U-005-202.70

4725

REMOVAL SITE EVALUATION UNDERGROUND STORAGE TANK #5 AUGUST 1993

09/03/1993

DOE-FN/FERMCO
43
RSE
OU3

4725

REMOVAL SITE EVALUATION

UNDERGROUND STORAGE TANK #5

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

U.S. DEPARTMENT OF ENERGY

AUGUST 1993

4725

CONTENTS

		PAGE
1.0	INTRODUCTION	1
2.0	SOURCE TERM	1-2
3.0	EVALUATION OF THE POTENTIAL THREAT	2
4.0	ASSESSMENT OF THE NEED FOR A REMOVAL ACTION	3
5.0	APPROPRIATENESS OF A RESPONSE	3

004002

LIST OF ACRONYMS

BTEX	Benzene, Toluene, Ethel Benzene, & Xylene
BUSTR	Bureau of Underground Storage Tank Regulations
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
EP	Extraction Procedure
EPA	Environmental Protection Agency
FEMP	Fernald Environmental Management Project
MG/L	Milligrams per Liter
NCP	National Contingency Plan
OAC	Ohio Administrative Code
OU5	Operable Unit 5
pCi/g	Picocuries per gram
RCRA	Resource Conservation and Recovery Act
RSE	Removal Site Evaluation
SSOP	Standard Site Operating Procedure
UST	Underground Storage Tank

1.0 INTRODUCTION

Underground Storage Tank #5 (UST #5) is a 200 gallon steel unit believed to be approximately thirty years old. UST #5 is located just outside the Garage (Building #31) and was connected to an oil/water separator unit in the building's floor drainage system which fed into the FEMP storm sewer system.

In October of 1989 UST #5 excavation activities began. The tank's contents were pumped into 55 gallon drums. At this time the contents were sampled and the excavation was backfilled. Two days later the tank was unearthed again and soil samples were collected and the tank was again covered with soil. Between January and March of 1990, the tank was unearthed for inspection and before the excavation was backfilled, rain water filled the excavation with runon/runoff to a level above the top of the tank. Some of the rain water flowed into the tank. In March 1990, surface water that had flowed into the tank was pumped from the tank, and samples of this water, surface runoff standing in the tank excavation and surrounding soil were collected for analysis. Attachment 1 contains the analysis for all samples collected and two data summary tables. The purge and vent lines were disconnected and capped. The flow line from the separator pipes was not removed but disconnected and capped. The removed pipes were placed in the tank excavation and the excavation was backfilled with the stockpiled soil.

The analyses of the samples collected in October 1989, from the tanks contents revealed the presents of 1,1,1 - trichloroethane in low levels ranging from 6.3 mg/l to 6.9 mg/l. However, the soil samples taken two days later showed no RCRA hazardous waste constituents (see attachment I, table 1). The samples collected in March 1990 after a rainfall had resulted in an accumulation of liquid in the tank excavation showed trace levels of 1,1,1 - trichloroethane in the tank contents, runoff accumulation, and soil.

The UST #5 was evaluated under the Hazardous Waste Management Unit Review at the FEMP and found to be a Hazardous Waste Management Unit (HWMU). It has been reclassified as a Solid Waste Management Unit (SWMU) because it falls under the wastewater treatment systems exclusion in RCRA. Since the tank is not regulated as a petroleum UST under BUSTR, no closure report will need to be sent for approval by the State of Ohio Fire Marshal's office. However a closeout report will be provided to OEPA.

Planned activities for UST #5 are to excavate the tank, remove the unattached piping, remove and dismantle the tank, and the appropriate disposition of materials. These activities will follow all regulation and guidelines governing the clean-up of the FEMP.

2.0 SOURCE TERM

The samples from March 1990, of the soil and the water in the pit excavation show low levels of chemical contamination. The source of contamination has been removed by emptying UST #5. Radiological contamination is expected to be present at the tank site in low levels. Levels are expected to be low because the area is not currently restricted by the Radiological Safety Department. Personnel

from the Radiological Safety Department will monitor the project site during excavation activities to ensure that there is no significant threat to human health and safety. Any soil that is visibly contaminated or exceeds the radiological criteria in Removal Action #17 will be removed and handled in accordance with SSOP 0044 "Management of Soil, Debris, and Waste from a Project" and Removal Action #17 "Improved Storage of Soil and Debris." Removal Action #17 requires characterization/sampling to properly stage/store the removed soil. Remediation of the soil in the area of the tank will be in accordance with the ROD for OU5. Because of the extensive amount process knowledge and past analytical results, no further sampling is planned. Residual contamination will be remediated by OU5 through CERCLA remedial activities. Data from this UST removal will be provided to OU5. Although no explosive limits are expected to be exceeded, the tank will be tested for Lower Explosive Limit (LEL) and Upper Explosive Limit (UEL) before it is removed to insure no vapors are present. If either test fails the tank will be ventilated before removal.

3.0 EVALUATION OF THE MAGNITUDE OF THE POTENTIAL THREAT

To manage the hazards and to prevent the spread of radioactive and chemical contamination that may be present, the following controls, among others, will be implemented during excavation of UST #5.

- The excavated tank will be decontaminated and dismantled and managed per Removal Action #17. The tank will be cut to prevent future use and dispositioned in accordance with site procedures.

- It is anticipated no excess soil and only the debris from the tank and piping will be generated. If during demolition any soil and debris are generated by this project both will be managed in accordance with SSOP 0044 criteria and Removal Action #17 (i.e. levels greater than 100 pCi/g Uranium, 50 pCi/g Thorium, and 5 pCi/g Radium) will be stored for future disposal.

- Physical barriers will be positioned around the work site to prevent unauthorized access.

- Protective clothing and respiratory protection will be provided for workers, as required.

- Appropriate fire hazard precautions will be taken when opening and cutting the tank to protect against explosion.

- Plastic tarpaulins, bags and appropriate containers will be readily available to contain contaminated materials, as required.

- The excavation will be backfilled as soon as possible, with the excavated dirt plus any additional fill from on site as needed, to prevent contaminated water from collecting in the excavation pit.

4.0 ASSESSMENT OF THE NEED FOR REMOVAL ACTION

Consistent with Section 40 CFR 300.410 of the NCP, the Department of Energy shall determine the appropriateness of a removal action. Eight factors to be considered in this determination are listed in 40 CFR 300.415 (b)(2). The following factors apply specifically.

40 CFR 300.415 (b)(2)(i)
Actual or potential exposure to hazardous substances or pollutants or contaminants to nearby populations, animals, or food chain

40 CFR 300.415 (b)(2)(v)
Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

40 CFR 300.415 (b)(2)(vi)
Threat of Fire or Explosion.

Phase I of Removal Action #17 requires placement on and covering of contaminated soils with a heavy, nonpermeable tarpaulin. The tarpaulin will prevent the spread or release of contamination that could result is exposure to humans, animals or the food chain.

Weather conditions will not effect the migration of contaminants that may be present in the soil since the excavation will be backfilled as soon as possible.

The tank will be surveyed for explosive conditions before it is extracted and before it is dismantled. No explosive levels are anticipated.

Based on the information presented above, the threat of a release from this project is minimal. Therefore, while the above criteria apply to the removal of UST #5, the threat of a release is sufficiently controlled and a removal action is not required.

5.0 APPROPRIATENESS OF A RESPONSE

Based on the evaluation of all the above factors, it is determined that a removal action will not be necessary and this project should be completed as a best management practice in support of the CERCLA remediation process and waste management. Furthermore, the controls planned in conjunction with this activity and management procedures established in accordance with Removal Action #17, safe shutdown's project specific health and safety plan addendum, project specific procedures, and the safety assessment are adequate to mitigate any hazards created by contamination associated with UST #5 and to prevent deterioration of existing site conditions.

ATTACHMENT I

Table 1
TCLP ANALYSIS

Sample #	Source	Date Collected	TCLP Volatiles (mg/l)	TCLP Semi-Volatiles	TCLP Metals
7621	contents	11/13/89	1,1,1 - Trichloroethane 6.4	None	Trace levels of Ba, As, & Se
7622	contents	11/13/89	1,1,1 - Trichloroethane 6.9	None	Trace levels of Ba, As, & Se
7623	contents	11/13/89	1,1,1 - Trichloroethane 6.3	None	Trace levels of Ba, As, & Se
22331	Soil	3/12/90	1,1,1 - Trichloroethane 0.0211	None	Trace level of Total Cr
22332	Soil	3/12/90	1,1,1 - Trichloroethane 0.0303	None	Trace level of Total Cr
22333	Soil	3/12/90	1,1,1 - Trichloroethane 0.0286	None	Trace levels of Ba, As, Cd, Total Cr, Pb, Ag, & Se
22334	Contents	3/14/90	1,1,1 - Trichloroethane 1.76	None	Trace levels of Ba, As, Cd, Total Cr, Pb, Ag, & Se
22335	Contents	3/14/90	None	None	Trace levels of Ba, As, Cd, Total Cr, Pb, Ag, & Se
22336	Contents	3/14/90	Methylene Chloride 0.0468	None	Trace levels of Ba, As, Cd, Total Cr, Pb, Ag, & Se

22337	Contents	3/14/90	1,1,1 - Trichloroethane 1.43	None	Trace levels of Ba, As, Cd, Total Cr, Pb, Ag, & Se
22338	Water	3/14/90	Methanol 1.95	None	Trace levels of Ba, As, Cd, Total Cr, Pb, Ag, & Se
22339	Water	3/14/90	None	None	Trace levels of Ba, As, Cd, Total Cr, Pb, Ag, & Se
22340	Water	3/14/90	None	None	Trace levels of Ba, As, Cd, Total Cr, Pb, Ag, & Se

Table 2
BTEX ANALYSIS

Sample #	Matrix	TPH	Benzene	Toluene	Ethyl Benzene	Xylene (mg/kg)
22342 - 22348	Water	None	None	None	None	None
22352	Soil	240	None	None	None	32
22353	Soil	362	None	None	None	None
22354	Soil	362	None	None	None	None