

CLOSE OUT REPORT

**SWMU 8
WASTE OIL TANK
WHITE SANDS MISSILE RANGE
NEW MEXICO**

Prepared for

**UNITED STATES ARMY CORPS OF ENGINEERS
TULSA DISTRICT**

Prepared by



Dow Environmental

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**WHITE SAND MISSILE RANGE, NEW MEXICO
SWMU 8
CLOSE OUT REPORT**

EXECUTIVE SUMMARY

The Scope of Work encompassed the Solid Waste Management Unit (SWMU) 8 located at White Sands Missile Range (WSMR), New Mexico.

Dow Environmental Incorporated (DEI) was tasked to provide the necessary work plans to ensure complete cleanup of the site. Initial plans included a General Work Plan, a Chemical Data Acquisition Plan (CDAP), and a Site Specific Health and Safety Plan (SSHP). Additional reports included a Hazard Determination Report and Disposal Plan and a Data Validation Report.

An existing aboveground storage tank for waste oil was replaced with a new concrete-vaulted aboveground storage tank, complete with a drum pumping apparatus and a concrete spill containment pad. Excavated soils from beneath the existing tank were sampled and analyzed to identify hazardous and/or contaminated materials. The results of these analyses were reviewed, and the materials were characterized according to the constituents and concentrations detected. Upon characterization approval, a disposal plan was developed and executed to dispose of the material. The excavated area was backfilled, compacted and restored to original condition by paving to match the surrounding Motor Pool area.

The following narrative describes and illustrates the site background, previous investigation data, types of samples taken, the types of analyses performed, the results of these analyses, and the remedial activities that were performed for SWMU 8.

1.0 INTRODUCTION

1.1 General

This Close Out Report provides a narrative and illustrative account of the work performed as described in the Scope of Work for six (6) Solid Waste Management Units (SWMUs) at White Sands Missile Range (WSMR), New Mexico.

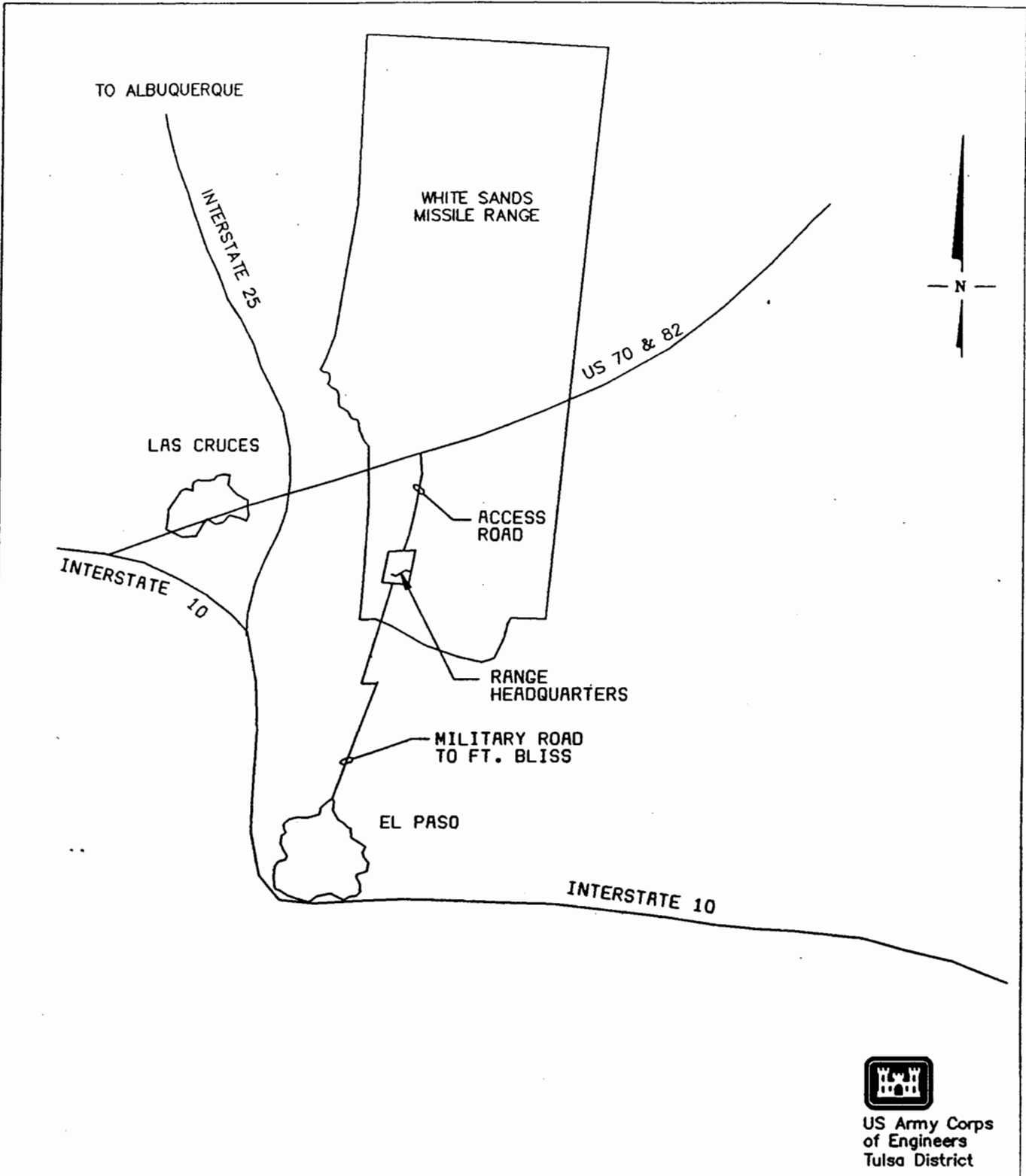
This Close Out Report is submitted by Dow Environmental Inc. (DEI) in partial fulfillment of the requirements of Contract No. DACA56-93-D-0016, Delivery Order No. 0010, for the U.S. Army Corps of Engineers (USACE), Tulsa District.

1.2 Site Locations

White Sands Missile Range (WSMR) is located in the Tularosa Basin of south central New Mexico, about thirty (30) miles east of Las Cruces, New Mexico (Figure 1-1). The range covers an area of approximately 3,200 square miles. The SWMU 8 Waste Oil Tank was at the main post maintenance area, approximately 300 feet east of Building 1794 on the main post area, as shown on Figure 1-2.

1.3 Site Description

WSMR is a government owned facility under the command of the U.S. Army Testing and Evaluation Command (TECOM). WSMR was established in July 1945 as the White Sands Proving Ground. The property is used to test rocket, missile, and laser weapon systems. As such, the facility provides support for programs of the Army, Air Force, Navy, National Aeronautics and Space Administration (NASA), and other government agencies.

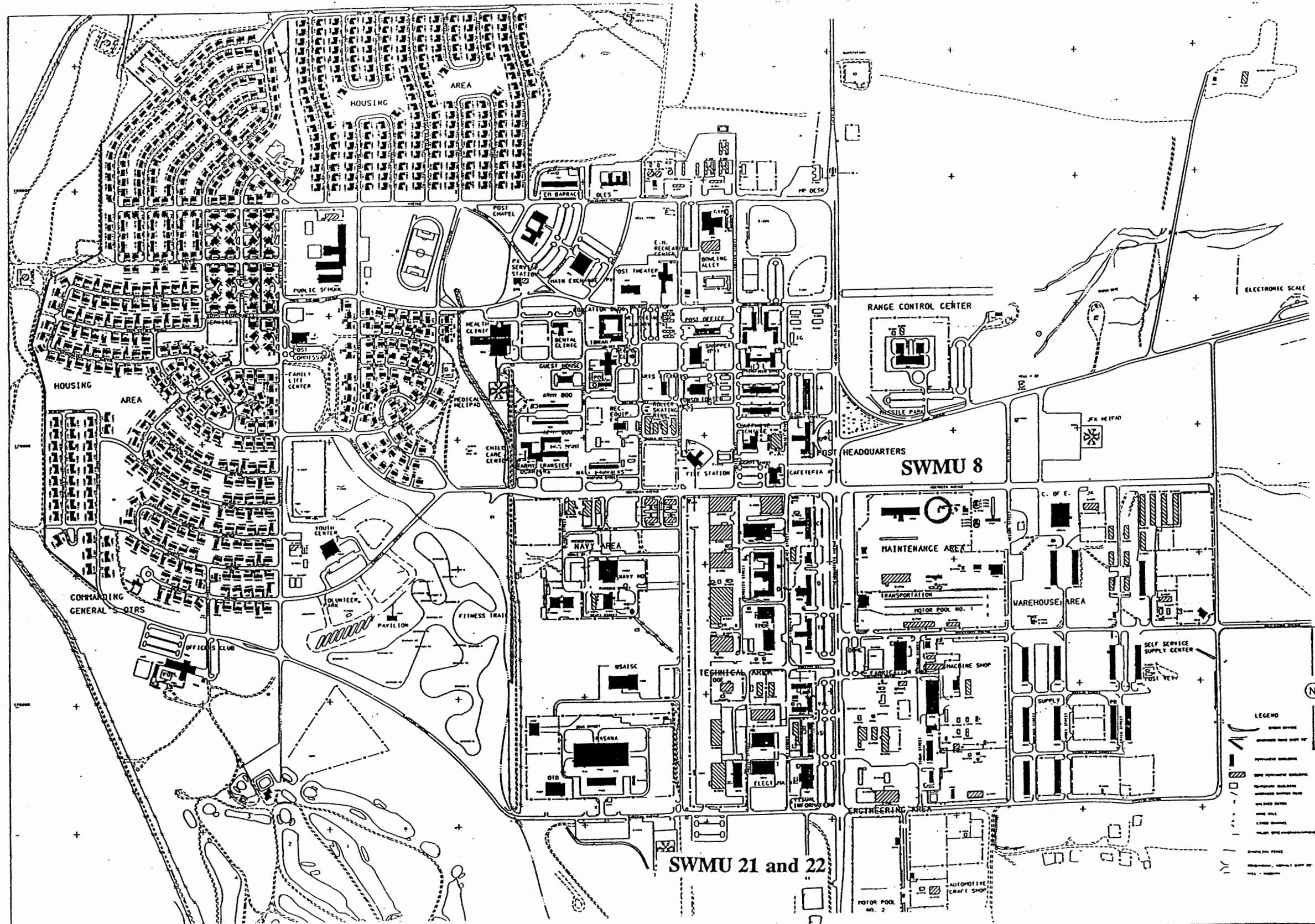


6015-WS-EDP-FIG1-1

GENERAL VICINITY MAP
WHITE SANDS MISSILE RANGE

U.S. ARMY CORPS OF ENGINEERS

PROJECT: WHITE SANDS MISSILE RANGE		PROJECT NUMBER: 6015	
SCALE: N.T.S.	DATE: SEPTEMBER 28, 1995	FIGURE NUMBER: 1-1	REV: 0



POST AREA, WSMR



SITE MAP		
SWMU's 8, 21, AND 22		
USACE TULSA DISTRICT		
PROJECT: WHITE SANDS MISSILE RANGE WSMR	PROJECT NO. 6015	REV 0
DATE: OCTOBER 5, 1995	FIGURE NUMBER 1-2	

6015-811-S008

2.0 SWMU 8 Waste Oil Tank

2.1 Previous Investigations

A discussion of previous investigations and site work is attached as Appendix C.

2.2 Waste Description

An underground waste oil tank was removed in 1990 from the Motor Pool maintenance area, about 300 feet east of Building 1794 on the Main Post (Figure 2-1). About 16 cubic yards of material was also removed from the tank pit. However, no soil samples were taken at the time to confirm that the site was clean enough for closure requirements. An aboveground waste oil tank was constructed over the former tank pit, complete with a concrete spill containment wall. Previous soil samples from borings in the immediate area were found to contain four (4) volatile organic compounds (VOCs), two (2) semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH) and metals (barium, lead and silver) in varying concentrations (Table 2-1). Sample results indicated the levels of the VOCs and SVOCs below the Subpart S action levels, and the metals below the 20X guideline for "D" coded characteristic regulatory levels using TCLP analysis. TPH levels in two samples were detected above the New Mexico Land Disposal Standard of 1000 mg/kg.

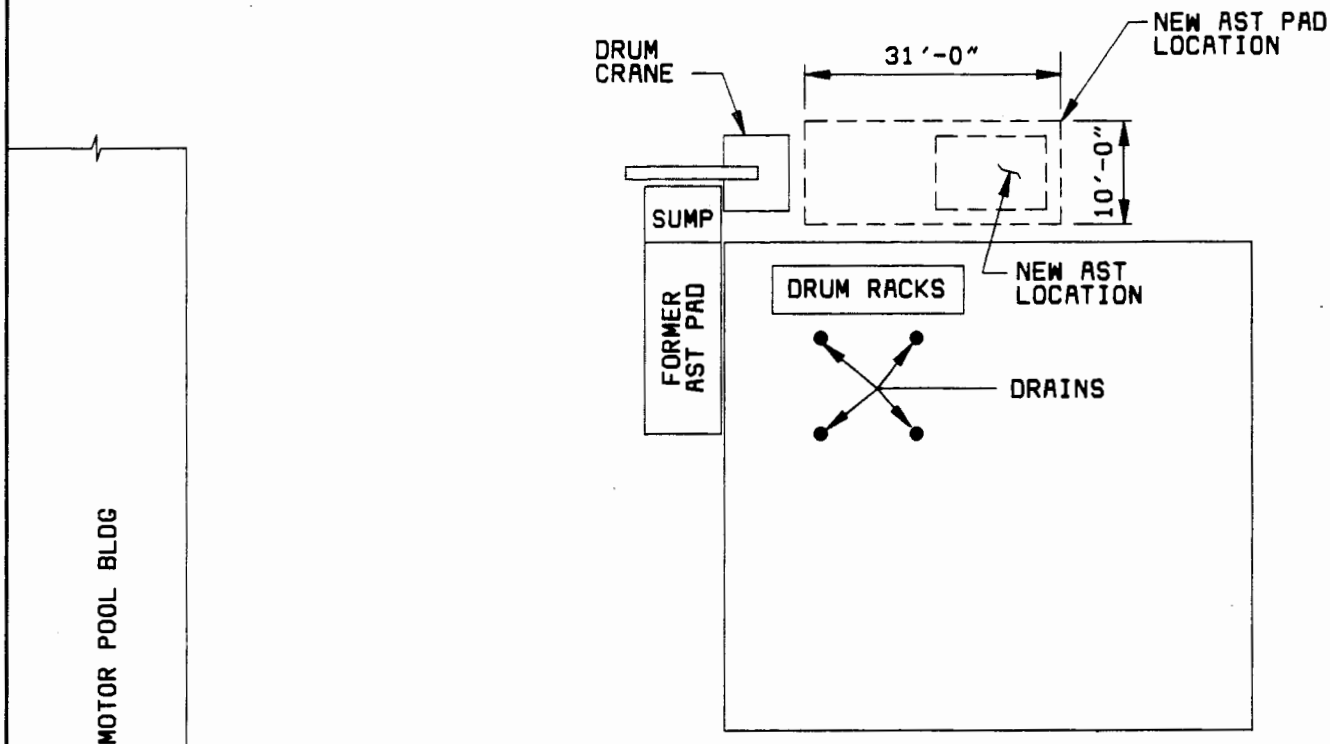
2.3 Waste Sampling Program

Since the waste oil underground storage tank had already been removed in 1990, the only thing lacking for the closure of the site from the State of New Mexico perspective was to collect soil samples from the bottom of the former tank pit, or the bottom of the hole that was excavated after removing the tank. However, the task of collecting soil samples was complicated by the fact that the hole no longer existed, and the location of the former tank was not clear.

DEI was originally informed by WSMR personnel that the former tank had been removed from the area just north of the drum racks and east of the drum hoist. A utility clearance was obtained from WSMR and on July 29, 1996 a trench was dug in this area in order to collect the closure



ABERDEEN AVENUE



LEGEND

✕ — ✕ FENCE



Dow Environmental

6015-B41-5001

SITE MAP
SWMU #8 WASTE OIL TANK AND SWMU #9 WASH PAD

USACE TULSA DISTRICT

PROJECT: WHITE SANDS MISSILE RANGE WSMR

PROJECT NO. 6015

DATE: AUGUST 20, 1986

FIGURE
NUMBER

2-1

REV
0

**Table 2-1
SWMU 8 Previous Investigation Data¹**

Sample ID	1,1,1-Trichloroethane (ug/kg)	Toluene (ug/kg)	Total Xylenes (ug/kg)	2-Butanone (ug/kg)	Di-n-butylphthalate (ug/kg)	Bis(2-ethylhexyl)phthalate (ug/kg)	TPH (mg/kg)	Ba (mg/kg)	Pb (mg/kg)	Ag (mg/kg)
0809HAC1(000.0)	9.04 J	5.42	112 J	<21.3	<351 UJ	1420 J	6410	64.9 J	22.4	26.6
0809HAC1(002.0)	<5.46 UJ	<5.46 UJ	24.0 J	<21.8 UJ	<361 UJ	415 J	1150	63.4 J	10.9	<27.3
0809HAC1(006.0)	<5.31	<5.31	<5.31	<21.2	<350 UJ	<350 UJ	59.4	43.5 J	7.31	<26.5
0809SB01(001.0)	<5.08 UJ	<5.08 UJ	<5.08 UJ	<20.3 UJ	<335	<335	<30.4	276	8.46	<25.4
0809SB01(004.0)	<5.03 UJ	<5.03 UJ	<5.03 UJ	<20.1 UJ	<332	<332	<30.2	<25.2	7.04	<25.2
0809SB01(009.0)	<5.09	<5.09	<5.09	<20.4	<336	<336	<30.5	<25.4	7.83	<25.4
0809SB02(001.0)	<5.05	<5.05	<5.05	<20.2	<333	<333	39.4	<25.2	6.54	<25.2
0809SB02(004.0)	<5.06	<5.06	<5.06	<20.2	<334	<334	<30.4	<25.3	7.98	<25.3
0809SB02(009.0)	<5.06 UJ	<5.06 UJ	<5.06 UJ	<20.3 UJ	<334	<334	<30.4	<25.3	6.56	<25.3
0809SB03(001.0)	<5.08	<5.08	<5.08	<20.3	<335	<335	<30.4	26.6	6.01	<25.4
0809SB03(004.0)	<5.06	<5.06	<5.06	<20.2	<334	<334	<30.3	<25.3	6.55	<25.3
0809SB03(009.0)	<5.10 UJ	<5.10 UJ	<5.10 UJ	23.8 J	<336	<336	<30.6	37.0	8.29	<25.5
0809SB04(001.0)	<5.06	<5.06	<5.06	<20.3	355	<334	48.6	39.3	9.35	<25.3
0809SB04(004.0)	<5.02	<5.02	<5.02	<20.1	<331	<331	<30.1	<25.1	10.0	<25.1
0809SB04(009.0)	<5.12	<5.12	<5.12	<20.5	<338	<338	<30.7	<25.6	10.2	<25.6
0809SB04(014.0)	<5.05	<5.05	<5.05	<20.2	<333	<333	<30.3	<25.2	5.99	<25.2
0809SB04(018.5)	<5.02	<5.02	<5.02	<20.1	<331	<331	<30.1	<25.1	5.07	<25.1

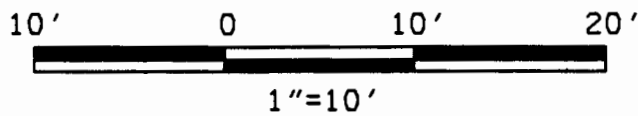
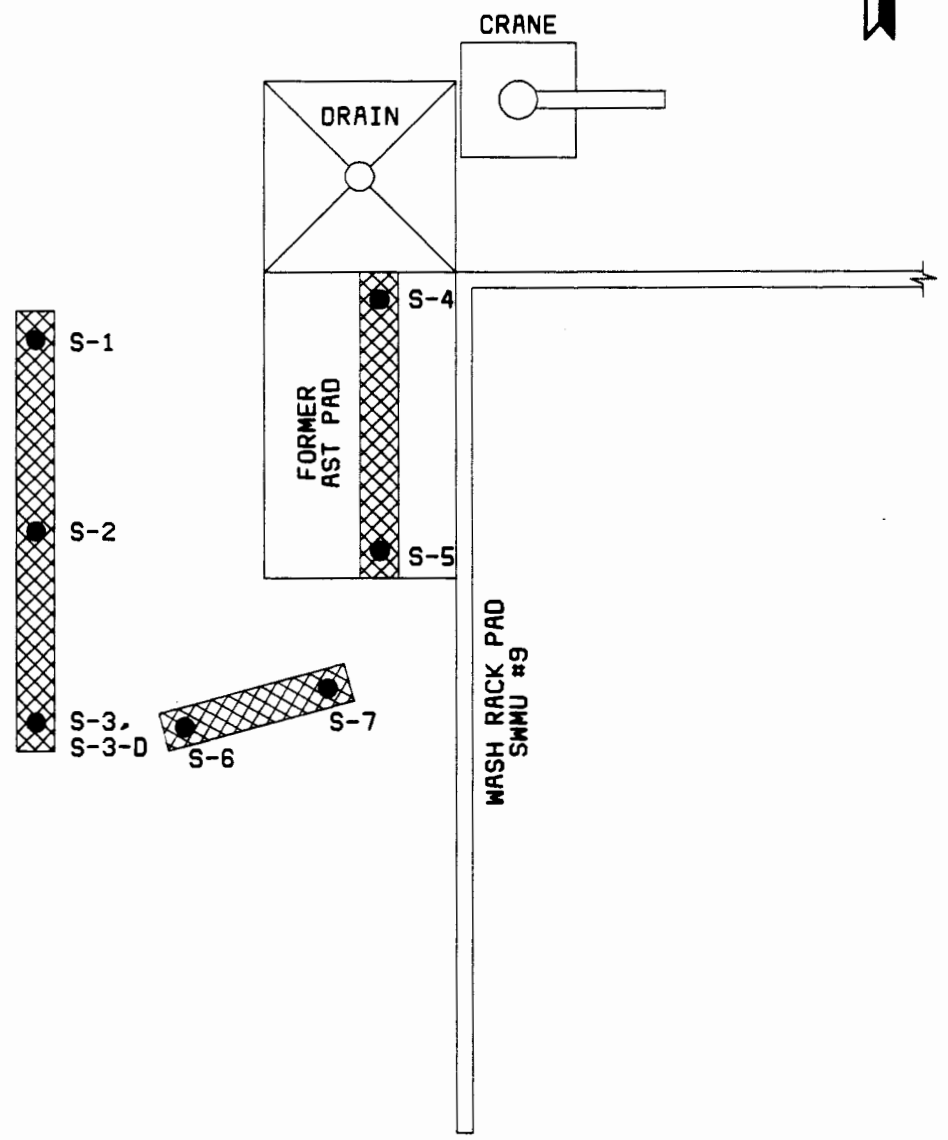
1) From "Phase II RFI", Sverdrup Environmental, 12/12/94, Provided by USACE, Tulsa District

samples. During the trenching a 2" water pipe was discovered and trenching was halted. At this time a WSMR Motor Pool maintenance area employee informed DEI that the former tank had been on the west side of the drum racks and south of the drum hoist. It was then decided that trenching in such close proximity to the existing aboveground storage would be structurally unstable and that the existing aboveground tank would need to be demolished and replaced.



A new 4,000 gallon capacity concrete-vaulted aboveground storage tank was procured and shipped to WSMR. A new concrete containment structure was constructed August 2-8, 1996 north of the drum racks and east of the drum hoist. The pump, piping and collection hopper that had been used with the existing aboveground tank was dismantled to be reused with the new tank. On August 5, 1996 the existing aboveground storage tank was pumped empty by the WSMR waste oil collection contractor. On August 6, 1996 the tank was inerted, cut and cleaned of the remaining residual sludges. The tank was cut into manageable pieces and deposited at the WSMR scrap metal yard on August 8, 1996. The existing concrete containment structure was demolished with a backhoe-mounted pneumatic chisel and deposited at the WSMR concrete recycling area during August 7-13, 1996.

On August 8 and 14, 1996, three trenches were excavated in the area of the former tank pit (Figure 2-2). No signs of obvious contamination were observed in any of the trenches. Grab samples were collected from the trench bottoms by use of a backhoe. The samples were collected from a depth of approximately eleven (11) feet, from soils that appeared to be native material, as opposed to backfill. The excavation of the three trenches yielded soils that filled two (2) rolloff containers. A composite sample collected from three locations within the rolloff was collected from each of the containers. However, soils from the rolloff containers to be analyzed for VOCs and SVOCs were collected discretely and were not subjected to the compositing procedure.

Rolloff container samples were obtained using a clean stainless steel hand auger. Sample team members used disposable latex gloves that were changed between samples to minimize the possibility of sample cross contamination. Stainless steel hand augers, mixing bowls, and spoons were decontaminated between samples using an Alconox scrub followed by a deionized water rinse and then allowed to air dry.



LEGEND

-  TRENCH
-  SOIL SAMPLE



TRENCHING AND SAMPLING MAP
SWMU #8 WASTE OIL TANK AND SWMU #9 WASH PAD

USAGE TULSA DISTRICT

PROJECT: WHITE SANDS MISSILE RANGE WSMR

PROJECT NO. 6015

DATE: AUGUST 20, 1996

FIGURE NUMBER

2-2

REV 0

6015 841 5002

2.3.1 Analytical Parameters

For SWMU 8, the trench samples (seven samples plus one duplicate) were analyzed for total RCRA metals using EPA Method 7060 for arsenic; EPA Method 6010 for barium, cadmium, chromium, lead, and silver; EPA Method 7740 for selenium; and EPA Method 7470 for mercury. TPH analysis utilized EPA Method 8015 (modified), gas and diesel range. PCB analysis was performed by EPA Method 8080. BTEX analysis was accomplished using EPA Method 8020.

The samples collected from the rolloff containers were analyzed for TPH by EPA Method 8015 (modified), gas and diesel ranges. pH, flashpoint and corrosivity were analyzed by EPA Methods 9041, 1020 and 1110, respectively. Full TCLP analysis was performed for VOCs by 1311/8240, SVOCs by 1311/8270, PCBs and pesticides by 1311/8080, herbicides by 1311/8150 and the eight RCRA metals by 1311/7060, 6010, 7740 and 7470.

Minor QC problems with the sample results of the TCLP VOC and SVOC results of the rolloff containers dictated a resampling for these parameters. The resampling was performed on December 18, 1996. Documents pertaining to the QC problems, resampling and approval of the resampling results are attached as Appendix F.

2.3.2 Sample Containers, Preservation Procedure, and Holding Times

Soil samples were placed into 8 ounce glass sample jars and preserved on wet ice in the sample cooler. Wet ice cooled the samples to approximately 4 degrees centigrade. Sample holding times were two weeks.

2.4 Waste Characterization

The results of the SWMU 8 sampling effort performed by DEI are presented in Table 2-2. All samples tested as non-hazardous.

**TABLE 2-2
SAMPLING DATA SUMMARY & WASTE CHARACTERIZATION: SWMU 8**

Sample No.	TCLP VOCs (1311/8240)	TCLP SVOCs (1311/8270)	TCLP Pesticides (1311/8080)	TCLP Herbicides (1311/8150)	TCLP RCRA Metals (1311/various)	PCBs (8080)	BTEX (8020)	Total RCRA Metals (various)	TPH (8015M)	Corrosivity (1110)	Flashpoint (1020)	pH (9041)	Regulatory Limits	Remedial Options
SWMU 8 Roll-off Containers														
Detection Limit Ranges	<0.025 mg/L	<0.020 mg/L	<0.00010-0.0010 mg/L	<0.0010 mg/L					<15-25 mg/Kg					
SWMU8-8896-RO1	ND	ND	ND	ND	Ba (0.30 mg/L)				ND	0.046 mm/yr	>200°F	7.5 @ 25°C	Ba (100 mg/L) ¹	WSMR Landfill
SWMU8-81496-RO2	ND	ND	ND	ND	Ba (0.38 mg/L)				ND	0.044 mm/yr	>200°F	9.4 @ 25°C	Ba (100 mg/L) ¹	WSMR Landfill
SWMU8-121896-RO1A	ND	ND												WSMR Landfill
SWMU8-121896-RO2A	ND	ND												WSMR Landfill
SWMU 8 Trench Excavations														
Detection Limit Ranges						<0.050 mg/Kg	<0.50-1.5 mg/Kg		<15-25 mg/Kg					
SWMU8-8896-S-1						ND	ND	Ba (41 mg/Kg) Cr (4.9 mg/Kg) Pb (3.9 mg/Kg)	ND				Ba (4000 mg/Kg) ² Cr (NA) ² Pb (NA) ²	Backfill
SWMU8-8896-S-2						ND	ND	Ba (51 mg/Kg) Cr (5.7 mg/Kg) Pb (5.4 mg/Kg)	ND				Ba (4000 mg/Kg) ² Cr (NA) ² Pb (NA) ²	Backfill
SWMU8-8896-S-3						ND	ND	Ba (49 mg/Kg) Cr (5.4 mg/Kg) Pb (5.2 mg/Kg)	ND				Ba (4000 mg/Kg) ² Cr (NA) ² Pb (NA) ²	Backfill
SWMU8-8896-S-3-D						ND	ND	Ba (44 mg/Kg) Cr (5.3 mg/Kg) Pb (5.0 mg/Kg)	ND				Ba (4000 mg/Kg) ² Cr (NA) ² Pb (NA) ²	Backfill
SWMU8-81496-S-4						ND	ND	Ba (54 mg/Kg) Cr (3.4 mg/Kg) Pb (48 mg/Kg)	ND				Ba (4000 mg/Kg) ² Cr (NA) ² Pb (NA) ²	Backfill
SWMU8-81496-S-5						ND	ND	Ba (70 mg/Kg) Cr (6.6 mg/Kg) Pb (6.8 mg/Kg)	ND				Ba (4000 mg/Kg) ² Cr (NA) ² Pb (NA) ²	Backfill
SWMU8-81496-S-6						ND	ND	Ba (25 mg/Kg) Cr (3.5 mg/Kg) Pb (4.4 mg/Kg)	ND				Ba (4000 mg/Kg) ² Cr (NA) ² Pb (NA) ²	Backfill
SWMU8-81496-S-7						ND	ND	Ba (28 mg/Kg) Cr (4.0 mg/Kg) Pb (5.0 mg/Kg)	ND				Ba (4000 mg/Kg) ² Cr (NA) ² Pb (NA) ²	Backfill

NA Not Available.
(1) Federal Land Disposal Treatment Standard from 40CFR, Part 268, Table CCWE.
(2) Proposed 40CFR, Part 264, Subpart S Action Levels, Appendix A, July 27, 1990.