

OPERABLE UNIT 3

2242

PROJECT COMPLETION REPORT

**DECONTAMINATION OF
HWMU No. 50 - UNH TANKS, HOT RAFFINATE BUILDING
AND
HWMU No. 28 - TRANE INCINERATOR**



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**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO**

**U. S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE**

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1.0 INTRODUCTION

The RCRA decontamination activities for HWMU #50, UNH Tanks, Hot Raffinate Building and HWMU #28, Trane Incinerator were performed successfully in accordance with the requirements specified by the Integrated Closure Implementation Document (DOE 1998). This report serves as the project completion report and will eventually be compiled with reports from other Operable Unit 3 (OU3) D&D projects to prepare the Final Remedial Action Report for OU3.

1.1 HAZARDOUS WASTE MANAGEMENT UNIT #50, UNH TANKS, HOT RAFFINATE BUILDING

The 200,000 gallons of waste Uranyl Nitrate Hexahydrate (UNH) remaining on the FEMP site after production cessation met the definition of a RCRA corrosive hazardous waste (D002) (Also characterized as D005 (barium), D007 (chromium), D008 (lead) and D009 (mercury)). Under Removal Action 20 (RvA 20), UNH Neutralization Project, the tanks were emptied and the UNH was treated to meet RCRA land disposal restriction requirements. The twenty-three tanks and associated piping were decontaminated in accordance with Ohio EPA closure guidance standards. The analytical results for the decontamination rinsewaters were submitted on June 16, 1997 in the RvA20 Final Report. Based on an evaluation of HWMU #50 conducted during remedial design, it was determined that no further decontamination of the storage tanks and associated piping was required.

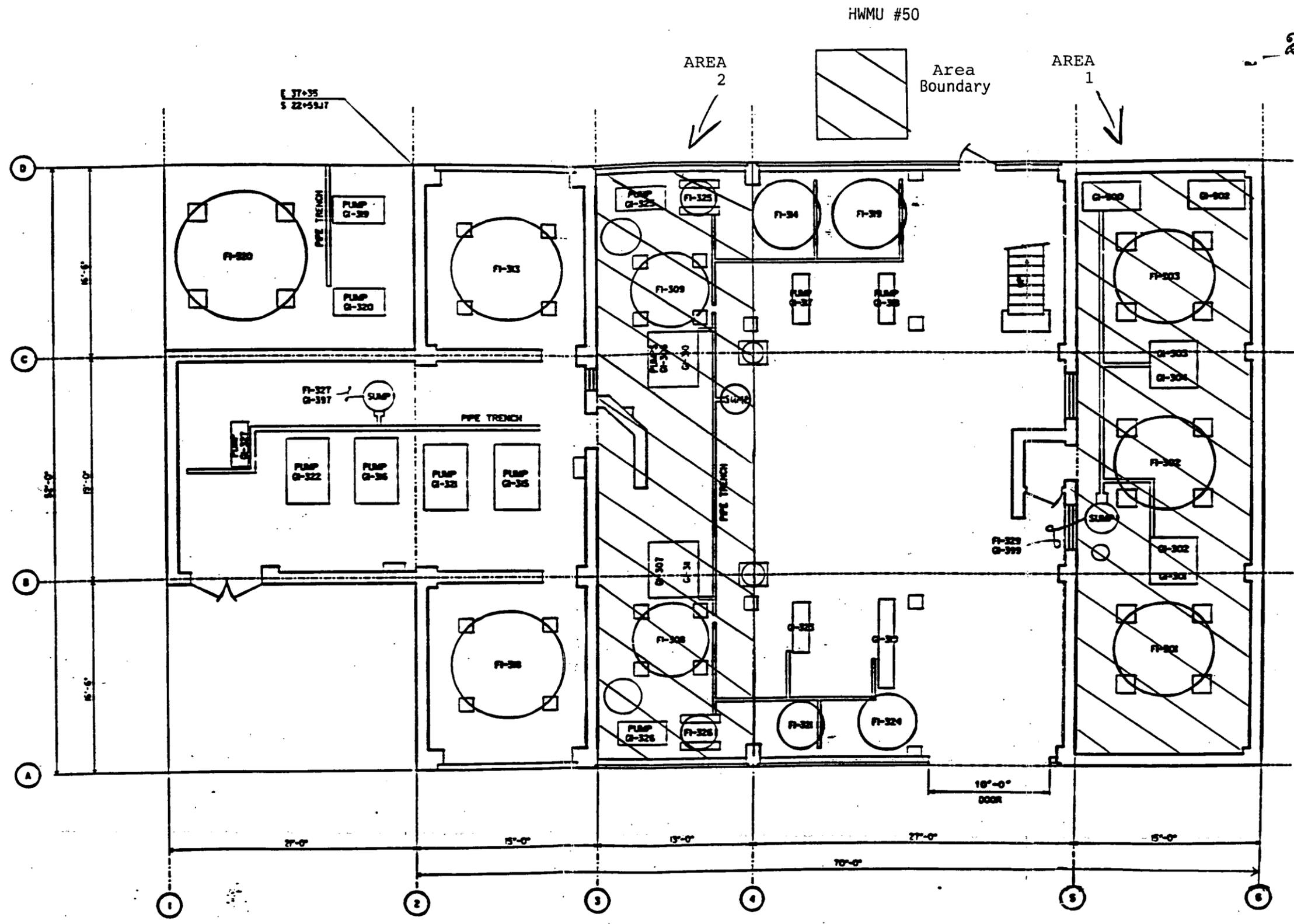
As a result, the only remaining components which required decontamination to complete activities for this unit were the two secondary containment areas located inside Building 3E, Hot Raffinate (see Areas 1 and 2 in Figure 1-1).

1.2 HAZARDOUS WASTE MANAGEMENT UNIT #28, TRANE INCINERATOR

The Trane Incinerator (Figure 1-2) was declared a HWMU because it was used to incinerate waste oil containing characteristically hazardous levels of lead (D008) and 1,1,1 Trichloroethane (F-listing). Oil/water separation was performed in the waste oil decant shelter (Building 39B). The oil was pumped from Building 39B directly to the oil feed tanks within Building 39A or to the oil holding tank, F3E-406 via a 1-inch overhead transfer line. From Tank F3E-406, the waste oil was either pumped to the incinerator feed tank (for incineration) or pumped to the drum filling station (for off-site shipment).

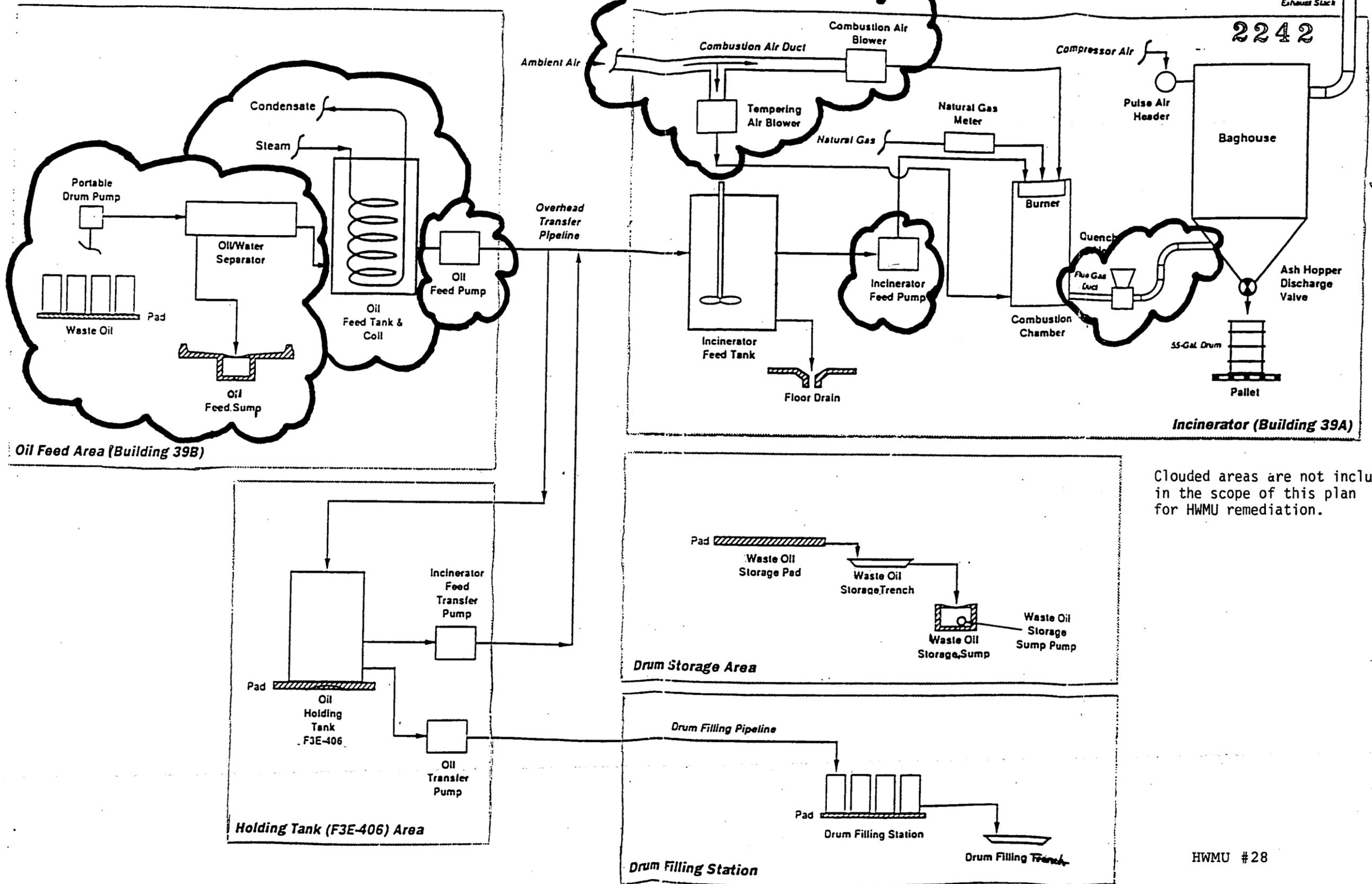
1.3 RCRA DECONTAMINATION

On December 22, 1998, the DOE-FEMP provided Ohio EPA (OEPA) with an Integrated Closure Implementation Document package for the UNH Tanks, Hot Raffinate Building and Trane Incinerator HWMUs.



PLAN AT ELEVATION 580'-0"

HWMU #50
UNH TANKS
HOT RAFFINATE BUILDING
FIGURE 1-1



Clouded areas are not included in the scope of this plan for HWMU remediation.

HWMU #28

Trane Incinerator Process Schematic.

FIGURE 1-2

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The objective relating to the UNH Tanks was to decontaminate the two secondary containment areas by rinsing with potable water. The rinseate was collected in sumps and analyzed for barium, chromium, lead and mercury concentrations to demonstrate compliance with OEPA Closure Guidance standards.

The objective relating to the Trane Incinerator was to decontaminate the incinerator components (as identified in the closure implementation document) by rinsing with potable water. The rinseate was collected for the incinerator components and analyzed for lead to demonstrate compliance with OEPA Closure Guidance standards.

2.0 HAZARDOUS WASTE MANAGEMENT UNIT BACKGROUND

2.1 UNIT DESCRIPTION

2.1.1 UNH Tanks, Hot Raffinate Building

HWMU #50 is located inside Building 3E, Hot Raffinate Building. The unit is divided into two separate areas:

- Area 1 - measures 14 ft. x 50 ft. and contains tanks F1-301, F1-302, and F1-303; and
- Area 2 - measures 15 ft. x 30 ft. and contains Tank F1-308.

Area 1 is surrounded by concrete walls on all sides and contains a sump for drainage. Area 2 is surrounded by concrete walls and a twelve inch high dike. Area 2 also contains a sump for drainage. Spills in these two areas would be processed through the Plant 2/3 sump system and the FEMP waste water treatment system. The UNH tanks in the Hot Raffinate Building stored slag UNH filtrate and UNH slurry from residue digestion. All tanks in this HWMU are vertically mounted. Ancillary equipment includes agitators, pumps and associated piping.

2.1.2 Trane Incinerator

HWMU #28 is located within and around Building 39A, Incinerator Building. Components addressed in accordance with the integrated closure document include:

- Incinerator feed tank in Building 39A;
- Oil holding tank, F3E-406 and its appurtenances which include the southern portion of the overhead transfer piping from disconnect at 102nd Street to Tank F3E-406 along with interconnecting piping south of 102nd Street in the Building 39A area;
- Two transfer pumps (pump motors and framing only) located at Tank F3E-406;

- ~~Combustion chamber and its appurtenances in Building 39A (includes natural gas meter and natural gas piping within the Building 39A interior HWMU area);~~
- Baghouse and exhaust stack in Building 39A;
- Northeast corner floor of Building 39A housing the incinerator;
- Storage pad with trench drains and sump (Pad 74W);
- Waste oil drumming area with trench drain (outside northwest pad at Building 39A); and
- Acid Brick pad area beneath Tank F3E-406.

HWMU decontamination of the remaining incinerator components (i.e., Building 39B oil/water separator, Building 39B oil feed pump, Building 39B waste oil handling area pad and the northern portion of the overhead transfer piping from the disconnect at 102nd street) is being conducted in accordance with the Implementation Plan for the Miscellaneous Small Structures D&D Project (DOE 1998).

2.2 CONTAMINANTS OF CONCERN

Contaminants of concern relating to the UNH tanks, Hot Raffinate Building included corrosivity, barium, chromium, lead and mercury. Contaminants of concern relating to the Trane Incinerator included lead and 1-1-1 Trichloroethane (F-listing). However, in accordance with Section 3.5.3 of the OU3 Integrated Remedial Design/Remedial Action Work Plan (DOE 1997), decontamination to address listed constituents is not required prior to the disposition of these wastes into the OSDF.

2.3 HAZARDOUS WASTE MANAGEMENT UNIT DECONTAMINATION OBJECTIVES

Decontamination of the two secondary containment areas, Area 1 and Area 2, was achieved by rinsing these areas with potable water. Table 2-1 shows the analytical results confirmed compliance with OEPA Closure Guidance Standards.

TABLE 2-1: HWMU #50 - ANALYTICAL RESULTS

Location	Sample ID	Lead ug/l	Barium ppb	Chromium ppb	Mercury ppb	Uranium mg/l	pH
Tanks F1-301, 302 and 303 secondary containment	T2SC-1 and T2SC-2	35.2	50.0	30.3	.03	16.3	7.55
Tank F1-308 secondary containment	T2SC-3 and T2SC-4	50.0	54.2	62	2.6	54.6	8.03
OEPA Closure Guidance Limits		600	1000	1000	3	NA	NA

Decontamination of the incinerator components was achieved by rinsing the identified components with potable water. Table 2-2 shows the analytical results confirmed compliance with OEPA Closure Guidance Standards.

TABLE 2-2: HWMU #28 - ANALYTICAL RESULTS

Location	Sample ID	Lead ug/l	Uranium mg/l
Feed Tank 39A Interior	TI-01-2	28.5	4.18
Tank F3E-406	TI-04, 05 & 06	255	18.0
Pad: Drum Filling Station	TI-07, 08 & 09	255	.984
Burn Chamber	TI-10, 11 & 12	403	14.6
Transfer Pumps	TI-13, 14 & 15	255	9.83
Pad: 74W	TI-16, 17 & 18	255	.62
Bag House	TI-19, 20 & 21	577	743
39A Floor	TI-22, 23 & 24	470	3.55
Exhaust Stack	TI-25, 26 & 27	255	1.37
OEPA Closure Guidance Limits		600	NA

2.4 CONTROL MEASURES

2.4.1 UNH Tanks, Hot Raffinate Building

Area 1 is enclosed by concrete walls. The floor is lined with acid brick and drains into a sump. Prior to rinsing, the doorway leading to Area 1 was dammed using sandbags covered by herculite. As a result, rinse water was contained within the area.

Area 2 is enclosed by a concrete wall and 12 inch high dike. The floor is lined with acid brick and drains into a sump. Prior to rinsing, a doorway leading from Area 2 into the west side of Building 3A was dammed using sandbags covered by herculite. As a result, rinse water was contained within the area.

2.4.2 Trane Incinerator

The HWMU area inside Building 39A was bounded by two exterior walls with a four inch high concrete berm. Containment walls were constructed on the two remaining HWMU boundary sides using sandbags covered by herculite. As a result, rinse water was contained within the area.

Rinse water used for the exterior pads was directed to the associated pad sump.

2.5 REQUIRED SITE DOCUMENTATION

The following documentation was necessary in order to perform closure of HWMU #50, UNH Tanks, Hot Raffinate Building and HWMU #28 Trane Incinerator:

Transmittal of Resource Conservation and Recovery Act/Comprehensive Environmental Response, Compensation and Liability Act Integrated Closure Implementation Document for the Trane Incinerator, UNH Tanks and Hot Raffinate Building. Johnny W. Reising, Project Manager, DOE-FEMP to Gene Jablonowski, Remedial Project Manager US-EPA and Tom Schneider, Project Manager, OEPA dated December 22, 1998.

3.0 SUMMARY OF FIELD ACTIONS

3.1 RINSE, SAMPLING AND ANALYTICAL

3.1.1 UNH Tanks, Hot Raffinate Building

The two secondary containment areas were rinsed with potable water. Samples were collected in accordance with approved Sampling Plan #1741-SP-0001, titled "Sampling Plan for Rinsewater of the Secondary Containment for Plant 3 UNH Tanks". Samples were analyzed for RCRA metals (barium, chromium, mercury and lead), uranium, uranium 235 and pH. Analytical results demonstrated compliance with OEPA Closure Guidance standards.

3.1.2 Trane Incinerator

The incinerator components and associated pads were rinsed with potable water. Samples were collected in accordance with approved Sampling Plan #1741-SP-0002 Rev. 3PCN1, titled "Water Sampling Plan for Trane Incinerator Components and Pad Areas". Samples were analyzed for lead to determine compliance with OEPA closure guidance levels. Analytical results demonstrate that the decontamination rinsewater for the incinerator components and associated pads met the standards.

3.2 TREATMENT OF AQUEOUS WASTE

3.2.1 UNH Tanks, Hot Raffinate Building

A total of 250 gallons of rinse water was generated under this HWMU decontamination task. The rinse water was analyzed for barium, chromium, lead, mercury, uranium, uranium 235 and pH. After review of the analytical data, the effluent was transferred to the FEMP waste water treatment system where it was managed in accordance with the effluent handling procedures and discharged in accordance with the FEMP's NPDES permit.

3.2.2 Trane Incinerator

A total of 550 gallons of rinsewater was generated under this HWMU decontamination task. The rinse water was analyzed for arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, uranium, uranium 235, isotopic thorium, 111-trichloroethene and pH to assure NPDES compliance. After review of the analytical data, the effluent was transferred to the FEMP waste water treatment system where it was managed in accordance with the effluent handling procedures and discharged in accordance with the FEMP's NPDES permit.

3.3 DEMOLITION

3.3.1 UNH Tanks, Hot Raffinate Building

Decontamination of this HWMU task did not involve any demolition activities.

3.3.2 Trane Incinerator

As part of this HWMU decontamination, the incinerator components were dismantled after analytical results verified the OEPA Closure Guidance Standard had been met. Additionally, a portion of the Component 3J Combined Hot Raffinate pad was removed to provide access for Tank F3E-406 demolition. Approximately 25 feet of the containment wall (including the acid brick surface) located at the south west corner of the pad was demolished. Attachment 1 illustrates size reduction of Tank F3E-406.

3.4 WASTE DISPOSITION

3.4.1 UNH Tanks, Hot Raffinate Building

Debris generated from this activity included sandbags and herculite plastic used to create diked areas for containment of the rinse water. Since the HWMU #50 rinsing activity occurred prior to the HWMU #28 rinsing activity, these materials were reused for the Trane Incinerator and will be dispositioned with the HWMU #28 debris. As a result, there is no waste debris associated with the HWMU #50 decontamination activity.

3.4.2 Trane Incinerator

Debris generated from this activity included sandbags, herculite plastic, concrete, acid brick, asbestos insulated piping and approximately 43 cubic yards of Trane Incinerator equipment. All equipment and debris, except the acid brick and a .5 cubic foot section of the burn chamber, has been containerized for disposition into the On-Site Disposal Facility (OSDF) in accordance with the OSDF Waste Acceptance Criteria.

Since acid brick is an OSDF prohibited item, the sixty cubic feet of acid brick was placed in a white metal box and will be dispositioned off-site.

A section of the burn chamber was found to contain a highly contaminated layer of refractory material that failed the visual inspection for the OSDF Waste Acceptance Criteria. The refractory material was removed from the chamber and placed into a white metal box with the acid brick that will be dispositioned off-site.

The at-and-below grade concrete which includes Pad 74W, Pad 3J, the drum loading station pad and Building 39A slab will be dispositioned by the Soils Characterization and Excavation Project.

3.5 CHRONOLOGY

December 22, 1998	DOE-FEMP issues RCRA/CERCLA Integrated Closure Implementation Document for HWMU #50 and HWMU #28 to U.S.EPA and OEPA.
January 4, 1999	Began HWMU #50 closure task for the two secondary containment areas located inside Building 3E, Hot Raffinate Building.
January 25, 1999	Began HWMU #28 closure task for the Trane Incinerator.
March 30, 1999	Walk-down by project team verified all field work has been completed.

4.0 CONCLUSIONS

There were no substantive deviations from the Integrated Closure Implementation Document that impacted HWMUs #50 and #28 decontamination strategies.

There were no alternative technologies used or evaluated during the HWMU decontamination tasks.

Results from decontamination-specific air monitoring included verification by occupational air monitoring devices that no contaminant emissions of concern occurred.

Sampling of pipe insulation properly identified asbestos containing materials.

Completion of the HWMU field activities satisfies decontamination requirements for HWMU #50 under the Integrated RCRA/CERCLA Directors Findings and Orders (DF&O) process. The FEMP will remove posted signs/barriers, stop inspections and delete HWMU #50 from the FEMP's Part A Permit Application.

Completion of the HWMU field activities satisfies partial decontamination requirements of HWMU #28 under the Integrated RCRA/CERCLA DF&O process. The FEMP will remove posted signs/barriers and stop inspections at Pad 74W, Pad 3J, the drum storage pad northwest of Building 39A and inside Building 39A. Remediation of the remaining incinerator components shall be done in accordance with the Implementation Plan for the Miscellaneous Small Structures D&D Project. Certification of closure of HWMU #28 will be completed when all related and scheduled CERCLA documentation has been completed.

5.0 REFERENCES

Letter and Director's Final Findings and Orders (DF&O), Thomas E. Crepeau, OEPA to Phil Hamric, U.S. DOE and John Bradburne, FERMCO, dated June 6, 1996.

Removal Action 20 Final Report, dated June 16, 1997.

Implementation Plan for the Miscellaneous Small Structures D&D Project (DOE 1998).

Plan #1741-SP-0001 Rev.0, Sampling Plan for Rinsewater of the Secondary Containment for Plant 3 UNH Tanks F1-301, F1-302, F1-303 and F1-308, dated October 1998.

Transmittal of Resource Conservation and Recovery Act/Comprehensive Environmental Response, Compensation and Liability Act Integrated Closure Implementation Document for the Trane Incinerator, UNH Tanks and Hot Raffinate Building, Johnny W. Reising, DOE-FEMP to Gene Jablonowski, U.S. EPA and Tom Schneider, OEPA, dated December 22, 1998.

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ECDC Doc. Control 1741-EP-0001 (Rev. 0)
May 1999

Plan #1741-SP-0002 Rev. 3PCN1, Water Sampling Plan for Trane Incinerator Components and Pad Areas, dated February 4, 1999.

Variance Field Change Notice #1741-SP-02-1, Water Sampling Plan for Trane Incinerator Components and Pad Areas, dated February 22, 1999.

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Attachment 1

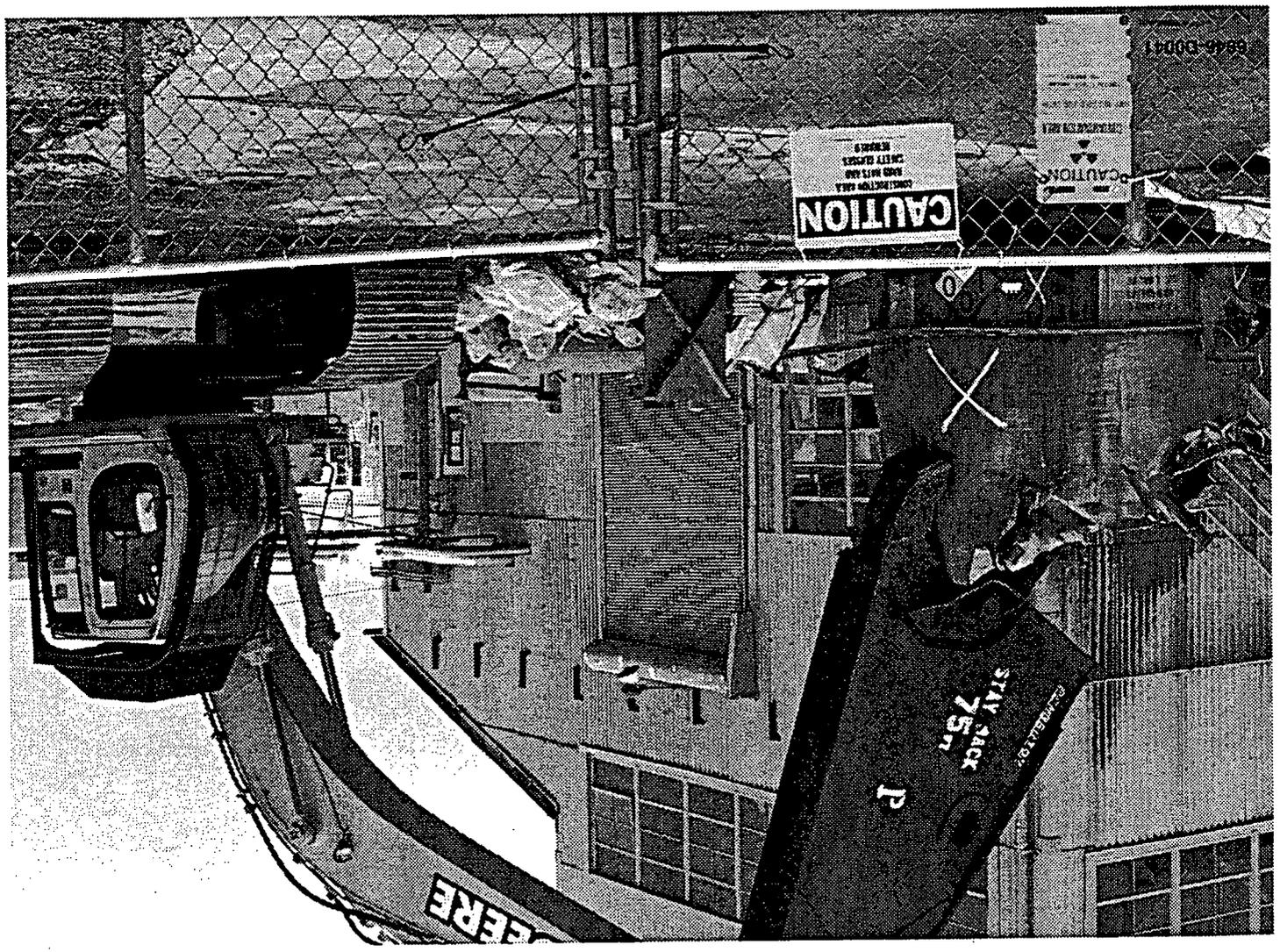


PHOTO 1: Tank F3E-406 Size Reduction #6946-D0041

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