

Sandia National Laboratories

**PROPOSAL FOR ADMINISTRATIVE
NO FURTHER ACTION
ENVIRONMENTAL RESTORATION
SITE 32, STEAM PLANT OIL SPILL (TA-I)
OPERABLE UNIT 1302**

August 1994

Environmental
Restoration
Project



United States Department of Energy
Albuquerque Operations Office

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**SITE 32, Steam Plant Oil Spill
OU 1302**

SANDIA NATIONAL LABORATORIES/NEW MEXICO

1.0 INTRODUCTION

Sandia National Laboratories/New Mexico (SNL/NM) is proposing an administrative No Further Action (NFA) decision for Environmental Restoration (ER) Site 32, Steam Plant Oil Spill, Operable Unit (OU) 1302.

The five Underground Storage Tanks (USTs) associated with this site were removed and the excavation was backfilled with clean material. In February 1992, soil samples were collected and analyzed for total petroleum hydrocarbons (TPH) and the results indicated concentrations well below the 100 ppm limit of NMED UST Regulations (NMED 1990). Also, the depth to groundwater is greater than 400 feet, greatly reducing the potential for any contaminant migration to groundwater. Because there is no potential for a release that poses a threat to human health or the environment, this site is being proposed for an NFA determination.

2.0 HISTORY OF UNIT

ER Site 32 is located on the north side of the Steam Plant (Building 605) near the intersection of Wyoming Boulevard and "J" Street in the western portion of Technical Area (TA)-I (Attachment 1; Figure 5.4-1). This site is also listed as an ER Site under the Underground Storage Tanks (USTs) Operable Unit (OU), ADS 1300 as ER Site 176, "Building 605 UST (TA-I)." The actual former USTs (Table 1) were under the jurisdiction of ADS 1300, whereas the contaminated soils that surrounded the former USTs are part of the ADS 1302 investigation. The types of hydrocarbon contained in the tanks also are listed in Table 1. Number two fuel oil is referred to in previous reports as No. 2 diesel oil and No. 2 heating oil, but the preferred term, fuel oil, will be used in this document.

Table 1

Tank Number	Capacity in Gallons	Tank Dimensions in Feet	Type of Product
605-7	1,000	11 x 5	Diesel Fuel
605-8	12,000	23 x 9.5	No. 2 Fuel Oil
605-9	12,000	23 x 9.5	No. 2 Fuel Oil
605-10	12,000	23 x 9.5	No. 2 Fuel Oil
605-11	12,000	23 x 9.5	No. 2 Fuel Oil

Note: All USTs were installed in 1958, and were operationally closed December 22, 1990. (IT 1992).

ER Site 32 was the location of two known releases of hydrocarbons to the environment. The first release occurred sometime in 1981; the exact date is unknown. Based on this release, the site was designated as a SNL/NM ER Site during the Comprehensive Environmental Assessment and Response Program (CEARP) Phase 1 investigation (DOE 1987). According to the CEARP Document (DOE 1987):

- "A 500-hundred gallon spill of No. 2 diesel oil occurred at the steam plant (Site 32). The oil and wash water were retained and recovered (ES 1981). No residues should remain.
- CERCLA Finding -- Remedial action completed; the action will be verified under CEARP Phase V; therefore, a CERCLA finding for Federal Facility Site Discovery and Identification Findings, Preliminary Assessment, and Preliminary Site Inspection is not appropriate, and no Hazard Ranking System migration mode score was calculated.
- Planned Future Action -- Reconnaissance data will be collected as part of CEARP Phase V to verify and document the adequacy of the remedial action. Further action will be taken as appropriate."

The 1987 RCRA Facilities Assessment report (Kearney 1987) goes on to state:

- "Five hundred gallons of No. 2. [sic] diesel was spilled from storage tanks on the north side of the Steam Plant (Building 605) (Plate 6). The spill was retained and recovered. The exact date of the spill is unknown. Soil containing diesel fuel was reportedly removed from the site."

It is not known exactly where the spill occurred or which UST was responsible for the spill. Neither document stated what became of the recovered fuel oil, fuel-oil-contaminated soils, and wash water that was retained.

A second release was discovered on June 25, 1991 and is related to the release that occurred in ER Site 190 (Gaither 1991). It was discovered that on the north side of the Steam Plant, UST 605-8 was overflowing with diesel fuel oil. The UST had been used to provide fuel oil for the plant in the past, but was not in service at the time of the incident. It was determined that a SNL/NM employee had inadvertently left a valve open during a sampling event at the Steam Plant Tank Farm (ER Site 190) south of the Steam Plant. For approximately three weeks, this opened valve allowed fuel oil to flow by gravity-fed lines to UST 605-8. After the discovery, a tanker truck was immediately brought in and the contents of UST 605-8 (approximately 5,000 gallons) were emptied and transported to the Steam Plant Tank Farm (Gaither 1991). No description is given on the extent of the release, if there was any soil contamination, or what was done with any contaminated soils.

3.0 EVALUATION OF RELEVANT EVIDENCE

From October 29 to November 5, 1991, USTs 605-7, -8, -9, -10, and -11 were removed (Attachment 2; Figure 5.4-2). The USTs were visually inspected and none of the tanks showed evidence of perforations or leakages. However, the excavation zone had significant contamination from spill/overflow and/or leaking connections on the manifold piping (Williamson 1992; IT 1991). Hydrocarbon staining was observed at various depths in the soils surrounding the tanks from near the surface to beneath the tanks (approximately 16 feet). The heaviest soil staining was observed between the tanks near the fill pipe connections.

Stained soils were reported to have extended beyond the excavation boundaries to the east and south (IT 1991).

During removal, soil from below the USTs was sampled and analyzed. Contaminated soils were excavated to a depth of 16 to 18 feet and removed from the site. The concrete saddles under the four large USTs were abandoned in place (IT 1991). Soil samples were grabbed from the backhoe bucket from the locations and depths shown in Attachment 3; Figure 5.4-3. Analytical results from this sampling investigation revealed TPH concentrations above the 100 ppm limit of Section 1209 D of the NMED UST Regulations (NMED 1990) at three of the four sample locations (Attachment 3; Figure 5.4-3). The TPH concentrations were 52.5 ppm at location 5715-1; 4,100 ppm at 5715-2; 23,400 ppm at 5715-3; and 6,380 ppm at 5715-4 (Attachment 4; Table 1). During the tank removal, site constraints (such as nearby buildings, and trench sloping requirements) prohibited sampling of the excavation zone to the vertical and horizontal extent required by the NMED guidelines (NMED 1990) for a tank farm of this size (Williamson 1992).

Based on the results of the sampling in 1991, an additional investigation was performed from February 5 through 13, 1992 (IT 1992). This investigation was performed in accordance with the New Mexico Underground Storage Tank Regulations, as amended July 26, 1990, Part XII, Sections 1205, and 1206 (NMED 1990). The investigation consisted of drilling and sampling five soil borings to depths of 85 to 107 feet. This investigation was completed to assess the general soil conditions beneath the former USTs and to determine the lateral and vertical extent of contamination.

Soil samples were collected in each of the five soil borings (Attachment 3; Figure 5.4-3) at intervals of approximately 10 feet, beginning at approximately 18 feet, through the total depth of each soil boring (total depths shown on Figure 5.4-3). Soil samples were analyzed in the field with the HNU-Hanby Direct Extraction Method (Hanby Method) to help determine the extent of contaminated soils. In addition, two samples were collected for offsite analysis from the bottom of each boring (Attachment 4; Table 3). In summary, only one borehole (605-C) had fuel oil contamination detectable by the Hanby Method, with concentrations exceeding 800 ppm as deep as 80 feet. Hanby Method analysis for samples collected at 90, 95, and 107 feet at this borehole were non-detects. This was confirmed with TPH analysis for the 95 and 107 foot samples. In the four other soil borings, Hanby Method and TPH analytical results were non-detect for all samples, at all depths (IT 1992; Williamson 1992).

After the analytical results of the February, 1992 sampling were available, the site was approved for closure by the regulatory authority that has approval authority (NMED 1992), and the excavated pit was backfilled with clean material. The closure recommendation of the NMED was based on the determination that, the "...site does not pose an immediate public health or environmental threat..." (NMED 1992).

4.0 CONCLUSION

The USTs and contaminated soils have been removed and site closure approved by the NMED. The site no longer has the potential for releasing hazardous waste (including hazardous constituents) which may pose a threat to human health or the environment. Therefore, an NFA determination is requested for this site.

5.0 REFERENCES

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Gaither, K. 1991b. Memorandum to Paul Davis (7723). "New ER Site #190, Tank Farm for Steam Plant," August 27, 1991.

Hovda, B. (NMED), 1992. Letter to K. Carlson, "Closure Notification of Underground Storage Tank Bureau Remediation Case for Sandia National Laboratory, Technical Area I, Steam Plant Release Site, Underground Storage Tanks 605-7 through -11," May 13, 1992.

International Technology Corporation (IT), 1991. Building 605 Steam Plant UST Removal Closure Report. Sandia National Laboratories, Technical Area I. November, 1991.

International Technology (IT), 1992. On-Site Investigation at Former Underground Storage Tank Nos. 605-7, -8, -9, -10, -11. Sandia National Laboratories, Technical Area I. March, 1992.

Kearney (A.T. Kearney, Inc.) 1987. "Final RCRA Facilities Assessment Report of Solid Waste Management Units at Sandia National Laboratories, Albuquerque, New Mexico." April 1987.

Miller, David, 1994. Memorandum to W. Cox. "Building 605 Steam Plant Storage Tanks and Fuel Line Project," January 28, 1994.

State of New Mexico, Environment Department (NMED), 1990. New Mexico Underground Storage Tank Regulations (NMUSTR) as amended, July 26, 1990, Part XII, Sections 1205 and 1206.

U.S. Department of Energy, (DOE 1987). "Draft Comprehensive Environmental Assessment and Response Program (CEARP), Phase I: Installation Assessment," September 1987.

Williamson, L. 1992. Memorandum to D, Garcia. "ER Site Tracking Updates for leaking Underground Storage Tanks Assessments (ADS 1300)," August 18, 1992.

6.0 LIST OF ATTACHMENTS

Attachment 1

Figure 5.4-1 - Location of ER Site 32, Steam Plant Oil Spill

Attachment 2

Figure 5.4-2 - Location of Former USTs

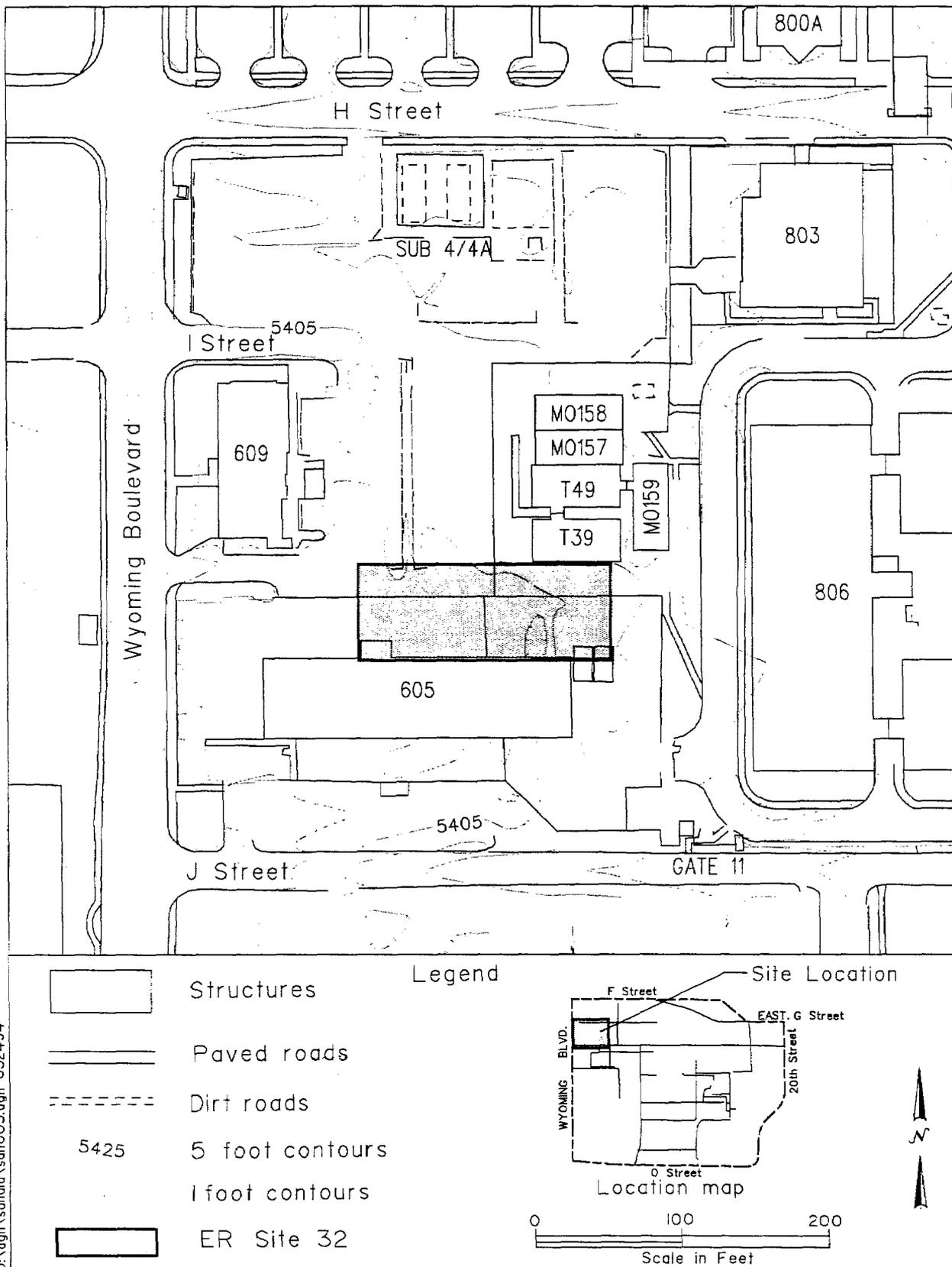
Attachment 3

Figure 5.4-3 - Location of Grab samples and Soil Borings from Previous Investigations

Attachment 4

Tables 1 and 3 from IT 1992

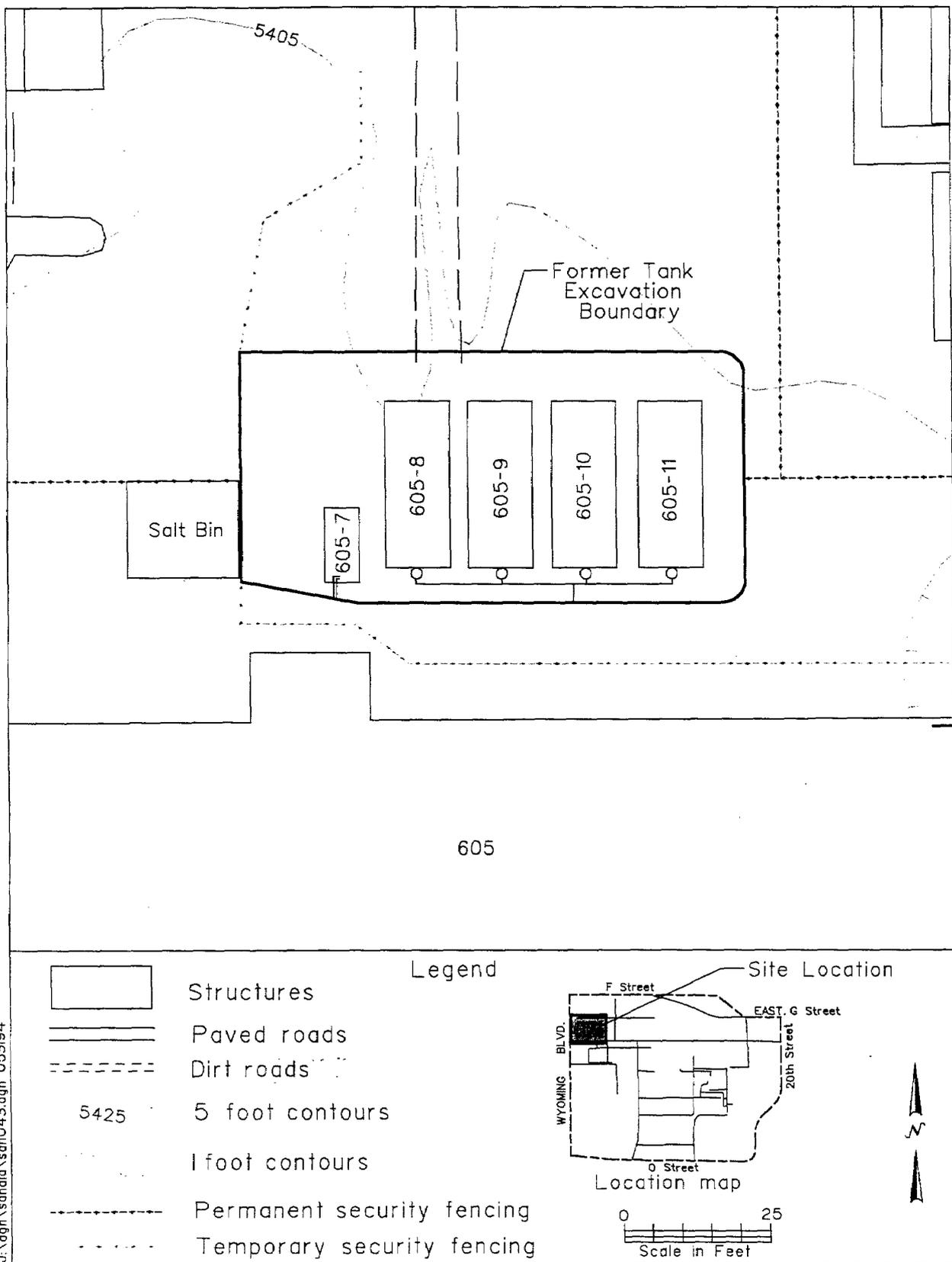
Attachment 1



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Figure 5.4-1
Location of ER Site 32: Steam Plant Oil Spill.

Attachment 2

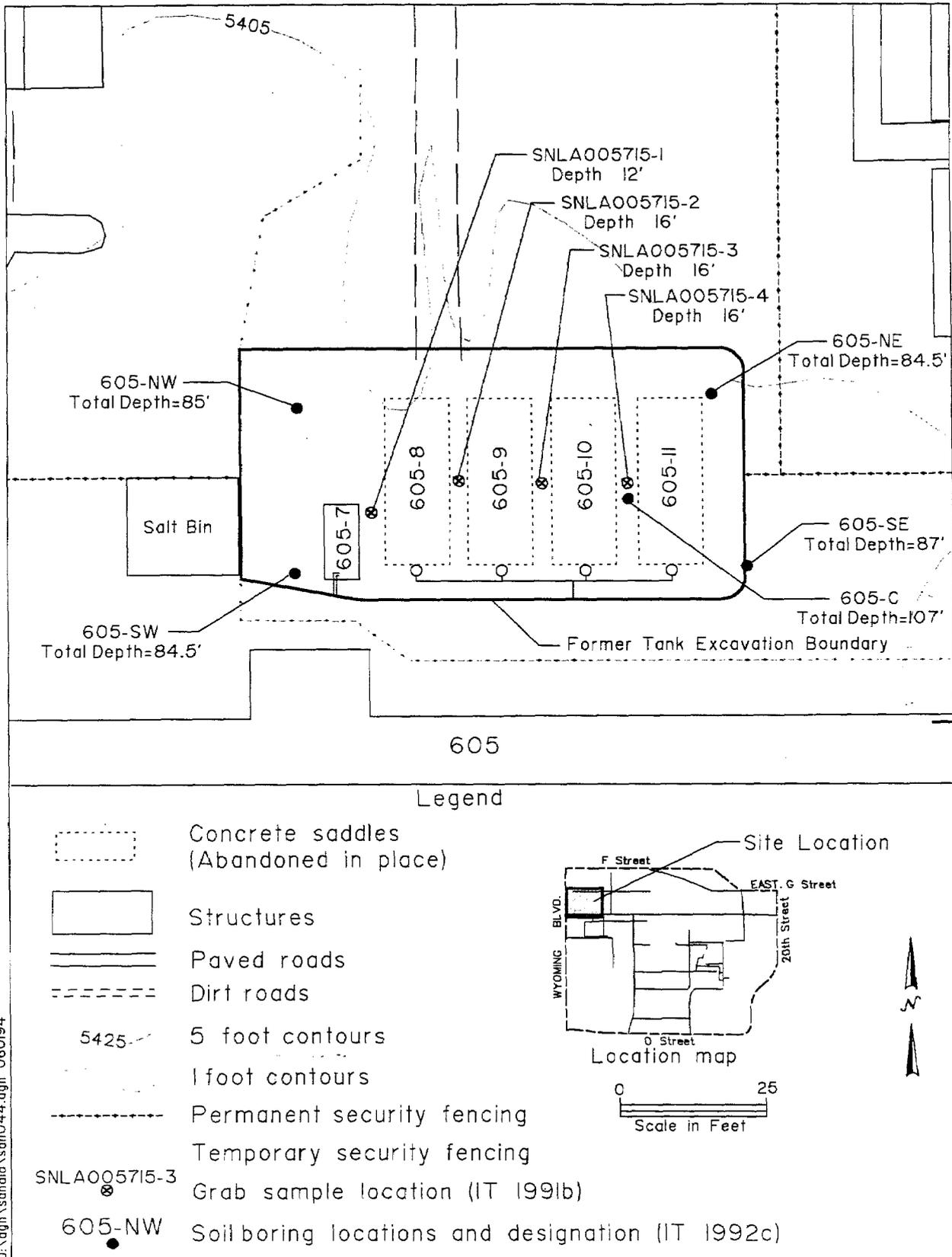


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Figure 5.4-2

ER Site 32: Location of Former UST's 605-7, -8, -9, -10, -11, and Excavation Boundary from November 1991 UST Removal (IT 1991b).

Attachment 3



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Figure 5.4-3

ER Site 32: Location of Grab samples and soilborings from Previous Investigations (IT 1991b; IT 1992c), r 1991 UST

Attachment 4

Table 1
Summary of Soil Sample Analyses Collected During the
Building 605 Steam Plant UST Closure, Technical Area 1
Sandia National Laboratories, Albuquerque, New Mexico

SNLA Sample No.	TPH Results (mg/kg) ^a	Approximate Sample Depth (ft)
5715-1	52.5	12.0
5715-2	4,100	16.0
5715-3	23,400	16.0
5715-4	6,380	16.0

^aMilligrams per kilogram

Table 3
Summary of Soil Sample Analytical Results
Building 605 Steam Plant UST On-Site Investigation
Technical Area I
Sandia National Laboratories, Albuquerque, New Mexico

Location/ Boring Number	Sample Depth (ft)	Boring Log Sample Number	SNLA Sample Number	Hanby Method (ppm) ^a	TPH Results (mg/kg) ^b
605-C	19.3	3M-1	NA ^c	180-200	NA
605-C	29.4	3M-2	NA	>800	NA
605-C	39.7	3M-3	NA	100	NA
605-C	50.0	3M-4	NA	25-50	NA
605-C	59.2	3M-5	NA	>800	NA
605-C	69.8	3M-6	NA	200-400	NA
605-C	79.8	3M-7	NA	>800	NA
605-C	90.0	3M-8	NA	BLANK	NA
605-C	95.0	3M-9	6415-1	BLANK	ND[20] ^d
605-C	107.0	3M-10	6415-2	BLANK	ND[20]
605-C ^e	107.0	3M-11	6415-3	BLANK	ND[20]
605-SE	20.0	3M-1	NA	BLANK	NA
605-SE	30.0	3M-2	NA	BLANK	NA
605-SE	39.4	3M-3	NA	BLANK	NA
605-SE	49.9	3M-4	NA	BLANK	NA
605-SE	59.8	3M-5	NA	BLANK	NA
605-SE	69.8	3M-6	NA	BLANK	NA
605-SE	80.0	3M-7	8326-1	BLANK	ND[20]
605-SE	85.0	3M-8	8326-2	BLANK	ND[20]
605-NE	19.5	3M-1	NA	BLANK	NA
605-NE	29.5	3M-2	NA	BLANK	NA
605-NE	40.0	3M-3	NA	BLANK	NA
605-NE	50.0	3M-4	NA	BLANK	NA
605-NE	59.5	3M-5	NA	BLANK	NA
605-NE	69.5	3M-6	NA	BLANK	NA
605-NE	80.0	3M-7	6416-1	BLANK	ND[20]
605-NE ^e	80.0	3M-8	6416-2	BLANK	ND[20]
605-NE	84.5	3M-9	6416-3	BLANK	ND[20]

Refer to footnotes at end of table.

Table 3 (Continued)
Summary of Soil Sample Analytical Results
Building 605 Steam Plant UST On-Site Investigation
Technical Area I
Sandia National Laboratories, Albuquerque, New Mexico

Location/ Boring Number	Sample Depth (ft)	Boring Log Sample Number	SNLA Sample Number	Hanby Method (ppm) ^a	TPH Results (mg/kg) ^b
605-NW	19.5	3M-1	NA	BLANK	NA
605-NW	29.75	3M-2	NA	BLANK	NA
605-NW	40.0	3M-3	NA	BLANK	NA
605-NW	50.0	3M-4	NA	BLANK	NA
605-NW	59.5	3M-5	NA	BLANK	NA
605-NW	70.0	3M-6	NA	BLANK	NA
605-NW	80.0	3M-7	6417-1	BLANK	ND[20]
605-NW ^e	80.0	3M-8	6417-2	BLANK	ND[20]
605-NW	85.0	3M-9	6417-3	BLANK	ND[20]
605-SW	19.5	3M-1	NA	BLANK	NA
605-SW	29.5	3M-2	NA	BLANK	NA
605-SW	40.0	3M-3	NA	BLANK	NA
605-SW	50.0	3M-4	NA	BLANK	NA
605-SW	59.5	3M-5	NA	BLANK	NA
605-SW	69.5	3M-6	NA	BLANK	NA
605-SW	80.0	3M-7	6418-1	BLANK	ND[20]
605-SW ^e	80.0	3M-8	6418-2	BLANK	ND[20]
605-SW	84.5	3M-9	6418-3	BLANK	ND[20]

^aParts per million = milligrams per kilogram

^bMilligrams per kilogram = parts per million

^cNot analyzed

^dMethod detection limit in brackets

^eField quality assurance duplicate sample