
Tanks T-5 and T-6
Page Two

1. U.S. DOE FEMP shall include the language contained within the Ohio Administrative Code Rule 3745-50-42(D) within the statement of certification.
2. U.S. DOE FEMP shall characterize and document all wastes generated during closure activities as solid waste, hazardous waste, and/or mixed waste. This includes but is not limited to soils, containment pad, ancillary equipment associated with the tanks, protective clothing, and rinse waters. The documentation shall be submitted to the Ohio EPA Southwest District Office for review.
3. In compliance with the OAC Rule 3745-66-11(B), U.S. DOE FEMP shall provide run-on and runoff protection for ancillary equipment and containerized debris during storage until characterization is completed. This includes a roll off container, or similar structure, which is free of leaks, and a suitable cover which prevents infiltration of rain water into the selected structure.
4. U.S. DOE FEMP shall attempt to clean close the unit and the area in which the unit is located. If clean closure is infeasible, U.S. DOE FEMP shall consider this an unexpected event requiring a modification of the closure plan as described in OAC Rule 3745-66-12(C) (1).

U.S. DOE FEMP shall submit this modified plan no more than thirty days after the unexpected event has occurred as required by OAC Rule 3745-66-12(C) (3).
5. Should the containment structure surrounding the tanks T-5 and T-6 require removal, it must be placed within closed compatible containers until characterization activities have been completed. Upon completion of characterization, the waste must be managed according to all applicable regulations.
6. U.S. DOE FEMP shall manage all soils generated during closure activities in accordance with hazardous waste regulations until such time that the soils are determined to be non-hazardous.

OHIO E.P.A.

SEP 30 91

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

ENRINED DIRECTOR'S JOURNAL

By: Mary Quinn Date 9-30-91

000046

Gerald W. Westerbeck
Tanks T-5 and T-6
Page Three

- 7. U.S. DOE FEMP shall submit to Ohio EPA a background sampling plan which conforms to the requirements set forth within the May 1, 1991 Closure Plan Review Guidance within thirty (30) days of this date of closure plan approval. The background sampling plan will be subject to review by Ohio EPA to determine the acceptability of background sampling protocols. Background sampling and analysis activities must be conducted in accordance with an Ohio EPA approved background sampling plan.
- 8. U.S. DOE FEMP shall notify the Ohio EPA Southwest District Office inspectors at least five (5) business days in advance prior to any sampling activities.
- 9. U.S. DOE FEMP shall submit the above requested information to Mike Hayes and Phil Harris, Ohio EPA, SWDO and Montee Suleiman, Ohio EPA, Central Office within 30 days of the receipt of this letter.

Nothing here shall waive the right of the Director to take action beyond the terms of the closure plan pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.A. §9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499 ("CERCLA") or to take any other action pursuant to applicable Federal or State law, including but not limited to the right to issue a permit with terms and conditions requiring corrective action pursuant to Chapters 3736 or 6111 of the Revised Code; the right to seek injunctive relief, monetary penalties and punitive damages, to undertake any removal, remedial, and/or response action relating to the facility, and to seek recovery for any costs incurred by the Director in undertaking such actions.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Maryjane Casanova Date 9.30.91

OHIO EPA.

SEP 30 91

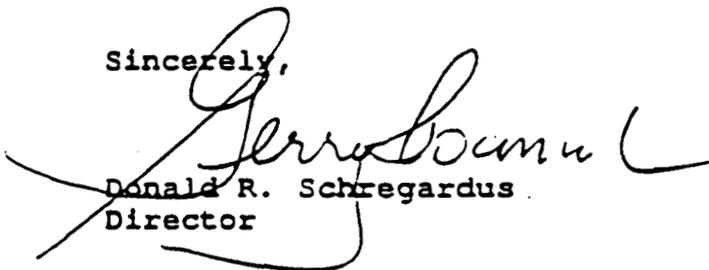
ENTERED DIRECTOR'S JOURNAL

Gerald W. Westerbeck
Tanks T-5 and T-6
Page Four

You are notified that this action of the Director is final and may be appealed to the Environmental Board of Review pursuant to Section 3745.014 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the Environmental Board of Review within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency and the Environmental Enforcement Section of the Office of the Attorney General within three (3) days of filing with the Board. An appeal may be filed with the Environmental Board of Review at the following address: Environmental Board of Review, 236 East Town Street, Room 300, Columbus, Ohio 43266-0557.

When closure is completed, the Ohio Administrative Code Rule 3745-66-15 requires the owner or operator of a facility to submit to the Director of the Ohio EPA certification by the owner or operator and an independent, registered professional engineer that the facility has been closed in accordance with the approved closure plan. The certification by the owner or operator shall include the statement found in OAC 3745-50-42(D). These certifications should be submitted to: Ohio Environmental Protection Agency, Division of Hazardous Waste Management, Attn: Thomas Crepeau, Data Management Section, P.O. Box 1049, Columbus, Ohio 43266-0149.

Sincerely,


Donald R. Schregardus
Director

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Maria Cain Date 9-23-91

DRS/MS/pas

cc: Tom Crepeau, DHWM Central File, Ohio EPA
Lisa Pierard, USEPA - Region V
Joel Morbito, USEPA - Region V
Mike Hayes, SWDO, Ohio EPA
Phil Harris, SWDO, Ohio EPA
Montee Suleiman, Ohio EPA, DHWM

OHIO EPA

SEP 30 91

ENTERED DIRECTOR'S JOURNAL

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Department of Energy
Fernald Environmental Management Project
P.O. Box 398705
Cincinnati, Ohio 45239-8705
(513) 738-6357

JUL 13 8 53 AM '93

JUL 08 1993

DOE-2389-93

Donald R. Schregardus, Director
Ohio Environmental Protection Agency
P. O. Box 1049
1800 WaterMark Drive
Columbus, Ohio 43266-0149

Dear Mr. Schregardus,

CLOSURE STATUS REPORT AND REQUEST FOR EXTENSION OF CLOSURE SCHEDULE FOR TANKS T-5 AND T-6

- Reference:
- 1) Letter, Mr. Donald R. Schregardus to Mr. Gerald W. Westerbeck, "CLOSURE PLAN APPROVAL," dated September 30, 1991.
 - 2) Letter, DOE-980-92, R. E. Tiller to Mr. Donald R. Schregardus, "Request for Extension of Plant 6 Pad and Tanks T5 and T6 Closures," dated February 28, 1992.
 - 3) Letter, DOE-1971-93, Thomas J. Rowland to Mr. Donald R. Schregardus, "Extension of Closure Schedules for the Trane Liquid Waste Incinerator, Storage Pad North of Plant 6, and the Bulk Storage Tanks T5 and T6," dated May 21, 1993.

The Fernald Environmental Management Project (FEMP) has determined that clean closure of the Bulk Storage Tanks T-5 and T-6 could not be achieved using the approach detailed in the approved Closure Plan Information and Data (CPID). However, Bulk Storage Tanks T-5 and T-6 have been pressure washed and emptied and the residual soil contamination does not pose an immediate threat to human health and the environment, allowing the removal of the tanks and containment pad, and the subsequent remediation/removal of soil contamination to be completed through the ongoing Comprehensive Environmental Response Compensation and Liabilities Act (CERCLA) actions at the FEMP. Consistent with recent discussion between representatives of the FEMP and the Ohio Environmental Protection Agency (OEPA) Southwest District Office, this closure status report provides information and data concerning Resource Conservation and Recovery Act (RCRA) closure actions that have been taken and discusses additional actions that will achieve the RCRA closure performance standards in OAC 3745-11 (40 CFR 264.111) for the Bulk Storage Tanks T-5 and T-6.

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OEPA approval of the CPID for the Bulk Storage Tanks T-5 and T-6 was received on October 2, 1991 (Reference 1), and subsequent field activities were initiated in accordance with the approved closure document. In response to discussions with representatives of the OEPA Southwest District Office, a request for extension of the closures was submitted in February, 1992 (Reference 2). A preliminary evaluation of the analytical data from the closure activities indicated that clean closure had not been achieved. Submission of closure documentation has been delayed in order to complete validation and assessment of data and integrate CERCLA response actions to remove and remediate residual contamination. Subsequently, a second request was submitted in May, 1993 (Reference 3). This closure status report is being submitted to provide an update of closure actions and to request an extension of closure under OAC 3745-13(A)(1) and (2).

SUMMARY of COMPLETED CLOSURE ACTIONS

To date, the actions taken for closure of Tanks T-5 and T-6 have included:

- removing the waste, residues, and visible contamination from the Tanks T-5 and T-6;
- high pressure washing to clean and decontaminate Tanks T-5 and T-6 and associated piping;
- sampling and analyzing rinseate from Tanks T-5, T-6, T-3 and associated pump and piping for targeted waste constituents to evaluate the effectiveness of decontamination;
- collecting and analyzing soil samples from the adjacent soils to identify and evaluate possible contamination and determine if contamination is below the clean closure criteria as defined in the approved CPID. Soil sampling points are shown on the drawing in Figure 1 (see Enclosure 1).

Discrepancies in the analytes reported were a result of differences between the laboratory standards used by the 2 laboratories (see cross-reference lists for organic analytes in Table 1, Enclosure 1). The analyses for metals in the rinses for Tank T-6 was not conducted due to limitations in laboratory capacity at the time the samples were collected. Regardless, there is still sufficient information to support the conclusions discussed below. Copies of the laboratory data reports, supporting documentation for sampling activities and summaries of the available data are provided in Enclosure 2.

Review and Evaluation of Decontamination Efforts

The Hazardous Waste Management Unit (HWMU) containing Bulk Storage Tanks T-5 and T-6 has been cleaned to the point that there is no threat to human health and the environment prior to final remediation through the CERCLA process. Based on field observations and the rinseate analyses, the following conclusions have been made:

- 1) Decontamination of Tank T-6 was successful, as demonstrated by analytical results below the decontamination action levels listed in the CPID. Although metals analyses were not conducted, the preliminary data from analyses of the wastes in Tanks T-5 and T-6 (included in Appendix A to the CPID, see Enclosure 3) did not indicate high concentrations of metals. Also, analyses of rinse waters from Tank T-5 (which still contains residual organic contaminants) did not identify metal contaminants. Therefore, there is no reason to anticipate metal contamination in Tank T-6 above the decontamination action levels.
- 2) Residual lead contamination was found in the rinsewater of the containment pad surface in excess of the Decontamination Action Limit specified in the CPID. However, this concentration is below the decontamination limit specified in the Ohio EPA "Closure Plan Review Guidance" (May 1991). This guidance was issued after the preparation of the CPID for Tanks T-5 and T-6 and is therefore considered an applicable and current basis for comparison. The decontamination of the containment pad is considered successful based on a comparison of the rinsewater analyses to the decontamination levels specified in the May 1991, Ohio EPA closure guidance.
- 3) Residual solvent contamination was found in Tank T-5 including target compounds trichloroethane and dichloroethane in excess of the concentrations listed for the Decontamination Action Limits. Metal plates or vanes inside Tank T-5 interfered with the high pressure spray used for decontamination. The liquid residues and the majority of the contamination have been removed from T-5. Based on the current conditions, Tank T-5 is considered empty and the residual contamination inside Tank T-5 will not pose a threat of release prior to dismantling and removing the tank under the CERCLA process.
- 4) The transfer pump rinse contained a significantly elevated concentration of chromium (109 mg/L total chromium, and 67.03 mg/L TCLP) and selenium (4.02 mg/L total selenium, and 2.53 mg/L TCLP). This contamination with chromium and selenium was only found in the transfer pump rinsewater and was not reported in the previous waste analyses included in the CPID (see Enclosure 2).
- 5) The levels of contamination found in the rinsewaters from Tank T-3 are below the decontamination action levels. These results have confirmed the assertion in the CPID that Tank T-3 was not used for storage of hazardous wastes.

A summary of the final rinsewater analyses for Tanks T-5, T-6, T-3, the transfer pump and the containment pad are provided in Table 2 (Enclosure 1). Table 2 also provides comparisons to the CPID listed decontamination action levels and the revised decontamination limits based on the OEPA Closure Plan Review Guidance, May, 1991.

Review and Evaluation of Soil Sampling and Analyses

A total of 22 soil samples were collected from 5 sample locations around the containment pad. The data indicates some limited contamination of the soil adjacent to the containment pad. Table 3 (Enclosure 1) provides a summary of soil data and Table 4 (Enclosure 1) presents the results of statistical analysis used to evaluate soil contamination.

The Kolmogorov-Smirnov procedure was used to statistically evaluate the normality of the data from closure soil samples data and the FEMP area background soil samples (i.e., the data from the FEMP CERCLA/RCRA Background Soil Study, March 1993). Based on the evaluation, it was determined that it would be more appropriate to run the non-parametric Mann-Whitney U Test (a procedure that is a direct corollary to the Wilcoxon Signed Rank or Rank Sum Test). Table 4 (Enclosure 1) provides the average concentrations for site and background lead levels in soils and identifies statistically significant differences based on the Mann-Whitney U Probability. Probability values less than 0.05 indicate significant differences with a 95% confidence level. Based on the statistical analyses, elevated levels of cadmium, chromium, and lead were identified at statistically significant levels.

Although the approved CPID indicated samples below the containment pad would be collected, there are three other storage tanks located within the diked area with Tank T-5 and Tank T-6. These tanks include two empty tanks (Tank T-3 and Tank T-4) and Tank T-2 which contains over 7,000 gallons of thorium nitrate. As a result, it was concluded that the importance of maintaining the integrity of existing secondary containment warrants delaying collection of additional soil samples under the pad until secondary containment is no longer required.

While soil samples indicate concentrations of cadmium, chromium, and lead above those specified within the CPID, the concentrations are relatively low and, based on the required dilution in the extraction procedure (SW-846 Method 1311), do not exceed TCLP levels. The level and extent of contamination indicated by the sample analyses does not pose an immediate threat to human health or the environment.

REMOVAL/REMEDICATION OF RESIDUAL CONTAMINATION THROUGH CERCLA RESPONSE ACTIONS

The FEMP will complete actions necessary to remove the five storage tanks and the containment pad and evaluate and conduct any required remediation of soil contamination under the CERCLA process. The removal and remediation of residual contamination from the Bulk Storage Tanks T-5 and T-6 will be achieved under a combination the Interim and Final Records of Decision (RODs) for OU3 and under CERCLA Removal Action No. 12 "Safe Shutdown." Contaminated soil and debris generated from these activities will be managed according to Removal Action No. 17 "Improved Storage of Soil and Debris."

CERCLA Background Discussions

In 1986, the U. S. Department of Energy (DOE) initiated the ongoing Remedial Investigation/Feasibility Study (RI/FS) to evaluate and determine remediation requirements pursuant to CERCLA. Consistent with the scope of National

Contingency Plan (HCP) and the Amended Consent Agreement between DOE and USEPA, all remediation activities and any resulting changes to facility schedules must be coordinated and integrated with the RI/FS and CERCLA removal and remedial response actions. Additionally, all remediation activities, including RCRA closure activities, must be consistent with the Final ROD for the operable unit containing the HWMU.

In accordance with 40 CFR 300.400(g), CERCLA response actions must identify other Applicable or Relevant and Appropriate Requirements (ARARs), unless justifiably waived, including OEPA and USEPA requirements for HWMU closures. Pursuant to the Amended Consent Agreement, the FEMP management will:

- Characterize chemical and radiological contamination at the FEMP and establish site cleanup objectives;
- Conduct necessary short-term response actions to eliminate or minimize immediate threats to human health and environment (i.e removal actions); and
- Implement necessary long-term monitoring and surveillance of the facility and surrounding environment.

Based on the RI/FS, a proposed plan will be recommended for the CERCLA ROD for each Operable Unit. The Final ROD for each Operable Unit will specify the required final remediation or removal of contaminated media, equipment and structures.

During the RI/FS investigations, Removal Action (RA) No. 12, and RA No. 17 (discussed below) have been initiated to provide immediate response actions necessary to stabilize or remove contamination for protection of human health and the environment. Removal action work plans have been prepared for review and comment by the OEPA and USEPA with final approval granted by the USEPA under CERCLA.

In addition, an Interim ROD is currently being planned to expedite the demolition of equipment and structures in OU3 prior to the issuance of the Final ROD. Remedial Design/Remedial Action (RD/RA) plans will be prepared to implement the requirements of the RODs (Interim and Final) to remediate each Operable Unit.

RA No. 12, the Safe Shutdown Program, was created to perform the safe shutdown of all process facilities in preparation of final remediation. Safe Shutdown essentially entails the engineering, planning, and scheduling for isolation of process equipment, piping systems, and associated utilities; and removing residual and excess materials, supplies, and combustibles to appropriate disposition and approved storage locations.

Safe Shutdown management activities include: developing appropriate safety documentation (Risk Assessment, Risk Management Plan, Health & Safety Plan, Safety Assessment); preparing Training Plans and Task-Specific Lesson Plans; reviewing SOPs and updates; performing preliminary assessments for all process buildings and process equipment; evaluating preliminary assessments; preparing Task Orders to address equipment isolation and cleanout; continuing efforts to

dispose of the surplus equipment and materials; evaluating process buildings for future use or demolition; and initiating the development of engineering studies and packages to guide equipment isolation/de-energization activities.

Safe Shutdown field work activities include: isolation of process equipment; removing excess equipment and materials, supplies, and combustibles; initiating the process of removing residual materials from process equipment; and initiating decontamination efforts. All buildings are being inventoried for residual material and excess equipment. Necessary documentation is being processed to identify proper disposition of these materials.

RA No. 17 provides for the improved management of soil and debris in two phases. Phase I defines soil and debris management during the design and construction of four proposed storage facilities. Phase II addresses soil and debris management from the time the facilities are constructed until final remedial alternatives for FEMP are selected. RA No. 17 provides specific criteria for the management of soil and debris contamination and identifies options for its disposition including decontamination, disposal off-site, or storage in controlled stockpiles or an improved storage facility.

CERCLA Response Actions to Remove and Remediate Residual Contamination

The following sequence of events will be used to complete the removal and final remediation of OU3, including this HWMU, in a manner that will also achieve the RCRA closure performance standards under OAC 3745-66-11 (40 CFR 265.110):

- 1) Materials being stored in Tank T-2 will be removed under the ongoing Safe Shutdown Program. Safe Shutdown procedures will also be used to conduct any additional decontamination required.
- 2) All five tanks, associated pumps and piping, and containment pad will be dismantled and decontaminated under the remedial design/remedial action (RD/RA) work plan for the Interim Record of Decision for Operable Unit 3 (OU3).
- 3) The clean up level required to achieve acceptable final remediation of soils and potential contamination of the concrete in direct contact with contaminated soils will be defined by the final RODs for OU3 and OU5. Final removal or remediation of residual contamination in subsurface structures and utilities and in the environmental media will be conducted under the RD/RA work plans for OU3 and OU5.

This integrated approach to RCRA closure and CERCLA remediation will enable the FEMP to achieve an environmentally sound and cost-effective final remediation that is protective of human health and the environment and consistent with the intent of both the Ohio and federal regulations. Table 5, Enclosure 1, identifies the current schedule/status established under the Amended Consent Agreement between the USEPA and DOE for implementation of the CERCLA response actions identified for removal and remediation of residual contamination.

In accordance with OAC 3745-66-13(A)(1) and (2), the FEMP is requesting that

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the Director of the OEPA allow the FEMP the time necessary to complete the CERCLA response actions. The actions outlined in this closure status report and update will, by necessity, take longer than 180 days to complete. Until the tanks are removed, The FEMP will continue to maintain HWMU inspections and conduct the activities required for emergency and contingency planning as provided through the FEMP Spill Prevention Control and Countermeasure Plan. As they are developed, response action work plans, reports of sampling and analytical data, and documentation of the CERCLA response actions will be provided to the OEPA for review and comment. In addition, the OEPA will be notified at least five (5) business days in advance of significant activities that will accomplish RCRA closure objectives. Significant activities include removal of Bulk Storage Tanks T-5 and T-6, removal of the containment pad, decontamination actions to remove residual contamination from Tank T-5 and additional soils sampling that may be conducted adjacent to and under the containment pad.

If you or your staff have questions regarding the information provided in this letter, our staff contact is Mr. John Sattler at (513) 648-3145.

Sincerely,


Mr. Raymond J. Hansen
Acting Manager

FN: Sattler

cc w/ enc:

P. D. Pardi, OEPA-Dayton
J. A. Saric, USEPA Region V
K. A. Chaney, EM-424
D. L. Howe, FERMCO, RCRA Operating Record/30
Administrative Record

cc w/o enc:

M. McDermontt, DOJ
J. VanKley, Ohio AGO
R. Fisher, OEPA-Dayton
P. Harris, OEPA-Dayton
H. O'Connell, OEPA-Dayton
G. Mitchell, OEPA-Dayton
T. E. Crepeau, OEPA-Columbus
N. C. Kaufman, FERMCO/1
J. W. Theising, FERMCO/2
K. L. Alkema, FERMCO/65-2
P. F. Clay, FERMCO/52-2
J. T. Curtis, FERMCO/8
N. L. Redmon, FERMCO, RCRA Closure Files/52-2/

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CONTROL NO.:	010005
SD NO.:	SD-EES-C31-CPT-10092
REVISION:	-
SUPERSEDES:	-
ISSUE DATE:	10-21-93
REVISION DATE:	-

SEE OVER

Ms. Robin Fisher
Ohio Environmental Protection Agency
Southwest District Office
40 South Main Street
Dayton, Ohio 45402-2086

Dear Ms. Fisher:

CLOSURE PLAN INFORMATION AND DATA FOR BULK STORAGE TANKS T5 & T6, STORAGE PAD NORTH OF PLANT 6, NORTH AND SOUTH SOLVENT TANKS, AND TRANE THERMAL LIQUID WASTE INCINERATOR

On August 26, 1993, representatives from the Department of Energy (DOE), the Fernald Environmental Management Corporation (FERMCO), and the Ohio Environmental Protection Agency (OEPA) met to discuss the status of closures of the Bulk Storage Tanks T5 & T6 and the Storage Pad North of Plant 6. During that meeting it was agreed that the Closure Plan Information and Data (CPID) for each of these Hazardous Waste Management Units (HWMU's) would be re-evaluated and revised. Based on the discussions pertaining to these two HWMU's, DOE and FERMCO recommended and OEPA agreed that the submittal of the CPID's for two additional units, the North and South Solvent Tanks, and the Trane Thermal Liquid Waste Incinerator would also be delayed to allow for necessary revisions.

On October 6, 1993, Mr. John Sattler of my staff spoke with Mr. Phil Harris, OEPA, and provided him with the revised submittal dates for the HWMU's mentioned above. These dates are included in the following brief discussions of the CPID modifications for the four HWMU's.

1. BULK STORAGE TANKS T5 & T6

The analytical data from tank contents, soil samples adjacent to the HWMU, tank and pump final rinseates, and soil borings and wells in the vicinity of the Pilot Plant West area have been re-evaluated. In addition, process knowledge of the Barium Chloride operation in the Pilot Plant has been obtained. The Barium Chloride operation may be a source of the barium located in soil samples adjacent to the Pilot Plant. This information and data will be included as an amendment to the CPID and will be submitted to OEPA on November 15, 1993. The amendment to the CPID will identify decontamination procedures in the form of an additional rinse for Tank T5.

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Tank T6 has been determined clean by decontamination verification samples and will not require additional rinsing. The submittal date is based on the time needed to complete the amendment to the CPID.

2. STORAGE PAD NORTH OF PLANT 6

The analytical data from the soil samples taken under the storage pad, soil samples taken adjacent to the storage pad, and soil borings and wells in the vicinity of Plant 6 have been re-evaluated. Process knowledge of degreasing operations in Plant 6 has been obtained. This information and data will be included in a revised CPID that will be submitted to OEPA on December 15, 1993. The revised CPID will discuss excavation of soil adjacent to the storage pad. An additional soil sample will be collected adjacent to the storage area to determine the extent of contamination. The submittal date is based on the time needed to sample, obtain analyses, and complete the revised CPID.

3. NORTH AND SOUTH SOLVENT TANKS

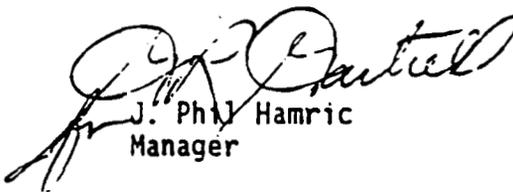
CPID will be submitted to OEPA on December 15, 1993 in lieu of the August 31, 1993 scheduled date identified in the RCRA Compliance Schedule. The CPID will include closure activities to be conducted and discuss soil sampling activities adjacent to the HWMU. The submittal date is based on the time needed to sample soil to determine the extent of closure activities, obtain analyses, and complete the CPID.

4. TRANE THERMAL LIQUID WASTE INCINERATOR

CPID will be submitted to OEPA on December 21, 1993. The CPID will include closure activities to be conducted and discuss sampling activities in the vicinity of the HWMU. The submittal date is based on the time needed to sample soil to determine the extent of closure activities, obtain analyses, and complete the revised CPID.

If you have any questions concerning this matter, please contact John Sattler at (513) 648-3145.

Sincerely,



J. Phil Hamric
Manager

FN:Sattler

cc:

J. A. Saric, USEPA, Chicago
 K. A. Chaney, EM-424-TREV II
 M. McDermontt, DOJ
 N. C. Kaufman, FERMCO/1
 K. L. Alkema, FERMCO/65-2
 P. F. Clay, FERMCO/52-2
 J. T. Curtis, FERMCO/8
 J. W. Thiesing, FERMCO/19
 D. L. Howe, FERMCO/30, RCRA Operating Record
 N. L. Redmon, FERMCO/76, RCRA Closure File
 Administrative Record

CONTROL NO.:	010005
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REVISION:	-
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ISSUE DATE:	10-21-93
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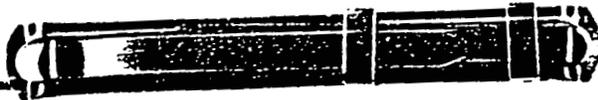
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CONTROL NO.:	010005
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REVISION:	-
SUPERSEDES:	-
ISSUE DATE:	10-21-93
REVISION DATE:	-

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Department of Energy

FMPC Site Office
P.O. Box 398705
Cincinnati, Ohio 45239-8705
(513) 738-6319

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APR 5 8 55 AM '93

September 25, 1989
DOE-1664-89

Dr. Richard Shank, Director
Ohio Environmental Protection Agency
1800 WaterMark Drive
Columbus, Ohio 43266-1049

Dear Dr. Shank:

RECORD COPY

RCRA CLOSURE PLANS

Reference: Letter, DOE-1653-89, James A. Reafsnnyder to Dr. R. L. Shank, "RCRA Part B Permit Application", dated September 22, 1989.

The referenced letter, which transmitted the FMPC RCRA Part B Permit Application, stated that RCRA closure plans for the Plant 1 Storage Pad, Tanks T5 and T6, and the Plant 6 Storage Pad were to accompany the Permit. These closure plans are not part of the permit application since the FMPC is not seeking an operating permit for these units. However, we did intend to submit them to you as an enclosure to the referenced letter, and they were inadvertently omitted. Therefore, enclosed are RCRA closure plans for the Plant 1 Storage Pad, Tanks T5 and T6, and the Plant 6 Storage Pad.

If there are any questions, please contact me at (513) 738-6319 or FTS 774-6319.

Sincerely,

James A. Reafsnnyder
James A. Reafsnnyder
FMPC Site Manager

DP-84:Craig

Enclosures: As stated

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Department of Energy
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DOE-0348-94

Donald R. Schregardus, Director
Ohio Environmental Protection Agency
P. O. Box 1049
1800 WaterMark Drive
Columbus, Ohio 43266-0149

Dear Mr. Schregardus:

AMENDMENT TO APPROVED CLOSURE PLAN INFORMATION AND DATA FOR BULK STORAGE TANKS T-5 AND T-6

- References: 1) Letter, DOE-0120-94, J. Phil Hamric to Ms. Robin Fisher, "Closure Plan Information and Data for Bulk Storage Tanks T-5 and T-6, Storage Pad North of Plant 6, North and South Solvent Tanks, and Trane Thermal Liquid Waste Incinerator," dated October 21, 1993.
- 2) Letter, DOE-2389-93, Raymond J. Hansen to Mr. Donald R. Schregardus, "Closure Status and Request for Extension of Closure Schedule for Tanks T-5 and T-6," dated July 8, 1993.

Enclosed is an amendment to the approved Closure Plan Information and Data (CPID) for Hazardous Waste Management Units No. 31 and No. 32, Bulk Storage Tanks T-5 and T-6 (revision 2, 1991). This amendment is being submitted to provide the Ohio Environmental Protection Agency (OEPA) an update on the status of closure activities and plans for completing clean closure of Tanks T5/T6 (see reference 1). This document replaces the closure status report submitted in July, 1993 (reference 2).

Please note that the reference letter 1 stated that Tank T6 has been determined clean by decontamination verification sampling; it was very recently found that an additional rinsewater sampling will be necessary to ensure that the tank is clean. This is discussed in more detail in the amendment to the CPID.

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Restoration Management Corporation

FERMCO
P. O. Box 398704
Cincinnati, OH 45239-8704

FACSIMILE LEAD SHEET

No. of Pages: 3
Including Lead Sheet

DATE: March 30, 1994

TO: Phil Harris

RECORD COPY

COMPANY NAME: OEPA-DHWM

LOCATION: Dayton, Oh

FAX NO. TO BE CALLED: 513-285-5404

TELEPHONE NO.: 513-285-6090

FROM: Tom Walsh

TELEPHONE NO.: (513) 739-6912

PROJECT NAME: FERNALD ENVIRONMENTAL MGMT CONTRACT NO.: DE-AC05-92OR21972

MESSAGE

SUBJECT: HWMU Constituents and T-6 Cleanout

Phil, attached is information related to the 3/28/94 meeting request concerning the RCRA constituents for the HWMUs which are intended to be closed under the integrated RCRA/CERCLA process. Also attached is a procedure for the cleanout of T-6. In the amendment to the CPID for T-5 and T-6, T-6 was just to be rinsed with potable process water and the rinseate sample analyzed for benzene, carbon tetrachloride, and trichloroethylene. However, on 3/28/94 during the opening of the T-6 valve (after rinsing) for sample collection, some black residues clogged the drain valve line. Consequently, the FEMP wants to unclog the drain valve and clean T-6 in accordance with the attached procedure (the same as proposed on T-5). Please let me know if you have any questions or require additional information. Thanks. Tom

TJW
Attachment

- c: Bill Hertel, FERMCO
- Barry Ko, FERMCO
- Ken Kolthoff, FERMCO
- John Sattler, DOE-FN
- Rod Steele, MTC
- Mike Strimou, FERMCO
- File Record Storage Copy 106.4.11.6

CONTROL NO.:	010015
SD NO.:	SD-EES-031-FAX-101A8
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ISSUE DATE:	3-30-94
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<u>HWMU #</u>	<u>Description</u>	<u>RCRA Constituent</u>
1	Fire Training facility	TCA, acetone, xylene, methylene chloride, ethyl benzene, toluene, TCE
28	Trane Incinerator	Pb, TCA
14	Box Furnace	TCA, Pb, Cr, TCE, PCE, Ag, Ba
16	Primary Calciner	TCA
15	Oxidation Furnace No. 1	Pb, Ba, TCA
22	Pilot Plant Sump	Pb, xylene, TCA, PCE
12	Wheelabrator	Cd
25	Plant 1 Storage Bldg	None specified - various wastes stored >90 days
51	ETF	TCA
11	Tank Farm Sump	Corrosive
17	Plant 8 East Pad	None specified - various wastes stored >90 days
18	Plant 8 West Pad	None specified - various wastes stored >90 days
42	Waste Pit 5	TCA
27	Waste Pit 4	Ba
46-50	UNH Tanks	Corrosive, Ba, Cr
10	NAR System	Corrosive, Cr (from F1-24)
40	Biosurge Lagoon	TCA
41	Sludge Drying Beds	TCA

The following activities will be performed on Tank T-6 in order to achieve clean closure:

1. The dried residues accumulated in the bottom of tank T-6 will be removed by scraping and HEPA vacuuming the material up through the open manway at the top of the tank. The dried residues will be collected and transferred into an approved storage container and managed as a mixed waste. The removal of residues will be complete when the stainless steel interior surface is visible via an inspection from an open manway.
2. A steam line will be inserted into the manway of tank T-6 and all other openings will be closed. The tank will be steam cleaned to remove any remaining residues adhering to the side walls and bottom. The steam will be shut off and the drain valve underneath the tank will be opened to release the accumulated water into an approved storage container.
3. The drain valve to tank T-6 will be closed. Tank T-6 will be rinsed with potable process water under nominal pressure (65 to 75 psi) to thoroughly rinse all interior surfaces. The drain valve will be opened to release the rinseate into an approved storage container. The tank will be rinsed two additional times. A sample will be collected from the third rinseate and sent to the lab for analysis for waste characterization purposes and to see if benzene, carbon tetrachloride, and trichloroethylene are ≤ 0.075 mg/L.
4. A visual inspection will be performed from the top of tank T-6. The cleaning operation will be complete when the interior stainless steel surfaces are visually clean.
5. Decontamination of tank T-6 will be verified if analysis for benzene, carbon tetrachloride, and trichloroethylene are ≤ 0.075 mg/L in accordance with the revised DAL (see Table 3). When tank T-6 is verified clean, it will remain in place until final disposition under the interim ROD for OU3.

This varies from the Amendment to Closure Plan Information and Data (November 1993) due to the observation of residual material in tank T-6.

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ATTACHMENT 6 - References

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References

- 1) **Closure Plan information and Date For the Feed Materials Production Center Bulk Storage Tanks T-5 and T-6, Rev. 2, January 1991 U. S. DOE**
- 2) **Amendment to Closure Plan Information and Date for Bulk Storage Tanks T-5 and T-6, Rev. 3, November 1993, U. S. DOE**
- 3) **Thorium Nitrate Solidification Final Report, Completed Under Removal Action No. 9, February 1996, U. S. DOE**