# PROPOSAL FOR
# CONFIRMATORY SAMPLING NO FURTHER ACTION
# ENVIRONMENTAL RESTORATION SITE, 33
# OPERABLE UNIT 1302

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# PROPOSAL FOR CONFIRMATORY SAMPLING NO FURTHER ACTION ENVIRONMENTAL RESTORATION SITE 33, THE MOTOR POOL

## OPERABLE UNIT 1302

## 1.0 INTRODUCTION

Sandia National Laboratories/New Mexico (SNL/NM) is proposing a No Further Action (NFA) decision for Environmental Restoration (ER) Site 33 based on confirmatory sampling (NFA Criterion 5; NMED et al., 1995).

### 1.1 ER Site Identification Number and Name

ER Site 33 (herein referred to as the site) is the Motor Pool, and is included in Operable Unit 1302. The Motor Pool was listed as Site 33 based on information obtained during the Comprehensive Environmental Assessment and Response Program (CEARP) Phase I interviews. (DOE, 1987). The original ER site name was the Motor Pool Oil Spill. The ER site name was changed to the Motor Pool during the development of the TA-I RFI Work Plans (SNL/NM, 1995).

### 1.2 SNL/NM NFA Process

The basis for the proposing an NFA with confirmatory sampling is thoroughly described in Section 4.5.3 of the Draft *Program Implementation Plan (PIP) for Albuquerque Potential Release Sites* (SNL/NM 1994), and in Annex B of the *Environmental Restoration Document of Understanding* (NMED et al., 1995). ER Site 33 is being proposed for a confirmatory sampling NFA decision based on NFA Criterion 5: The potential release site (PRS) has been characterized in accordance with current applicable state or federal regulations, and the available data indicate that contaminants pose an acceptable level of risk under current and projected future land use.

### 1.3 Local Setting

The Motor Pool is located on the NE corner of H and 12th Streets just outside the TA-I secured area (Figure 1; Appendix A). The Motor Pool occupies 2.3 acres and consists of six buildings; Buildings 873, 874, 875, 876, 8874, and a car wash. The Motor Pool opened in 1946 as the home of the Transportation and Safeguards organization, which has had responsibility for servicing DOE/AL and SNL/NM vehicles since that time.

## 2.0 HISTORY OF THE SWMU

This section provides a summary of the historical information that has been obtained at the Motor Pool.

### 2.1 Sources of Supporting Information

Detailed information regarding the site is provided in the following documents.

- *Comprehensive Environmental Assessment and Response Program (CEARP), Phase I: Installation Assessment, Sandia National Laboratories, Albuquerque, New Mexico* [DRAFT] (DOE, 1987).

- *Final RCRA Facilities Assessment Report of Solid Waste Management Units at Sandia National Laboratories, Albuquerque, New Mexico* (EPA, 1987).

- *Program Implementation Plan for Albuquerque Potential Release Sites* [Draft] (SNL/NM, 1994a).

- *Technical Area I (ADS 1302) RCRA Facility Investigation Work Plan* (SNL/NM, 1995).

## 2.2 Previous Audits, Inspections, and Findings

The site was first listed as a potential SWMU by the *Comprehensive Environmental Assessment and Response Program (CEARP), Phase I: Installation Assessment, Sandia National Laboratories, Albuquerque, New Mexico* [DRAFT] (DOE, 1987). A gasoline spill (not oil as the old ER site name suggests) occurred in 1983 at the present fuel dispensing island and moved to the southeast side of the Motor Pool (SNL/NM, 1995). The spill was contained by an asphalt berm, covered with soil and/or sand, and removed to the Chemical Waste Landfill. The report deemed the remedial action completed.

## 2.3 Historical Operations

The Motor Pool was opened in 1946. The Motor Pool has expanded from one building (the original Building 874) to the current six (Appendix A, Figure 2). The site has always included a fuel dispensing area, which has occupied three different locations. A wash/steam clean area has also been constructed within the site. This section provides a description and history of each Motor Pool building and area.

### 2.3.1 Building 873

Building 873 was constructed in the southwest corner of the Motor Pool area in the late 1940s and has served as the dispatch office since that time. The building was renovated in the 1960s. There have been no known sources of a potential release in, and no reported releases of hazardous materials from, this building.

### 2.3.2 Building 874

Building 874 was the original building in the Motor Pool. It was constructed near the middle of the southern fence in 1946 as the original service station. The building initially included service bays, and a fuel dispensing area was located on its north side. Design drawings were prepared for building renovations undertaken in the 1960s to provide a dispatch area. No building design drawings were located that indicated whether there were any floor drains or other pathways for contaminant migration from the original building. Renovations were performed in the 1980s at Building 874 to provide office and

computer space. The drawings do not indicate any potential sources for contaminant releases to the environment. Individuals interviewed regarding past activities at Building 874 did not have any information to indicate there was ever a contaminant release from the building. The building currently provides office space for personnel involved in Motor Pool quality assurance. During a 1993 visit to the building, no floor drains or potential sources of a contaminant release to surrounding soil were observed. The fuel dispensing area was investigated as part of the ER Site 33 RFI.

### 2.3.3 Building 875

Building 875 was constructed in the late 1940s or early 1950s as the automobile machine shop. In 1959, a front-end machine room and pit, a brake machine room and pit, a parts room, and an office were added. By 1965 an automotive shop, a body shop and a truck shop were located in the building. Minor modifications in 1985 brought it to its current configuration. Interviews of past and present Motor Pool employees indicated there have been no releases of hazardous materials from this building.

According to personnel interviewed, no hazardous materials were used and no hazardous waste was generated in the front-end and brake machining areas. The machine shop was originally used to machine parts for the vehicles. Equipment included a boring press, a boring bar, and a honing machine. In the early 1980s, the honing machine was reportedly found to contain PCBs and was removed. Regarding disposition of the machine oil, two employees stated that the oil was never changed. Both said the oil was managed by ES&H personnel when the machine was removed.

### 2.3.4 Building 876

Building 876 was constructed in the late 1940s for its current use, vehicle maintenance and repairs. Building drawings indicate that the building originally contained a vehicle wash room, boiler room, tire room, and a grease room. The grease room ran the length of the building with a grease pit in the center. Vehicles were reportedly parked over the grease pit when serviced. The room was designed with an oil collection system. Oil entering the grease pit was diverted through oil interceptor lines to an underground drain oil tank on the north side of the building. The waste oil discharged to the abandoned grease pit and interceptor lines in Building 876 flowed by gravity to the drain oil tank. Other materials may also have been collected in the grease pit during automobile maintenance and repair activities, including cleaning solvents, antifreeze, and metals from motor oil (lead and aluminum).

The grease pit was abandoned and filled with concrete in the mid-1960s. By 1965, use of the drain oil tank had also ceased. Reportedly, oil was either collected in a large tank for use in dust control on roads between TA-I and TA-III or poured into a 10-ft by 20-ft pit under the wash/steam clean area. The drain oil tank was removed in May 1991 under NMED oversight. Soil samples were collected and analyzed as described in this section (IT Corp., 1991). No documentation of NMED site closure was located in the background information reviewed in preparation of the TA-I RFI work plan. The former drain oil tank site was evaluated under ADS 1300, Underground Storage Tanks, as part of the SNL/NM ER Project. The grease pit and interceptor lines were investigated as

part of the ER Site 33 RFI. A complete history of the grease pit, interceptor lines, and drain line could not be completed during the development of the TA-I RFI.

### 2.3.5 Building 8874

Building 8874 is a small corrugated metal building that has occupied the southeast corner of the Motor Pool since the mid-1940s. The building has been used to store equipment for most, if not all, of its history. No drawings were located for the building. Based on the information available, no hazardous materials were stored in or released from the building..

### 2.3.6 Fuel Dispensing Areas

The fuel dispensing area north of Building 874 operated from approximately 1946 until the mid- to late-1960s. There were two 8,000-gal underground gasoline storage tanks and one 8,000-gal underground diesel fuel tank. The gasoline tanks were located approximately 25 ft northeast and northwest of Building 874; the diesel tank was located about 50 ft north of Building 874. The tanks were filled either from H Street via fill lines or from directly above the tank.

The fuel dispensing area was moved to a concrete area east of Building 876 in the late 1960s. Based on information gathered through employee interviews and a review of the building drawings, it is unclear whether both diesel and gasoline were dispensed from the same area east of Building 876 and whether tanks were installed adjacent to the pumps. During the gathering of RFI background information, an employee indicated that gasoline was supplied to the second dispensing area from the tanks located north of Building 874 but was uncertain whether diesel was dispensed from the same location. During the ER Site field investigation, the Motor Pool manager stated that no USTs were located east of Building 876 and the fuel for the second dispensing area was supplied through the distribution lines from the original USTs, north of Building 874.

Between 1982 and 1984, the fuel dispensing area was relocated to its present location north of Building 873, along the western side of the Motor Pool. The tanks north of Building 874 were reportedly removed and the fill lines capped in 1983, per interviews with employees. SNL/NM Mechanical Drawing No. 92537, M-1, indicates that the fueling facility was renovated and relocated in 1982 and the existing lines were capped and abandoned in place; no tanks are shown. The fuel dispensing areas north of Building 874 and east of Building 876 was investigated as part of the ER Site 33 RFI. The present fuel dispensing area was not nvestigated because it is relatively new.

Based on information gathered through employee interviews (DOE 1985), the spill reported in the 1985 CEARP interviews occurred soon after the fuel dispensing area was moved to its present location. Someone filling a vehicle reportedly failed to replace the gas nozzle before leaving the pump. The pump was not equipped with an automatic shut-off valve, and gasoline leaked for approximately one-half hour before the spill was noticed and the pump shut off. The spill flowed toward the southeast corner of the Motor Pool, where it was contained by an asphalt dike and covered with sand or soil. The sand or soil was collected and temporarily stored in the southwest corner of the Motor Pool before it was removed. In interviews conducted for the RFA, personnel

indicated that the soil was taken to the Chemical Waste Landfill for final disposal. Because the spill should not have penetrated the asphalt cover at the site, no further investigation of the spill site was planned.

### 2.3.7 Wash/Steam Clean Area

In 1965 a wash/steam clean area was constructed south of Building 876. The wash area is composed of a grated pit with four evenly spaced floor drains that were originally connected to the storm drain system via an oil interceptor east of the wash area. The pit has been routinely cleaned every six months for the last ten years but there has been no known inspection of the pit during this time. Maintenance practices before 1983 are unknown. In the early 1990s the interceptor line was rerouted from the storm drain to the sanitary sewer system.

Information gathered from interviews with current and past Motor Pool employees indicates that waste was drained into the wash/steam clean area. Batteries were drained on pit edges and waste antifreeze was poured into the pit. One individual said waste oil was dumped into the pit; however, another individual said that it was not. Materials other than wash water were allowed to drain and were poured into the pit from 1965 until the early 1980s. The wash/steam clean area was investigated as part of the ER Site 33 RFI.

### 2.3.8 Car Wash Area

The car wash was constructed around 1987. No known hazardous materials are used in the car wash, and no releases of hazardous materials have been reported from the facility. No further investigation of the area was planned.

## 3.0 EVALUATION OF RELEVANT EVIDENCE

### 3.1 Unit Characteristics

ER Site 33 is an operational facility and provides the following services: fuel for government vehicles, car and truck maintenance, and a car wash (Section 2.3). All operational safeguards are overseen by the Motor Pool personnel.

### 3.2 Operating Practices

The 1983 gas spill was contained by an asphalt berm. Contaminated soil/sand used as absorbent for the gasoline was removed and placed in the Chemical Waste Landfill.

### 3.3 Presence or Absence of Visual Evidence

No visual evidence of hazardous waste constituents were seen on the surface or in soil samples collected for chemical analysis during the ER Site 33 RFI field investigation.

### 3.4 Results of Previous Sampling Surveys

One previous investigation (IT Corp., 1991) has been carried out before the RFI field activities were conducted in April 1995. The drain oil tank on the north side of Building 876 was removed in May 1991 under oversight of the NMED Underground Storage Tank Bureau (Appendix B, Chernoff, 1991). Stained surface soil was observed during tank removal. The tank had one hole in the top section and four holes along the center line. There was no evidence of a release within the excavation zone. Soil samples collected from 2 ft below the previous tank bottom location contained concentrations of 3670 mg/kg and 1370 mg/kg total TPH, values above the NMED 100 mg/kg action level. PCBs were not detected above detection levels of 80 *ug*/kg and 160 *ug*/kg.

Five borings were drilled to collect soil samples from directly beneath the tank location and within the 20- by 22-ft excavation boundary. TPH was detected in several of the samples. The highest value detected was 1120 mg/kg TPH in the sample collected 15 ft bgs from the boring southwest of the previous tank center. The deepest sample in which TPH was detected (115 mg/kg) was 30 ft bgs from the same boring. Prior to backfilling the excavation, 15 cubic yards of contaminated soil were removed and segregated for landfarming at the Kirtland landfill (Appendix B, Chernoff, 1991).

### 3.5 Assessment of Gaps in Information

Because the 1983 gasoline spill was a surface spill on top of asphalt there is no known or suspected contamination remaining from the gasoline spill (DOE, 1987).

There is no known contamination associated with the abandoned grease pit or the interceptor lines at Building 876. However, based on the condition of the former drain oil tank observed during its removal and the petroleum hydrocarbons detected in surrounding soil, similar releases may have occurred from the former grease pit and the interceptor lines.

There is no known contamination associated with the former fuel dispensing area north of Building 874. Based on the conditions observed during removal of the drain oil tank, the former fuel storage tanks may have been in similarly poor condition. Petroleum products may have been released from the tanks and the fill lines north of Building 874.

There is no known contamination associated with the former fuel dispensing area east of Building 876. The area was used for approximately 15 years, and prior to being capped, underground feed lines may have deteriorated to the extent that gasoline and diesel fuel were released to the surrounding soil.

There is no known contamination associated with the active wash/steam clean pit, but based on its operational use (15 to 20 years) and the possibility of cracks in the pit, some materials may have been released to the surrounding soil.

The RFI field investigation was designed to fully characterized each area of potential concern within ER Site 33 (Appendix C).

## 3.6 Confirmatory Sampling

### 3.6.1 Project Summary

The objectives of the field investigation were to determine the vertical and horizontal extent of soil contamination around the Motor Pool. To complete this task, the field activities were divided into four areas based on location within the Motor Pool and potential constituents of concern (COCs): the former fuel dispensing area north of Building 874, the former fuel dispensing area east of Building 876, the former grease pit and interceptor lines in Building 876, and the wash/steam clean area south of Building 876 (Appendix A, Figure 1). COCs for the former fuel dispensing areas at Buildings 874 and 876 are gasoline and diesel fuels. COCs for the former grease pit, former interceptor lines, and wash/steam clean area at Building 876 are petroleum hydrocarbons, cleaning solvents, and metals. The RFI Sampling and Analysis Plan for this site is provided in Appendix C.

ER Site 33 field investigation was performed between April 7, 1995 and April 18, 1995. The field activities included soil borings, screening soil samples with total petroleum hydrocarbon (TPH) immunoassays kits and a flame ionization detector (FID), and collecting soil samples for chemical analysis, managing the waste generated during drilling, and surveying soil borehole locations.

#### 3.6.1.1 Health and Safety Monitoring

A photoionization detector (PID) or flame ionization detector (FID) was used to monitor the breathing zone around the drilling and the general background for organic vapors during soil boring activities. In addition, PID readings were taken inside soil boreholes if organic vapors were suspected by the field sampling team. Elevated values were detected in this matter at several soil boreholes located inside Building 876. The PID and FID readings for the breathing zone and the general area were no greater than background readings for all soil boreholes.

#### 3.6.1.2 Drilling Program

The drilling program was conducted using a truck-mounted Geoprobe® drill rig. A total of 37 soil boreholes (TI033-GP-001 to TI033-GP-018, TI033-GP-022 to TI033-GP-040) were placed around the four areas at the Motor Pool (Appendix A, Figure 2).

- Boreholes GP-001 through -018 were placed around the former UST, fuel dispersion island, and distribution lines north of Building 874.
- Boreholes GP-023 through -026 were located around the active wash/steam clean area and the drains south of Building 876. In addition, one sludge sample, TI033-SL-001, was collected inside the wash/steam clean pit.
- Boreholes GP-022, GP-027 through GP-033, GP-039, and GP-040 were placed around the former grease pit and interceptor lines inside/outside Building 876. GP-022 was redrilled adjacent to its original location, when the first borehole hit refusal at 5 feet.

- Boreholes GP-034 through -038 were drilled around the former fuel island east of Building 876.
- Soil borehole numbers TI033-GP-019 to TI033-GP-021 and TI033-GP-041 to TI033-GP-044 were used to identify duplicate soil samples collected during the project.

### 3.6.1.3 Soil Sample Collection

Soil samples were collected at 5-foot intervals from each borehole using the Geoprobe® equipped with a 1.5 inch (or 2.5 inch) outside diameter (O. D.) by 24 inches long core sampler which was lined with a cellulose acetate butyrate (CAB) sleeve. Upon removal of the CAB liner from the sampler, the liner was cut into one 3-inch and two 6-inch sections. One section was used for head space analysis with the FID, one (3-inch section) was used for the Total Petroleum Hydrocarbons (TPH) immunoassay kit, and one section was sealed with tape and prepared for shipment to the off-site Quanterra laboratory for Volatile Organic Compounds (VOC) analyses. Samples collected for Semivolatile Organic Compounds (SVOC) and metals analysis were removed from the liner and placed in glass jars for shipment to the Quanterra laboratory.

The samples collected and the analysis performed on these samples are provided in Table 1 (Appendix D). One hundred and nine soil samples were collected and screened on-site with headspace methods using a FID for VOC analysis. One hundred and four soil samples were collected and screened on-site for TPH with immunoassay kits. Eighty-two soil samples were collected and sent to the Quanterra laboratory for VOC analysis. In addition, 32 of these samples were also analyzed for SVOCs and Target Analyte List (TAL) metals. One sludge sample (wash/steam pit) was collected and sent to Quanterra laboratory for VOC, SVOC, and TAL metals analysis.

### 3.6.1.4 Sample Packaging and Shipping

Soil samples sent to the Quanterra laboratory for VOC analysis were collected in CAB liners containing 125 ml of soil. Samples for SVOCs and TAL metals analysis were collected into 500 ml glass bottles. The liners and glass bottles were labeled, sealed with custody tape, and placed in a protective bubble-wrap Ziplock bag. The soil samples were placed on ice in the field and cooled to 4°C.

Samples were delivered to the SNL/NM Sample Management Office (SMO) on a daily basis. SMO personnel (Department 7513) performed cross-checking of the information on the sample labels against the data on the ARCOCs, and prepared samples for shipment. Samples were shipped by overnight delivery to the Quanterra Laboratory in Arvada, Colorado for chemical analyses and the Lockheed Laboratory in Las Vegas, Nevada for radiological analyses.

All soil samples for TPH screening were turned over to the ER Field Office (ERFO) technician for immunoassay testing at the on-site field trailer.

### 3.6.1.5 Surveying Sample Locations

All soil borehole locations were surveyed with Global Positioning System (GPS) equipment except T1033-GP-030 through -033, which were drilled inside Building 876.

These locations were surveyed by measuring the distance from known structures (i.e.; building corners) with a hand tape. The survey data includes northing and easting coordinates for each borehole. The elevations of the boreholes were estimated using topographic maps.

#### 3.6.1.6 Field Quality Control Samples

Four types of field QC samples were shipped for analysis during the field investigation: field duplicate soil samples, equipment rinsate blank samples, soil and water trip blank samples, and field soil blank samples. No additional soils were collected for matrix spike/matrix spike duplicate (MS/MSD) analysis. Sample number, date/time of sample event, location, and analysis performed are presented in Table 1 (Appendix D).

A total of seven field duplicate samples were collected and analyzed for the same parameters as for the corresponding soil samples. The samples were collected by splitting the CAB sleeve crosswise in two pieces, sealing the ends prior to VOC analysis. For SVOC and TAL metals analysis, soils removed from the CAB sleeves into a stainless steel bowl and composited, then transferred into glass bottles.

A total of five equipment rinsate blank samples were collected from deionized water poured over the equipment after decontamination of the sampling equipment. The samples were analyzed for all parameters for which soil samples were analyzed.

Five field blank soil samples were exposed (open jar) to atmospheric conditions around the drilling/sampling operation and analyzed for VOCs only. The field blanks were supplied by the SMO field office and consisted of glass bottles filled with clean soils.

Trip blank samples were submitted with each shipment which contained samples for VOC analysis. Aqueous trip blank samples were prepared by the offsite laboratory; the SMO field office prepared the soil trip blank samples. Eleven trip blanks (six soil and five water) accompanied the sample containers to the field and back to the laboratory. One aqueous trip blank bottle (sample number 022089-01) was recorded broken upon arrival at the offsite laboratory and could not be analyzed, but one soil trip blank sample (sample number 022088-0) was also sent with the same set of soil samples as the broken aqueous trip blank sample.

### 3.6.2 DATA MANAGEMENT

Data management was coordinated through the SMO project coordinator for Site 33. Upon sample shipment to the offsite laboratories, sample information was entered into a database to track the status of each sample. Upon completion of the laboratory analyses, SMO received analytical results in a summary data report and laboratory QC report.

The data summary (Certificate of Analysis) reports were reviewed by the SMO for completeness and accuracy as required by SNL/NM TOP 94-03 (SNL/NM, 1994b). Data validation was performed using SNL/NM Data Verification/Validation (DV) Level 1 (DV1) and Level 2 (DV2) checklists. SMO submitted the original ARCOCs, the Certificate of Analysis Reports, and the DV1/DV2 review reports to the Environmental

Operations Record Center. In addition, the laboratories submitted analytical data in an electronic format for loading into the ER data management system (ERDMS). All chemical analytical data tables generated for this NFA Proposal were downloaded through the ERSMS except field screening data.

The TPH immunoassay test results were provided by the ERFO laboratory as a data summary report (Appendix E).

### 3.6.3 ANALYTICAL DATA SUMMARY

The sampling program used a two-phased approach for analyzing the soil samples; on-site field screening with the FID and TPH immunoassay kits, followed by sending confirmation soil samples to the offsite laboratory.

#### 3.6.3.1 Analytical Methods

All soil samples were field screened for VOCs using headspace methods with a FID and for TPH using immunoassay kits. The immunoassay kit which was developed by EnSys, Inc., is called PETRO RIS$^{C}$®. TPH sample analysis followed draft EPA SW-846 Method 4030. The TPH kits used at Site #33 were designed to detect gasoline at the values of ≥ 10 ppm and ≥ 100 ppm.

Soil samples selected for the Quanterra laboratory were analyzed by the following approved EPA methods: Method 8240/8260 for VOCs, Method 8270 for SVOCs, Method 6010 for TAL metals, and Methods 7471/7470 for mercury. In addition, the waste management sample was analyzed by the Lockheed laboratory for isotopic plutonium, uranium, and thorium using method for LAL-91-SOP-0108 and for tritium using method LAL-91-SOP-0067.

Analytical results for organic compounds listed "J" values for some compounds. A "J" indicates an estimated value for a compound detected at a level less than the reporting limit but greater than the method detection limit. Data results flagged as "J" values are included in the data summary tables used in this report; however, because "J" values may represent false-positive concentrations, care should be used when evaluating these analytical results.

#### 3.6.3.2 VOC Field Screening Results

A total of 109 soil samples were field screened for VOCs using the FID. All soil screening results were non-detect for VOCs except for one sample (TI033-GP-002 from north of Building 874) which had a reading of 1 ppm at a depth of 10 feet. The FID results are shown on the soil borehole logs that are available in the Environmental operations Records Center.

#### 3.6.3.3 TPH Immunoassay Methodology and Results

The immunoassay analysis technique relies on an antibody that is developed specifically to be sensitive to a target compound. The antibodies in the PETRO RIS$^{C}$® test kit are

sensitive to gasoline, diesel, jet fuel, or used lubrication oils, but are not sensitive to potential interference compounds such as chlorinated solvents. The antibody's specificity triggers a sensitive colorimetric reaction, providing a visual interpretation of the result.

The immunoassay analysis itself is a four-step process that includes sample extraction, sample preparation, sample incubation, and interpretation of the result. Total run time is approximately 25 minutes per analysis, and several samples can be run at the same time. The results are determined by comparing the sample color to the color in a standard using a photometer supplied by Ensys, Inc. EPA has approved the PETRO RIS$^{C}$® kits for inclusion in the third update of Test Methods for Solid Waste, SW-846, under EPA Draft Method 4030. The manufacturer states that the "concentration(s) necessary to give a positive result greater than 95% of the time" for gasoline is 10 ppm. The kits were set up at this level, and also at a 10X sample dilution, to give a result of 10 and 100 ppm detection levels for soil samples collected at the Motor Pool. According to the manufacturer's product information sheet, the test method has a less than 1% occurrence rate of false negative results (i.e. the test reports a sample is "clean" when it is actually "dirty"). However, in order to achieve this low occurrence rate for false negatives, the test method has a relatively high occurrence rate of false positives (i.e. the test reports a sample is "dirty" when it is actually "clean"). The occurrence rate for false positives is reported to be less than 11%, which implies that as many as one in ten positive results is false.

One hundred and four soil samples were tested with the TPH immunoassay kits. The ERFO laboratory data summary report is presented in a table format: sample number and sample depth and TPH detected > 10 ppm and TPH detected >100 ppm (Appendix D). TPH results are discussed by area below.

At the former fuel dispensing area north of Building 874, three samples had elevated values of TPH: TI033-GP-005 at 10 feet (>100 ppm), TI033-GP-014 at 10 feet (>10 ppm), and TI033-GP-015 at 10 feet (>10 ppm) (Appendix E). All remaining samples in this area were non-detect for TPH.

At the former grease pit and interceptor lines at Building 876, five samples had elevated values of TPH: TI033-GP-031 at 10 feet (>10 ppm), TI033-GP-032 at 5 feet (>10 ppm), TI033-GP-033 at 5 feet (>100 ppm) and at 10 feet (>10 ppm) (Appendix E). All four of these elevated samples were collected under Building 876. In addition, one sample (TI033-GP-022 at 5 feet) had a positive value of >10 ppm. All remaining samples in this area were non-detect for TPH.

At the former fuel dispensing area east of Building 876 and the wash/steam clean area south of Building 876, all samples were non-detect for TPH (Appendix E).

### 3.6.3.4 Confirmation Soil Sample Results

To confirm the field screening results (as per the Work Plan), a total of 82 soil samples were sent to the Quanterra laboratory for VOC analyses (Appendix A, Table 1). Thirty-two of these samples were also analyzed for SVOCs and TAL metals. One sludge sample, TI033-SL-001, was sent to Quanterra for VOC, SVOC, and TAL metal

analyses. Table 2 (Appendix D) summarizes the detected VOC analytical results. Table 3 (Appendix D) summarizes the detected SVOC analytical results. Metal analytical results are provided in Table 4 (Appendix D) and are summarized on Table 5 (Appendix D). The results are discussed by area below.

At the former fuel dispensing area north of Building 874 and the former fuel dispensing area east of Building 876, all samples were either non-detect or J values for VOCs except for acetone (see Section 3.7 for acetone discussion). Based on the COCs for these two areas, samples were not analyzed for SVOCs or TAL metals.

At the former grease pit and interceptor lines at Building 876, VOCs were detected in three soil boreholes, TI033-GP-031, TI033-GP-032, and TI033-GP-033. TI033-GP-031 had elevated values for tetrachloroethene (81 ppb), trichloroethene (50 ppb), acetone (13 ppb), 1,1,1-trichloroethane (6.5 ppb), and toluene (5.1 ppb) at 10 feet, and only one VOC detection, toluene (9.6 ppb) at 15 feet. TI033-GP-032 had elevated values for tetrachloroethene (550 ppb) and trichloroethene (76 ppb) at 5 feet. TI033-GP-033 had detects for tetrachloroethene (310 ppb) and trichloroethene (84 ppb) at 5 feet and tetrachloroethene (140 ppb), trichloroethene (44 ppb), acetone (36 ppb), toluene (16 ppb), and xylene (5.5 ppb) at 12 feet. All remaining samples were either non-detects or J values except for acetone (see Section 3.7 for acetone discussion). SVOCs were either non-detect or J values for this area. TAL metals were non-detect for antimony, cadmium, and selenium. Of the three metals considered COCs for this area, aluminum had detected values ranging from 10,100 to 2490 ppm, lead from 67.5 ppm to non-detect, and nickel from 326 to 3.3 (J) ppm.

At the wash/steam clean area south of Building 876, all samples were either non-detect or J values for VOCs except for acetone (see Section 3.9 for acetone discussion). All samples were either non-detect or J values for SVOCs except for one detection of butyl benzyl phthalate (360 ppb) in TI033-GP-024 at 5 feet. TAL metals were non-detect for antimony, cadmium, and selenium. Of the three COC metals for this area, aluminum had values ranging from 7100 to 2320 ppm, lead from 8.2 to 3.6 (J) ppm, and nickel from 43.9 to 3.8 (J) ppm. In addition, the one sludge sample detected seven VOC compounds: acetone (700 ppb), 2-butanone (130 ppb), ethylbenzene (130 ppb), 4-methyl-2-pentanone (61 ppb), 1,1,1-tetrachloroethane (32 ppb), toluene (56 ppb), and xylene (570 ppb). SVOC analysis had only one detection for bis(2-ethylhexyl)phthalate (8600 ppb). Metals were not detected for antimony, cadmium, mercury, selenium, silver, sodium, and thallium. Of the three COC metals for this area: aluminum had a value of 6690 ppm, lead had a value of 67.5 ppm, and nickel had a value of 9.6 ppm.

#### 3.6.3.5 Quality Control Samples

Acetone contamination was associated with each type of field QC sample (see Section 3.7 for acetone discussion).

All trip blanks either yielded non-detect or J values for all VOC analyses except for acetone at 14 ppb in TI033-TB-011 (Appendix D, Table 2). Soil sample and associated trip blank results indicate no significant sample contamination by VOCs from field and shipment sources.

All equipment rinsate blanks either yielded non-detect or J values for all VOC analyses except for acetone at 22 ppb in TI033-EB-002 (Appendix D, Table 2). No other contaminants of interest (SVOCs and metals) were detected above laboratory reporting limits.

All field blanks either yielded non-detect or J values for all VOC analyses except acetone at 15 ppb in TI033-FB-001 and at 12 ppb in TI033-FB-002 (Appendix D, Table 2). The sample results indicate no sample contamination by VOCs during field activities and Motor Pool operations.

All field duplicate samples either yielded non-detect or J values except for acetone which ranged from 13 to 55 ppm in six samples (Appendix D, Table 2). The six corresponding samples also had elevated values of acetone.

### 3.7 STATISTICAL ANALYSIS/EVALUATION OF CONCENTRATIONS

Statistical analysis of the VOC and SVOC results could not be completed, due to the small number of elevated values from Site 33 data and the lack of positive hits for VOCs and SVOCs from the TA-I background soil investigation (SNL/NM, 1996).

Acetone was detected in 44 soil samples from 23 different soil boreholes located throughout Site 33. In addition, acetone was also detected in many of the field QC samples. The elevated values for acetone range from 11 to 55 ppb. Acetone should not be considered a COC at the Motor Pool for the following reasons:

- Acetone is a common laboratory contaminant.
- Based on the site's history and past operational practices, acetone was not listed as a COC at the Motor Pool.
- Acetone was frequently detected in the laboratory method blanks at higher concentrations (appendix D, Table 2).

Acetone will not be discussed further in this section, based on the information provided above.

The remaining data evaluation discussion is provided in three parts (one or more of which may not be relevant to a given area of the motor pool): comparing VOC field screening by FID results and TPH immunoassay test results with the confirmation results from the offsite laboratory; comparing the VOCs and SVOCs analytical results to EPA Proposed Subpart S action level for soils (EPA, 1990); and comparing the metal analytical results to the background soil data collected during the TA-I field investigation, the site-wide background study for SNL/NM (IT Corp., 1996), and EPA Subpart S action levels for soils. Updated soil action levels, some values (an example is zinc) were taken from "Report of Generic Action Level Assistance for the Sandia National Laboratories/New Mexico Environmental Restoration Program" (IT Corp., 1994). The generic values from this report were made current for guidance through June, 1994 according to RCRA proposed Subpart S methods. Any soil action level used from that report will be referred to as "generic action level for soils". For TA-I background metal

analytical results, the UTL/95th percentile values were developed from the software package Statgraphics (SNL/NM, 1996). The statistical analysis and data evaluation is discussed by area in the following sections.

### 3.7.1 Former Fuel Dispensing Area North of Building 874

The TPH immunoassay test kits detected TPH at three samples locations (Appendix E). At locations TI033-GP-005, TI033-GP-014, and TI033-GP-015, the TPH data suggest the values represent false positive detections for the following reasons:

- Samples analyzed from the 5-foot sample interval above and the 15 and 20 feet sample below each of the positive results detected no TPH.

- Confirmation soil samples for these four sample intervals were sent to the offsite laboratory for VOC analyses. The gasoline components, benzene, toluene, ethylbenzene, and xylene (BTEX) were not detected.

- The manufacturer's product information sheet states that a false positive can be expected at an occurrence rate 10%. For the whole site, the kits had 8 hits out of 104 samples, for an occurrence rate of ~8%.

- At soil sample interval TI033-GP-002 at 10 feet, the VOC field screening had a value of 1 ppm. The corresponding TPH results and VOC results (Quanterra laboratory) were non-detect at this sample interval. All remaining VOC results were either non-detect or J values. Based on this data evaluation, TPH and VOCs should not be considered COCs for this area.

### 3.7.2 Former Grease Pit and Interceptor Lines at Building 876

TPH was detected at five locations. The TPH value at TI033-GP-022 at 5 feet represents a false positive result, based on the discussion provided in Section 3.7.1. In addition, soil borehole TI033-GP-022 was redrilled adjacent to the original borehole and the samples analyzed at 5 and 10 feet were non-detect for TPH. At the four remaining sample locations (inside Building 876), TI033-GP-031 at 10 feet, TI033-GP-032 at 5 feet, and TI033-GP-033 at 5 and 10 feet, the data suggest some low-level contamination based on corresponding positive hits of toluene (5 to 24 ppb) and/or xylene (5.5 and 18 ppb) detected in these same sample intervals.

No VOCs were detected during the field screening with FID. The VOC compounds detected by the offsite laboratory at TI033-GP-031, TI033-GP-032, and TI033-GP-033 were tetrachloroethene, trichloroethene, 1,1,1-trichloroethane, toluene, and xylene The elevated VOC concentrations decrease with depth (~ 20 feet) to either non-detects or J values in all three soil boreholes (Appendix D, Table 2). The range of positive values for each VOC detected at these soil boreholes was evaluated against proposed Subpart S action levels for soils (Appendix D, Table 6). Based on this comparison, all the detected VOC compounds were below EPA proposed Subpart S action levels for soil .

SVOCs were either non-detect or J values for all samples.

Detected TAL metals were compared (1) to TA-I background levels; (2) to SNL/NM site-wide background levels; and (3) to EPA proposed Subpart S action levels and/or the generic action level for soils (Appendix D, Table 5). Most metals detected are within TA-I background levels, SNL/NM background levels, and/or proposed Subpart S action levels (Table 5, Appendix D). The exception being calcium and potassium that were above background values and there are no calculated Subpart S action levels. However, these elements are essential plant nutrients and do not reflect contamination from Motor Pool activities.

### 3.7.3 Wash/Steam Clean Area South of Building 876

TPH results were non-detect for all soil samples. In addition, all VOC results were either non-detect or J values.

SVOCs were either non-detect or J values for all samples except for one compound at TI033-GP-024 at 5 feet. Butyl benzyl phthalate had a detected value of 360 ppb. The phthalate esters are common laboratory contaminants. In addition, this value is well below the proposed Subpart S action level for soil of 20,000 ppm.

Detected TAL metals were compared (1) to TA-I background levels; (2) to SNL/NM site-wide background levels; and (3) to EPA proposed Subpart S action levels and/or the generic action level for soils (Appendix D, Table 5). Most metals were within TA-I background levels, SNL/NM background levels, and/or proposed Subpart S action levels (Table 5, Appendix D). The exception being calcium and potassium that were above background values and there are no calculated Subpart S action levels. However, these elements are essential plant nutrients and do not reflect contamination from Motor Pool activities.

One additional sample was collected at the active wash/steam pit. This sludge sample was collected to determine if the wash/steam pit could contribute COCs to the surrounding soils. The sample had elevated concentrations of VOCs, one SVOC and five metals (based on TA-I background levels). The sample may indicate possible contamination in the pit. Samples collected from soil boreholes TI033-GP-023 and TI033-GP-024 adjacent to the pit do not indicate elevated levels of any of the constituents detected within the pit. The activities associated with the active wash/steam pit are confined to the pit. The fluids flowing through the wash/steam clean pit discharge into the TA-I sanitary sewer system. This discharge is regulated under the current SNL/NM National Pollutants Discharge Elimination System (NPDES) permit (SNL/NM, 1993) and is within all requirements of the NPDES permit.

### 3.7.4 Former Fuel Dispensing Area East of Building 876

TPH results were non-detect for all soil samples. In addition, all VOC results were either non-detect or J values.

### 3.8 Risk Evaluation

The purpose of this section is to provide the ecological risk evaluation for the potential contaminants of concern associated with the Motor Pool, Site 33. The Motor Pool is located outside the TA-I secured area. However, the Motor Pool area is entirely fenced and is located in the major industrial area for SNL/NM. The Motor Pool is a 2.3 acre site consisting of six buildings and a car wash that service the vehicle needs of SNL/NM and DOE/AL. The entire 2.3 acres are paved with either concrete or asphalt and are devoid of any vegetation.

The preliminary ecological risk assessment process as directed by the EPA involves a site characterization, identification of exposure pathways and endpoint species. A preliminary hazardous substance characterization is performed to identify environmental media concentration, frequency of occurrence, and bioavailably. This information is combined to develop a preliminary risk characterization for species that my be exposed to contaminants at a site.

The preliminary ecological evaluation for Site 33 involved the determination of potential exposure pathways and risks associated with the identified site-related contaminants. A site survey was conducted to determine possible species endpoints and potential exposure pathways to flora and fauna. A review of all sample data was also performed to determine contaminants of concern. The outputs from the preliminary exposure and toxicity results were combined to determine the risks associated with contaminants at the Motor Pool.

The preliminary toxicity evaluation did identify lead (67.5 ppm), nickle (326 ppm), and aluminum (2490 ppm). The levels of lead and aluminum at this site are similar to the background concentrations of these constituents of concern (lead, 95% UTL = 68 ppm; aluminum, 95% UTL = 7100 ppm). The elevated concentration of nickle is considered an anomaly that occurred in only one soil sample collected at the Motor Pool. This sample was collected underneath Building 876 and does not represent a typical exposure pathway.

The preliminary exposure pathway analysis established that no pathway exists at this time to expose ecological species to contaminants at Site 33. The entire area is covered with concrete or asphalt and is devoid of any vegetation. Therefore, no exposure pathways exist for flora or fauna. The risk results indicate that the chemicals at the Motor Pool do not pose an ecological threat based on the exposure pathway examined.

## 4.0 RATIONALE FOR PURSUING A CONFIRMATORY SAMPLING NFA DECISION

Thirty-seven soil borehole locations were drilled around four areas of concern: the former fuel dispensing area north of Building 874, the former fuel dispensing area east of Building 876, the former grease pit and interceptor lines in Building 876, and the wash/steam clean area south of Building 876 (Appendix A, Figure 2). The data evaluation shows no TPH, VOC, SVOC, or TAL metals contamination above

background or action levels at these locations. Based on the field investigation, a decision of NFA is recommended at Site 33.

At the former fuel dispensing area north of Building 874, NFA is recommended for the following reasons:

- No VOCs were detected with headspace methods using the FID except for one positive value of 1 ppm. The corresponding TPH and the VOC analytical results at this location were either non-detect or J values.

- The TPH results indicate soil contamination is not present. The three detected values are interpreted as false positives.

- No VOCs were detected except acetone. Acetone is believed to result from laboratory contamination. All acetone values also are significantly below the proposed Subpart S action level.

At the former grease pit and interceptor lines at Building 876, NFA is recommended for the following reasons:

- No VOCs were detected with headspace methods using the FID.

- The TPH results indicate soil contamination is not present except in four samples. One detected value is interpreted as a false positive and the remaining three as isolated hits next to the former grease pit.

- No VOCs were detected except acetone and the VOCs associated with the three soil boreholes at the former grease pit based on the analytical results. At these three locations, elevated VOC values were all significantly below proposed Subpart S action levels for soils. In addition, acetone is believed to result from laboratory contamination. All acetone values also are significantly below the proposed Subpart S action level.

- No SVOCs were detected.

- All TAL metals results either yielded non-detect values or were within TA-I and SNL/NM background levels or below proposed Subpart S action levels.

At the wash/steam clean area east of Building 876, NFA is recommended for the following reasons:

- No VOCs were detected with headspace methods using the FID.

- The TPH results indicate soil contamination is not present.

- No VOCs were detected except acetone. Acetone is believed to be the result of laboratory contamination. All acetone values also are significantly below the proposed Subpart S action level.

- No SVOCs were detected except one compound (an ester phthalate). This elevated hit for phthalate is interpreted as laboratory contamination. In addition, the value is below the proposed Subpart S action level.

- All TAL metals results either yielded non-detect values or were within TA-I and SNL/NM background levels or below proposed Subpart S action levels.

At the former fuel dispensing area east of Building 876, NFA is recommended for the following reasons:

- All TPH and VOC (headspace method only) samples were non-detect.

- No VOCs were detected except acetone. Acetone is ubiquitous to the site, and is believed to be the result of laboratory contamination. All values also are significantly below the proposed Subpart S action level.

## 5.0 CONCLUSIONS

Based on site history and the data evaluated from the field investigation, further investigation and/or a VCM are not required for Site 33. An NFA decision is recommended.

## 6.0 REFERENCES

### 6.1 ER Site References

Chernoff, A.R., 1991, Letter to J. Hostak (UST Bureau, NMED) from A.R. Chernoff (Area Manager, DOE/AL, Kirtland Area Office), June 4, 1991.

IT Corporation, 1996, "Background Concentrations of Constituents of Concern to the Sandia National Laboratories/New Mexico, Environmental Restoration Project and the Kirtland Air Force Base Installation Restoration Program."

IT Corporation, 1994, "Report of Generic Action Level Assistance for the Sandia National Laboratories/New Mexico, Environmental Restoration Program."

IT Corporation, 1991, "On-Site Investigation at Former Underground Storage Tank No. 876-1," Sandia National Laboratory, Technical Area I, May 1991.

Sandia National Laboratories/New Mexico (SNL/NM), 1996, "TA-I Background Soils Investigation Data Evaluation Report."

Sandia National Laboratories/New Mexico (SNL/NM), 1995, "Technical Area I (ADS 1302) RCRA Facility Investigation Work Plan", Environmental Restoration Program, Sandia National Laboratory, U.S. Department of Energy, Albuquerque Office, February 1995., [Includes: Interview notes and records of telephone conversations with current and retired SNL/NM employees 1 through 51). Communication made from February through June, 1993, as part of ER Program background investigation of TA-I ER Sites.

SNL/NM Environmental Operations Record Center maintains these personal communication notes as a controlled document.]

### 6.2 Reference Documents

DOE (U.S. Department of Energy, 1985, Interviews with current and retired Sandia Corporation personnel, conducted September and October 1985 by Los Alamos National Laboratory. As cited in DOE 1987, "Comprehensive Environmental Assessment and Response Program (CEARP), Phase I: Installation Assessment, Sandia National Laboratories, Albuquerque, New Mexico [DRAFT]. U.S. Department of Energy, September 1987.

DOE (U.S. Department of Energy), 1987, "Comprehensive Environmental Assessment and Response Program (CEARP), Phase I: Installation Assessment, Sandia National Laboratories, Albuquerque, New Mexico [DRAFT]. U.S. Department of Energy, September 1987.

New Mexico Environmental Department (NMED), 1995, "Environmental Restoration Document of Understanding", New Mexico Environmental Department, US Environmental Protection Agency, US Department of Energy, Los Alamos National Laboratory, and Sandia National Laboratories/New Mexico, November 1995.

Sandia National Laboratories/New Mexico (SNL/NM), 1994a, "Program Implementation Plan for Albuquerque Potential Release Sites" [DRAFT], Environmental Restoration Program, Sandia National Laboratory, U.S. Department of Energy, Albuquerque Operations Office, September 1993.

Sandia National Laboratories/New Mexico (SNL/NM), 1994b, Verification and Validation of Chemical and Radiochemical Data," TOP 94-03, Rev. 0, Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 1993, "1992 Environmental Monitoring Report, Sandia National Laboratories, Albuquerque, New Mexico." SAND93-1448, Sandia National Laboratories, New Mexico, September 1993.

U.S. Environmental Protection Agency (EPA), 1990, "Proposal Rule, Corrective Action for Solid Waste Management Units (SWMUs) at Hazardous Waste Management Facilities (Subpart S)." U.S. Environmental Protection Agency, 55 FR 30798, July 27, 1990.

U.S. Environmental Protection Agency (EPA), 1987, "Final RCRA Facilities Assessment Report of Solid Waste Management Units at Sandia National Laboratories, Albuquerque, New Mexico." Prepared by A.T. Kearney, Inc., and Harding Lawson Associates under Contract No. 68-01-7038, April 1987.

### 6.3 Aerial Photographs

No specific aerial photographs were used to support this NFA.

## APPENDICES

Appendix A ER Site 33 Figures

Appendix B Letter to the NMED UST Bureau (Chernoff. 1991)

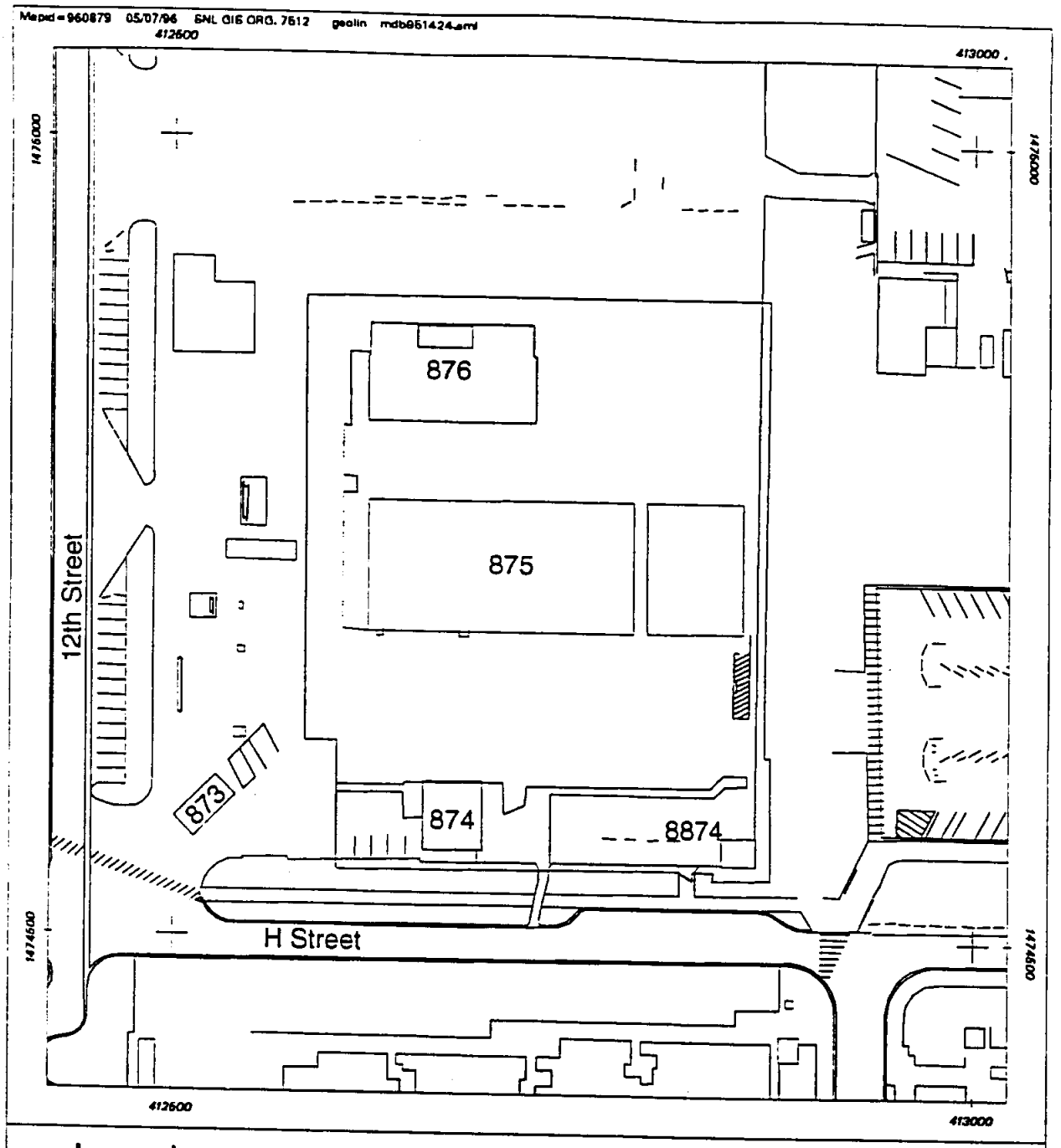
Appendix C Section 5.3 of the TA-I RFI Work Plan (SNL/NM, 1995)

Appendix D ER Site 33 Tables

Appendix E ERFO Laboratory Data Report

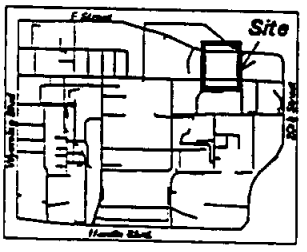
Appendix A

ER Site 33 Figures




## Legend

- ER Site 33
- Roads
- Buildings



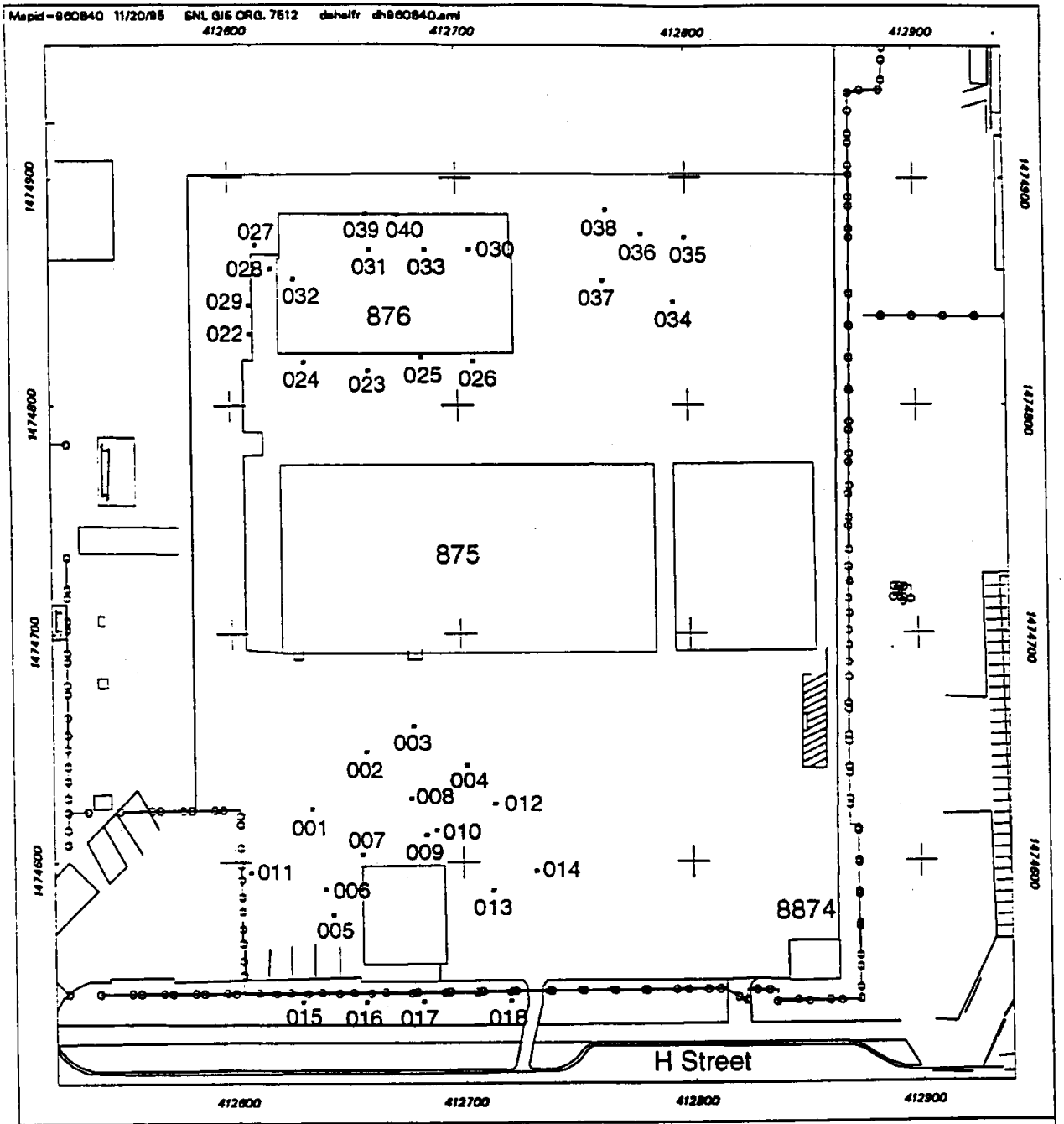

# Figure 1
# ER Site 33
# Location Map

0 50 100
Scale in Feet

0 12 24
Scale in Meters

N

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System




## Legend

- Boring Location (T1033-GP-)
- Fence
- Buildings
- Roads

# Figure 2
# Soil Boring Location Map for ER Site 33

Scale in Feet: 0, 35, 70

Scale in Meters: 0, 8.4, 16.8

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

Appendix B

Letter to the NMED UST Bureau (Chernoff. 1991)

Department of Energy
Albuquerque Operations Office
Kirtland Area Office
P.O. Box 5400
Albuquerque New Mexico 87115

MAY 16 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John Hostak
Underground Storage Tank Bureau, NMED
4131 Montgomery Boulevard, N.E.
Albuquerque, New Mexico 87109

Dear Mr. Hostak:

This is to notify you of a confirmed release at the underground storage tank (UST) 876-1 site, Sandia National Laboratories, Albuquerque. This letter constitutes the required seven day notification of confirmed release in accordance with Section 1204 of the New Mexico Underground Storage Tank Regulations, as amended.

This 360 gallon waste oil tank was removed on May 1, 1991 with New Mexico Environment Department (NMED), Inspector, Charles Lundstrum in attendance. Surface soils evidenced spill/overfill contamination and were segregated for land farming at the Kirtland landfill. Inspection of the tank, after removal, revealed a one inch hole in the top section and four holes ranging from 1/8th to 1/2 inch along the center line. Because there was no visual evidence of release in the excavation zone, Mr. Lundstrum did not require a report of a leaking UST pending receipt of the excavation zone sample results. Soil samples were taken from the bottom center-line of the excavation zone on the day of removal. Because of the poor soil recovery due to site geology, the site was resampled on May 3, 1991, using a trackhoe to extract soils at a depth of two-feet below the previous tank bottom location. The samples were sent out that day for rush analysis of total petroleum hydrocarbons (TPH). The analysis, received on May 9, 1991, indicated TPH levels of 3670 milligrams/kilogram (mg/kg) in the first sample and 1370 mg/kg in the second sample. The required 24 hour notification of confirmed release was made to Mr. Keith Fox, NMED on May 10, 1991. There are no known utility corridors in the vicinity of the release. Depth to groundwater in this area is approximately 550 feet with the nearest production well (KAFB-1) approximately one mile west-southwest of the site.

If you have any questions, please contact John Clay Johnsen, of my staff, at 845-4827.

Sincerely,

Thomas B. Hyde
for Albert R. Chernoff
Area Manager
Kirtland Area Office

Enclosures

cc w/o enclosures:
J. G. Themelis, EPD, AL
F. Helgesen, 3221, SNL
Mrs. Shelda Sutton-Mendoza, USTB, NMED, Santa Fe, NM

Appendix C

Section 5.3 of the TA-I RFI Work Plan (SNL/NM, 1995)

## 5.3 ER Site 33, Motor Pool

### 5.3.1 Site Description and History

The Motor Pool occupies approximately 2.3 acres in the northeast portion of TA-I, due east of Building 861 and north of Building 878. It is outside the TA-I secured area but is encircled by a chain-link security fence. There are six buildings in the Motor Pool (Figure 5-6): Buildings 873, 874, 875, 876, 8874, and a car wash.

The area was listed as ER Site 33 based on information obtained during the CEARP Phase I interviews concerning a gasoline spill. In 1983, a gasoline spill occurred at the Motor Pool which crossed asphalt and was contained by an asphalt berm. Contaminated soil that was used as a sorbant for the gasoline was removed and placed in the Chemical Waste Landfill (DOE 1987). No residuals from the spill are expected to remain within the Motor Pool. Other potential areas of concern include past fuel dispensing areas, a grease pit and oil collection system, and a wash/steam clean area. Because each potentially contaminated area is unique, these areas will be investigated independently. Table 5-9 summarizes the sampling planned for each area.

The Motor Pool opened in 1946 as the home of the Transportation and Safeguards organization, which has had responsibility for servicing DOE/AL and SNL/NM vehicles since that time. The Motor Pool has expanded from one building (the original Building 874) to the current six. The Motor Pool has also always included a fuel dispensing area, which has occupied three different locations. A wash/steam clean area has also been constructed within the Motor Pool site. This section provides a brief description and history of each Motor Pool building and area.

#### *5.3.1.1 Building 873*

Building 873 was constructed in the southwest corner of the Motor Pool area in the late 1940s and has served as the dispatch office since that time. The building was renovated in the 1960s. There have been no known sources of a potential release in, and no reported releases of hazardous materials from, this building. No further investigation of Building 873 is planned.

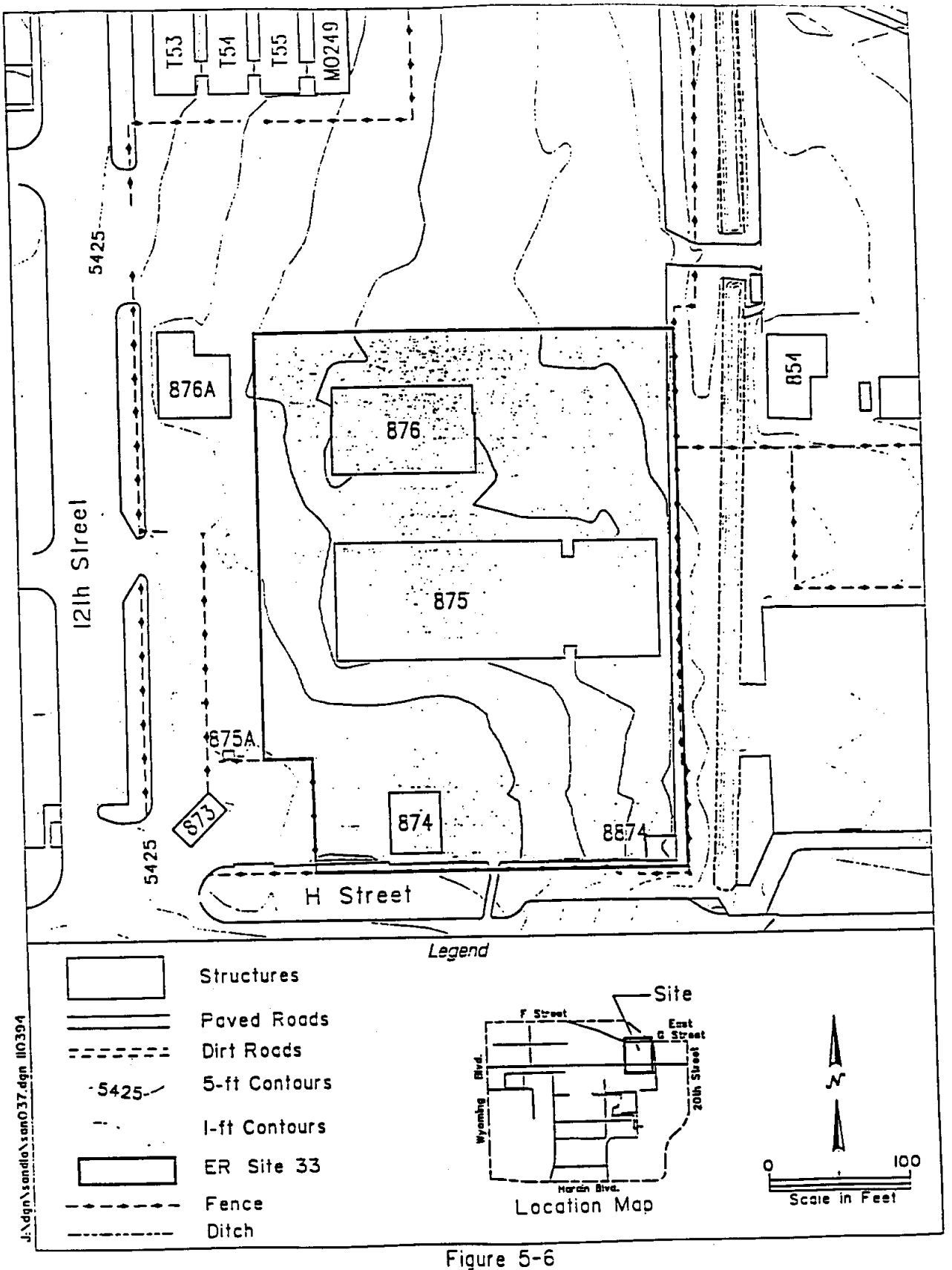



Figure 5-6
ER Site 33: Motor Pool

Table 5-9. Summary of Sampling Strategies at Areas of Concern at Motor Pool

| Area Under Investigation | Potential Contaminants | Number of Geoprobe Sample Locations | Analyses of Geoprobe Samples |
|---|---|---|---|
| Former Grease Pit and Interceptor Lines at Building 876 | Motor oil (heavy petroleum hydrocarbons)<br>Cleaning solvents<br>Metals (lead, nickel, and aluminum) | 10 | VOCs, SVOCs, and metals |
| Fuel Dispensing Area North of Building 874 | Gasoline and diesel fuel (light petroleum hydrocarbons) | 18 | VOCs |
| Fuel Dispensing Area East of Building 876 | Gasoline and diesel fuel | 5 | VOCs |
| Wash/Steam Clean Area South of Building 876 | Petroleum hydrocarbons<br>Cleaning solvents<br>Metals (lead, nickel, and aluminum)<br>Battery acid | 4 (and 1 sediment sample) | VOCs, SVOCs, metals |

### 5.3.1.2 *Building 874*

Building 874 was the original building in the Motor Pool. It was constructed near the middle of the southern fence in 1946 as the original service station. The building initially included service bays, and a fuel dispensing area was located on its north side. Design drawings were prepared for building renovations undertaken in the 1960s to provide a dispatch area. No building design drawings were located that indicated whether there were any floor drains or other pathways for contaminant migration from the original building. Renovations were performed in the 1980s at Building 874 to provide office and computer space. The drawings do not indicate any potential sources for contaminant releases to the environment. Individuals interviewed regarding past activities at Building 874 did not have any information to indicate there was ever a contaminant release from the building (Personal Communication, Employees 38, 39, 40, 1993). The building currently provides office space for personnel involved in Motor Pool quality assurance. During a 1993 visit to the building, no floor drains or potential sources of a contaminant release to surrounding soil were observed. Although no further investigation within Building 874 is planned, the fuel dispensing area will be investigated and is described in more detail below.

### 5.3.1.3 *Building 875*

Building 875 was constructed in the late 1940s or early 1950s as the automobile machine shop. In 1959, a front-end machine room and pit, a brake machine room and pit, a parts room, and an office were added. By 1965 an automotive shop, a body shop and a truck shop were in the building. Minor modifications in 1985 brought it to its current configuration. Interviews of past and present Motor Pool employees indicated there have been no releases of hazardous materials from this building.

According to personnel interviewed, no hazardous materials were used and no hazardous waste was generated in the front-end and brake machining areas. The machine shop was originally used to machine parts for the vehicles. Equipment included a boring press, a boring bar, and a honing machine. In the early 1980s, the honing machine was reportedly found to contain PCBs and was removed. Regarding disposition of the machine oil, two employees stated that the oil was never changed. Both said the oil was managed by ES&H personnel when the machine was removed. (Personal Communication, Employees 39, 40, 1993). No further investigation of Building 875 is planned.

### 5.3.1.4 *Building 876*

Building 876 was constructed in the late 1940s for its current use, vehicle maintenance and repairs. Building drawings indicate that the building originally contained a vehicle wash room, boiler room, tire room, and a grease room. The grease room ran the length of the building with a grease pit in the center. Vehicles were reportedly parked over the grease pit when serviced. The room was designed with an oil collection system. Oil entering the grease pit was diverted through oil interceptor lines to an underground drain oil tank on the north side of the building (Figure 5-7). The waste oil discharged to the abandoned grease pit and interceptor lines in Building 876 flowed by gravity to the drain oil tank. Other materials may also have been collected in the grease pit during automobile maintenance and repair activities, including cleaning solvents, antifreeze, and metals from motor oil (lead and aluminum).

The grease pit was abandoned and filled with concrete in the mid-1960s. By 1965, use of the drain oil tank had also ceased. Reportedly, oil was either collected in a large tank for use in dust control on roads between TA-I and TA-III or poured into a 10-ft by 20-ft pit under the wash/steam clean area. The drain oil tank was removed in May 1991 under NMED oversight. Soil samples were collected and analyzed as described in this section (IT Corp. 1991b). No documentation of NMED site closure was located in the background information reviewed in preparation of this work plan. The former drain oil tank site was evaluated under ADS 1300, Underground Storage Tanks, as part of the SNL/NM ER Project. The grease pit and interceptor lines are being investigated as part of the ER Site 33 RFI. A complete history of the grease pit, interceptor lines, and drain line is not understood at this time.

### 5.3.1.5 *Building 8874*

Building 8874 is a small corrugated metal building that has occupied the southeast corner of the Motor Pool since the mid-1940s. The building has been used to store equipment for most, if not all, of its history. No drawings were located for the building. Based on the information available, no hazardous materials were stored in or released from the building. No further investigation of Building 8874 is planned.

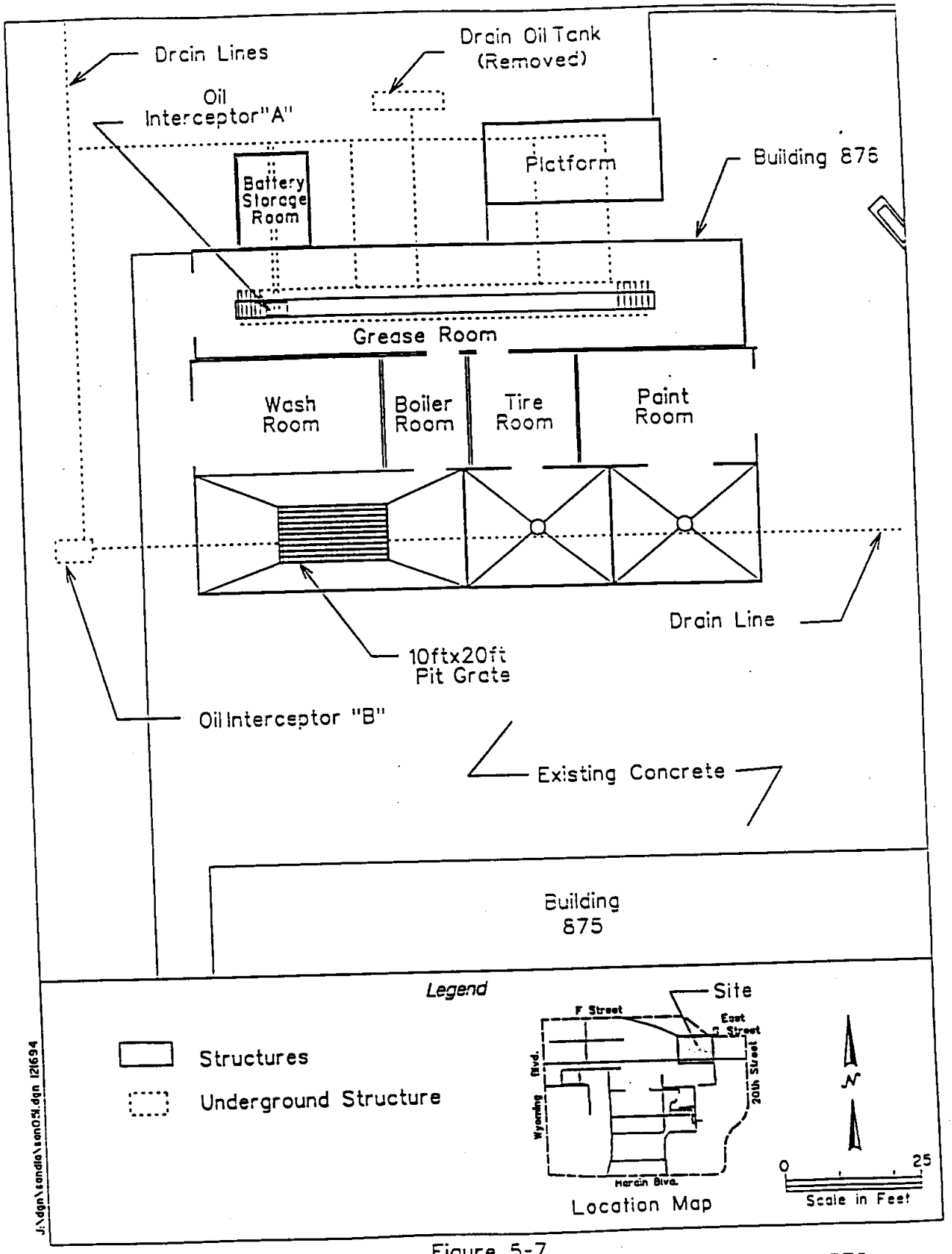



Figure 5-7
ER Site 33: Former Grease Pit and Interceptor Lines at Building 876

### 5.3.1.6 *Fuel Dispensing Areas*

The fuel dispensing area north of Building 874 operated from approximately 1946 until the mid- to late-1960s. There were two 8,000-gal underground gasoline storage tanks and one 8,000-gal underground diesel fuel tank. The gasoline tanks were located approximately 25 ft northeast and northwest of Building 874; the diesel tank was located about 50 ft north of Building 874. The tanks were filled either from H Street via fill lines or from directly above the tank. Tank and fill line locations are shown in Figure 5-8.

The fuel dispensing area was moved to a concrete area east of Building 876 in the late 1960s (Figure 5-9). Based on information gathered through employee interviews and a review of the building drawings, it is unclear whether both diesel and gasoline were dispensed from the same area east of Building 876 and whether tanks were installed adjacent to the pumps. During the gathering of RFI background information, an employee indicated that gasoline was supplied to the second dispensing area from the tanks located north of Building 874 but was uncertain whether diesel was dispensed from the same location (Personal Communication. Employee 40, 1993). No information was available to identify the tank or fuel distribution line locations serving the fuel distribution area east of Building 876.

Between 1982 and 1984, the fuel dispensing area was relocated to its present location north of Building 873, along the western side of the Motor Pool. The tanks north of Building 874 were reportedly removed and the fill lines capped in 1983, per interviews with employees and SNL/NM Drawing No. 763913 (Personal Communication, Employees 32, 38, 40, 1993). SNL/NM Mechanical Drawing No. 92537, M-1, indicates that the fueling facility was renovated and relocated in 1982 and the existing lines were capped and abandoned in place; no tanks are shown. The fuel dispensing areas north of Building 874 and east of Building 876 will be investigated as part of the ER Site 33 RFI. The present fuel dispensing area will not be investigated further because it is relatively new and should have neither deteriorated nor released fuel.

Based on information gathered through employee interviews (DOE 1985), the spill reported in the 1985 CEARP interviews occurred soon after the fuel dispensing area was moved to its present location. Someone filling a vehicle reportedly failed to replace the gas nozzle before leaving the pump. The pump was not equipped with an automatic shut-off valve, and gasoline leaked for approximately one-half hour before the spill was noticed and the pump shut off. The spill flowed

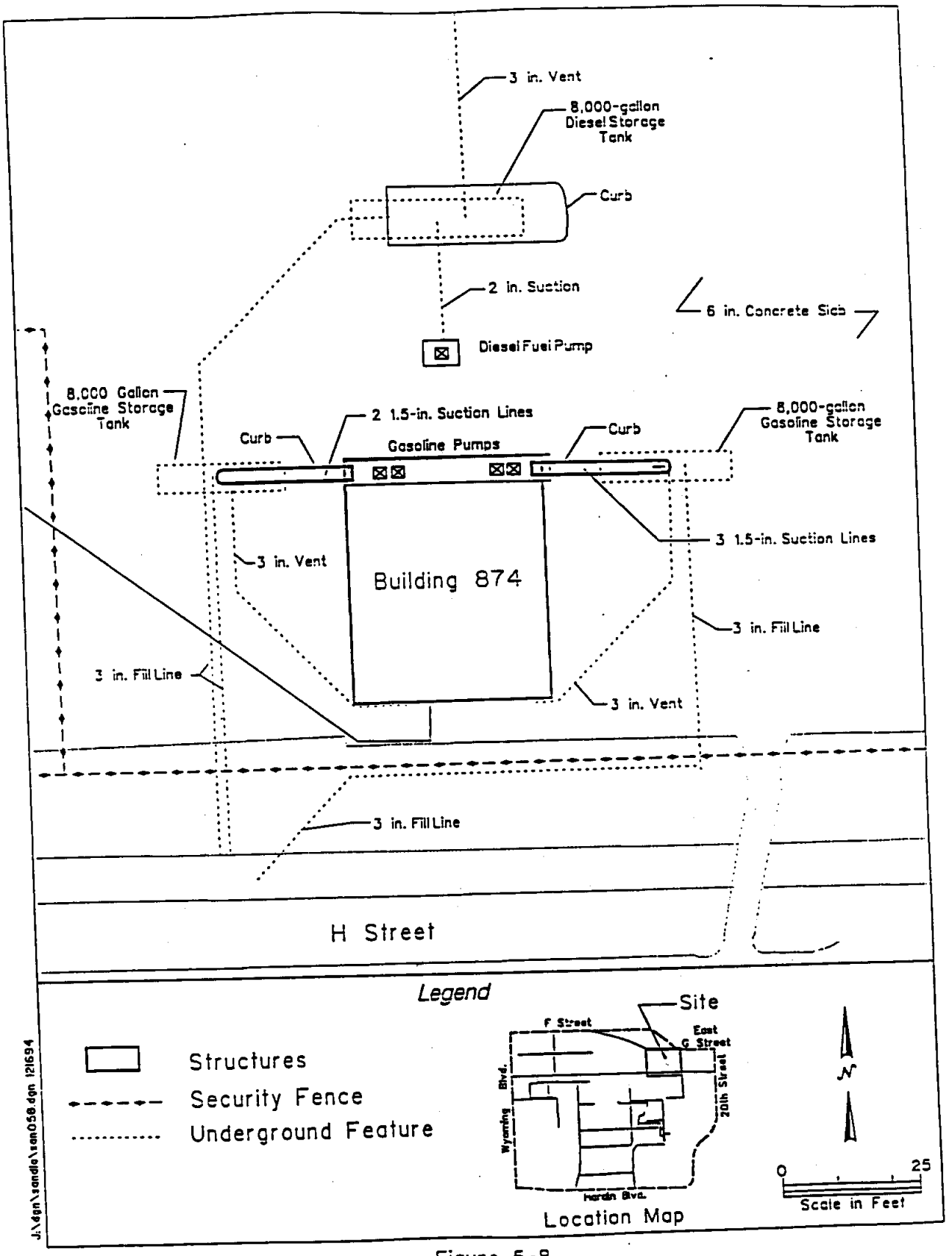



Figure 5-8
ER Site 33: Fuel Dispensing Area North of Building 874

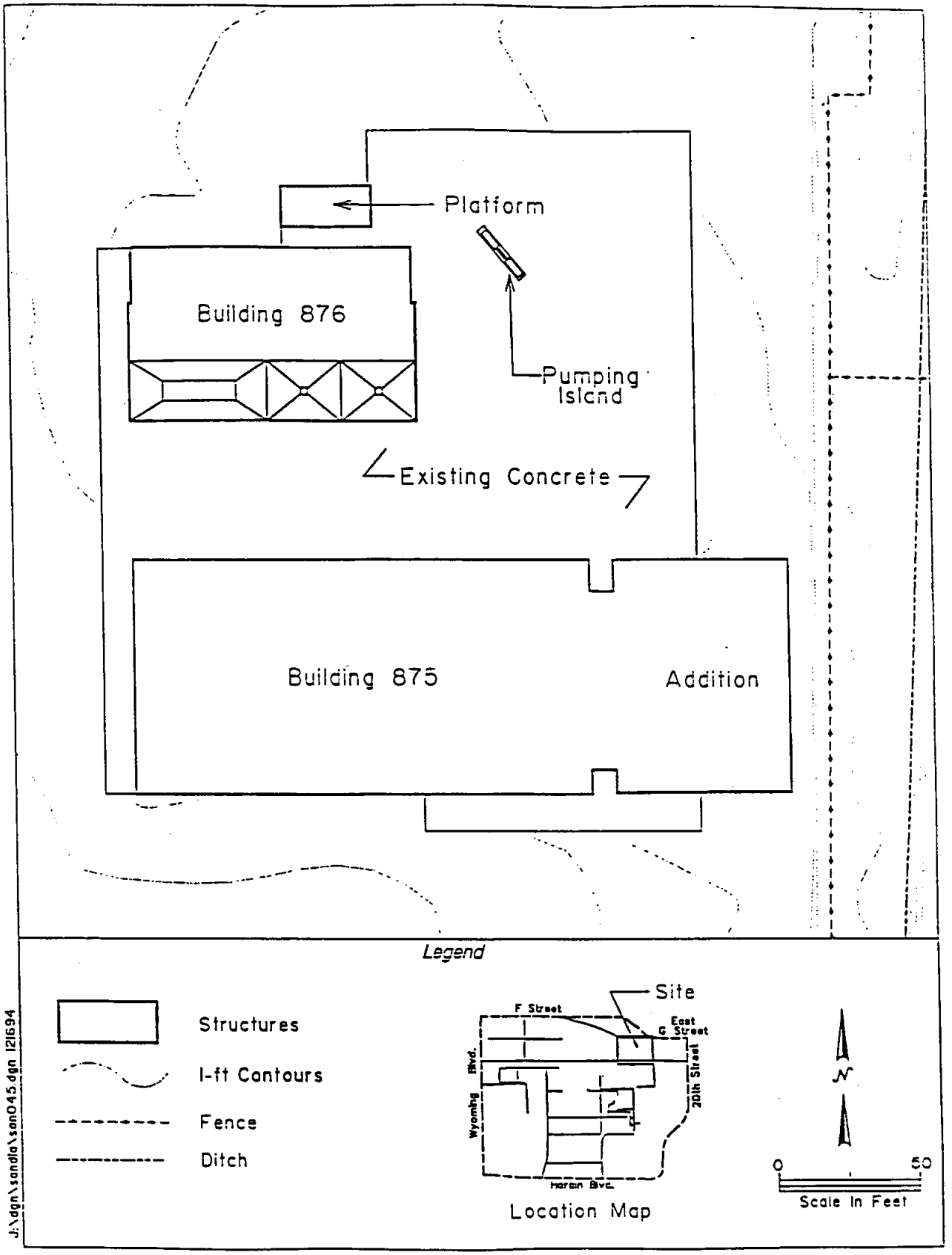



Figure 5-9
ER Site 33: Fuel Dispensing Area East of Building 878

toward the southeast corner of the Motor Pool, where it was contained by an asphalt dike and covered with sand or soil. The sand or soil was collected and temporarily stored in the southwest corner of the Motor Pool before it was removed. In interviews conducted for the RFA, personnel indicated that the soil was taken to the Chemical Waste Landfill for final disposal. Because the spill should not have penetrated the asphalt cover at the site, no further investigation of the spill site is planned.

### *5.3.1.7 Wash/Steam Clean Area*

In 1965 a wash/steam clean area was constructed south of Building 876. The wash area (Figure 5-10) (Reference: SNL/NM Drawing Nos. 35-10-01, Plate No. 86 of 99 and 75288, Sheet 1 of 8), is comprised of a grated pit with four evenly spaced floor drains that were originally connected to the storm drain system via an oil interceptor ("B") east of the wash area. The pit has been routinely cleaned every six months for the last ten years but there has been no known inspection of the pit during this time (Personal Communication, Employee 51, 1993). Maintenance practices before 1983 are unknown. In the early 1990s the interceptor lines were rerouted from the storm drain to the sanitary sewer system.

Information gathered from interviews with current and past Motor Pool employees indicates that waste was drained into the wash/steam clean area. Batteries were drained on pit edges and waste antifreeze was poured into the pit. One individual said waste oil was dumped into the pit; however, another individual said that it was not (Personal Communication, Employees 37, 40, 1993). Materials other than wash water were allowed to drain and were poured into the pit from 1965 until the early 1980s (Personal Communication, Employee 37, 1993). The wash/steam clean area will be investigated as part of the ER Site 33 RFI.

### *5.3.1.8 Car Wash Area*

The car wash was constructed around 1987. No known hazardous materials are used in the car wash, and no releases of hazardous materials have been reported from the facility. No further investigation of the area is planned.

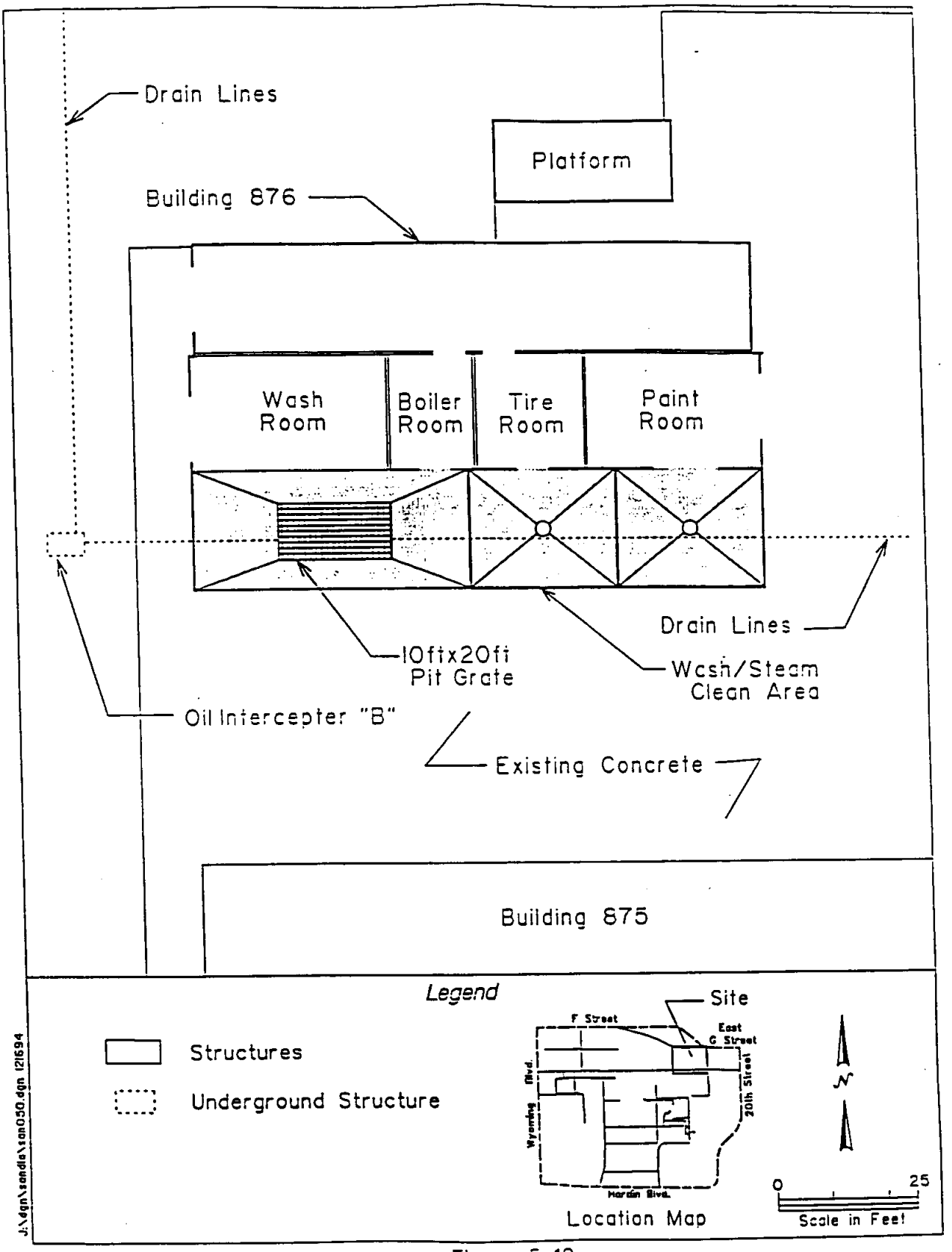



Figure 5-10
ER Site 33: Wash/Steam Clean Area at Building 876

### 5.3.2 Previous Investigations

One previous investigation has been carried out at the Motor Pool. The drain oil tank on the north side of Building 876 was removed in May 1991 under oversight of the NMED Underground Storage Tank Bureau. Stained surface soil was observed during tank removal. The tank had a 1-in. hole in the top section and 4 holes ranging in diameter from one-eighth to one-half in. along the center line. There was no evidence of a release in the excavation zone. Soil samples collected from 2 ft below the previous tank bottom location contained concentrations of 3670 mg/kg and 1370 mg/kg total TPH (EPA Method 418.1), values above the NMED 100 mg/kg action level. Aroclors (PCBs) were not detected above detection limits of 80 and 160 μg/kg (Hyde 1991; Chernoff 1991; IT Corp. 1991c).

Five borings were then drilled to collect soil samples from directly beneath the tank location and within the 20- by 22-ft excavation boundary. TPH was detected in several of the samples (Hyde 1991; Chernoff 1991; IT Corp. 1991c). The highest value detected was 1120 mg/kg TPH in the sample collected 15 ft bgs from the boring southwest of the previous tank center. The deepest sample in which TPH were detected (115 mg/kg) was 30 ft bgs from the same boring. Those values are also above the NMED 100 mg/kg action level. Prior to backfilling the excavation, 15 cu yds of contaminated soil were removed and segregated for landfarming at the Kirtland landfill (Chernoff 1991). However, contaminated soils may remain in place at the site.

### 5.3.3 Nature and Extent of Contamination

There is little information on the nature and extent of contamination at the Motor Pool. The only documented investigation is the one carried out during the tank removal near Building 876. All other information on the nature of possible contamination is based on employee knowledge of waste disposal practices and on knowledge of the virgin materials and waste stored at the Motor Pool (*e.g.*, gasoline and motor oil).

There is no known or suspected contamination remaining from the gasoline spill that occurred in 1983. The gasoline spill occurred on asphalt-paved areas, was contained with soil, and the soil was collected and disposed of in the Chemical Waste Landfill (DOE 1987). There is no known contamination associated with the abandoned pit and interceptor lines, the fuel dispensing area north

of Building 874, the fuel dispensing area east of Building 876, or the wash/steam clean area south of Building 876.

Based on the samples collected and the analyses performed at the time the drain oil tank was removed in 1991, vertical contamination at that location extends to an approximate depth of 30 to 35 ft bgs. The horizontal extent of contamination associated with the drain oil tank is restricted to the soil within the 20 ft diameter area defined by the boring locations, with the exception of the soil southwest of the tank location. Building 876 is within 4 ft of the southwest boring (IT Corp. 1991b).

### 5.3.4 Conceptual Model

The conceptual model for the releases from the Motor Pool is based on available historical information and the data collected from the former drain oil tank location. Potential COCs at the Motor Pool include petroleum hydrocarbons and lead associated with gasoline and diesel fuels; motor oil and lubricants; organic solvents used in cleaning, such as alcohols, TCA, and TCE; and metals which may have been in the waste oils, such as aluminum, lead, and nickel. Hazardous constituents may have been released into surrounding soil via structural breaks or cracks, or system corrosion. The fuel tanks were in use for nearly 40 years, and the grease pit and wash/steam clean area were used for 15 to 20 years. There were no tank overfillings or spills reported other than the gasoline spill described in the CEARP (DOE 1987). Any overflow would have occurred on concrete or asphalt surfaces. There were no documented releases from the grease pit or the wash/steam clean area.

There is no known contamination associated with the abandoned grease pit or the interceptor lines at Building 876. Based on the condition of the drain oil tank observed during tank removal and the petroleum hydrocarbons detected in surrounding soil, similar releases may have occurred from the oil collection system.

There is no known contamination associated with the fuel dispensing area north of Building 874. Based on the conditions observed during removal of the drain oil tank, the storage tanks (which were of approximately the same age) may have been in a similarly poor condition. Petroleum products may have therefore been released from the tanks and the fill lines north of Building 874.

There is no known contamination associated with the fuel dispensing area east of Building 876. The area was used for approximately 15 years, and prior to being capped, underground feed lines may have deteriorated to the extent that gasoline and diesel fuel were released to the surrounding soil.

Horizontal and vertical contaminant migration should be limited in all areas of the Motor Pool. The asphalt and concrete cover prevents infiltration of precipitation, which could otherwise transport the potential COCs through the vadose zone at those covered areas. COCs at the drain oil tank were detected within 35 ft bgs and 20 ft laterally from the tank location. Potential COCs can be assumed to have migrated similar distances in other areas of the Motor Pool. Potential releases from other areas of the Motor Pool are believed to be restricted to within 50 ft bgs and 25 ft horizontally from any release site.

The mobility and persistence of petroleum products are fairly well understood (Mull 1971; Kostecki and Calabrese 1989a, b). Fuel and motor oil are complex mixtures of hydrocarbon compounds, and their migration and degradation depends on the type of petroleum product released to the soil. Volatile constituents may evaporate or move through the soil in the vapor phase and are expected to move farther from the release site than the larger, heavier hydrocarbon constituents. Heavier hydrocarbon compounds, such as those found in motor oil, are not expected to migrate rapidly through the soil from the release. Biodegradation of both light and heavy hydrocarbons may occur, but the process is generally slow in arid regions.

The mobility of metals in alkaline soil is slight. Any metal contaminants are expected to be found within 10 ft of any release at the Motor Pool.

The potential COCs at the Motor Pool pose no direct human exposure risk. Presently, the combination of institutional controls and site cover prevent occupational or public exposure to the potential COCs. Access to the site is controlled by the guards at the KAFB gates and the security fence encircling the Motor Pool. The potential release areas are covered by asphalt or concrete, preventing direct exposure to the source. Continued maintenance of the cover will ensure that human exposure and infiltration of precipitation is minimized. If site maintenance requires removal of the overlying asphalt and/or concrete, monitoring will be instituted to ensure worker safety.

Corrective measures to be considered at the Motor Pool include excavation and removal to a licensed treatment and/or disposal facility and *in situ* or *ex situ* treatment such as bioremediation, vapor extraction, or soil flushing. Data required to evaluate corrective measures will be collected as described in the Sampling Plan Section 5.3.5. No additional data are required to evaluate the effectiveness of institutional controls and covers during the RFI/CMS.

### 5.3.5 Sampling Plan

General DQOs for the TA-I RFI are given in Section 4.3. Specific DQOs for the Motor Pool investigation include:

- Determining whether petroleum hydrocarbons, battery acid solvents, or metals have been released during historic activities at the Motor Pool.
- Producing Level I and Level III data for all sampling that will be used to locate additional borehole samples.
- Characterizing the vertical and lateral extent of any COCs detected above action levels at the Motor Pool by collecting samples from surface soil and shallow subsurface soil for analysis (Level III).
- If necessary, produce Level III data for deep borehole samples so that risk calculations may be performed and corrective measures may be evaluated.

The DQOs will be achieved through implementation of the sampling strategy outlined below. Data will be collected during shallow subsurface soil sampling and soil boring investigations. If contaminants are detected in the shallow subsurface soil samples at concentrations above the action levels and/or background levels, additional samples (*i.e.*, deep soil borings) will be collected. Analytical Levels I and III will be required for analytical procedures under this plan.

#### *5.3.5.1 Shallow Subsurface Sampling*

##### *5.3.5.1.1. Data Collection*

The same general strategy will be followed at each investigative area at the Motor Pool. The strategy is summarized in Table 5-9. The sample collection locations and other information specific to each investigative area at the Motor Pool are given below. Shallow subsurface soil samples will be

collected using the Geoprobe at locations identified as potential areas of collection. These samples will be collected at 5-ft intervals within the top 30 ft of soil for lithologic logging, field screening, and laboratory analysis. Samples will be collected at each Geoprobe sample location and screened for VOCs with a properly calibrated FID and for petroleum hydrocarbons using an immunoassay kit or equivalent. Depending upon availability, a small field gas chromatography (GC) unit such as a Photovac 10S may be used in place of the FID. Continued sampling will be guided by the field analyses. Where no organic vapors or petroleum hydrocarbons are detected in two consecutive analyses, sampling will be terminated.

At Geoprobe locations where no contaminants are detected by field screen methods, the soil samples collected at 5 and 10 ft bgs intervals will be sent to the off-site laboratory for Level III analysis. If screening indicates the presence of contaminants, a minimum of 3 samples per location will be submitted for off-site laboratory analysis: 1 sample from the interval having the highest screening result (to characterize the nature of the COCs) and 1 sample from each of the 2 consecutive, nondetect, deepest sample intervals. Soil not submitted for laboratory analysis will be containerized as IDW.

### *5.3.5.2 Borehole Sampling*

#### *5.3.5.2.1. Data Collection*

Boreholes will only be required at locations where screening or Level III results indicate the possible presence of COCs in the deepest Geoprobe sample. At those Geoprobe locations where the screening and verification do not detect potential COCs, boreholes will not be drilled. If potential COCs are detected in the shallow subsurface samples and boreholes are required, one borehole will initially be drilled at the location of the Geoprobe sample. The vertical extent of potential contamination will be determined using the field screening techniques described for the shallow subsurface sampling. Three additional boreholes will be located radially around the central borehole as access permits; the distance of these from the central borehole will be dependent upon the vertical extent of potential contamination and site clearance/access issues. If there are multiple adjacent Geoprobe soil sampling locations that have identified hot spots in the deepest sample interval, then surrounding each Geoprobe sampling location with boreholes may be inefficient. In this case, the deep borehole locations may be optimized to characterize the entire group of Geoprobe soil sampling locations.

At each borehole location, a hollow-stem auger will be used to collect samples for field screening, lithologic logging, and laboratory analysis (Level III). Borehole sampling will be initiated at a depth below the maximum Geoprobe sample depth (*i.e.*, approximately 30 ft bgs). Samples will be collected at 5-ft intervals from 30 to 50 ft, at 10-ft intervals from 50 to 100 ft, and at 20-ft intervals at depths greater than 100 ft. During borehole sampling, one split from each depth will be sealed, labeled, and held for possible laboratory analysis. The other split from each depth will be field screened as described for the shallow subsurface soil sampling for VOCs and petroleum hydrocarbons. If no contaminants are detected by the field screening, the two shallowest samples will be considered uncontaminated and sent for Level III laboratory analysis. If contaminants are detected in the first two samples collected, borehole drilling will continue and split samples will be collected at the intervals described above. Borehole drilling and sampling will continue until no contaminants are detected at two consecutive intervals or to the depth limits of the drilling method. Samples will be submitted for off-site laboratory analysis (Level III), including the sample from the depth showing the greatest field screening result (to characterize the nature of COCs) and one sample from each of the 2 consecutive, nondetect, deepest sample intervals. Core material not submitted for laboratory analysis will be containerized as IDW.

*5.3.5.3 Sampling Plan by Area*

*5.3.5.3.1. Former Grease Pit and Interceptor Lines in Building 876*

Soil sample locations will be placed approximately 20 ft apart adjacent to the abandoned grease pit and interceptor lines connecting the grease pit with the drain oil tank. Three locations will be sited along the grease pit (Figure 5-11). Because the abandoned grease pit has been filled with approximately 6 ft of concrete to existing grade, sample locations will be 2 ft to 3 ft north of the grease pit.

Five Geoprobe sample locations will be at intervals of approximately 20 ft along the drain oil interceptor line (Figure 5-11). Building additions on the north side of Building 876 make it impossible to sample directly adjacent to the former drain oil line in some places. In these cases, Geoprobe sample locations will be as close to the building as possible. Locations on the west side of Building 876 will be collected as close to the former interceptor line as possible. Underground utilities are the only obstacles to these sampling locations.

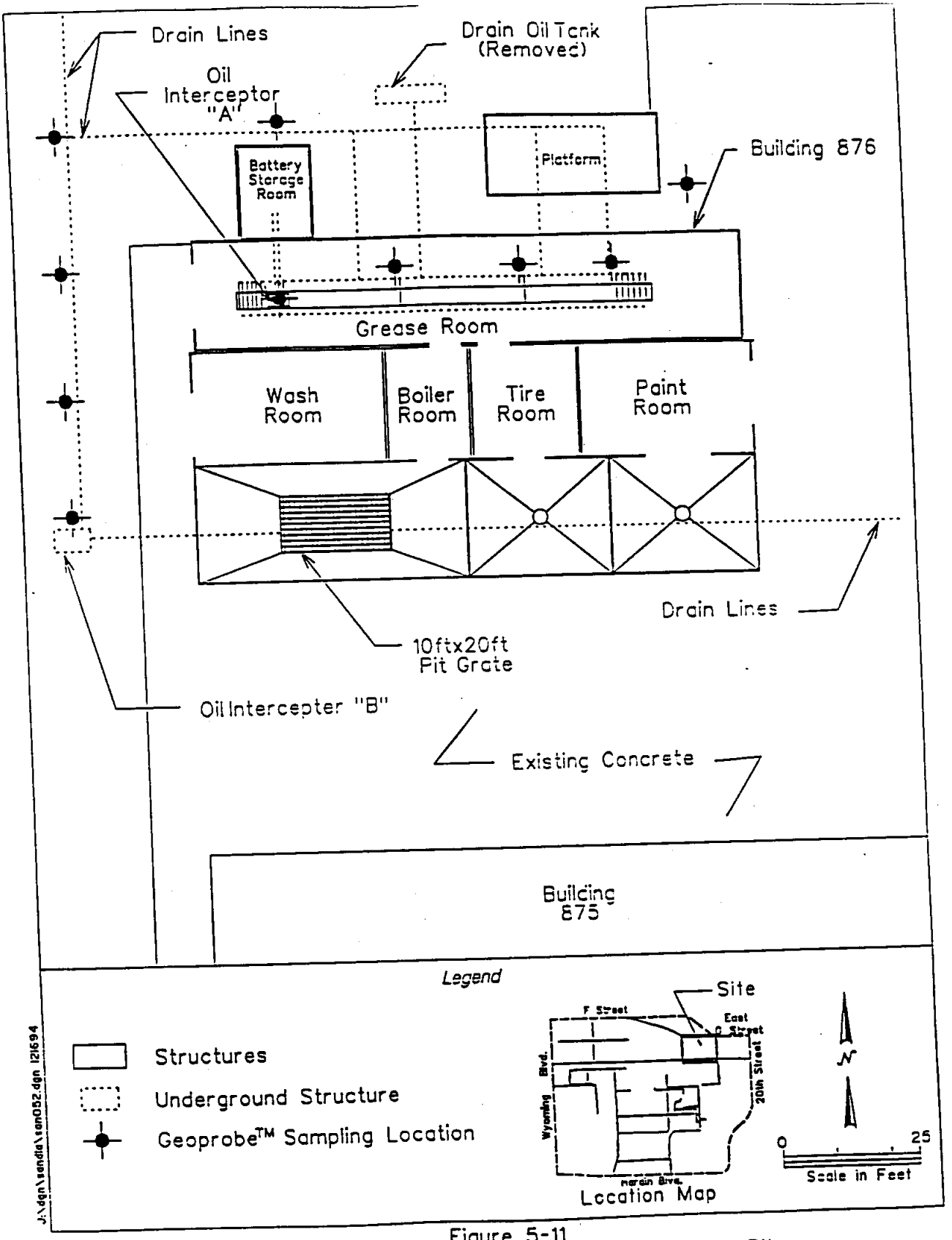



Figure 5-11
ER Site 33: Sampling Locations, Former Grease Pit and Interceptor Lines at Building 876

Two Geoprobe sample locations will be as near the two oil interceptors "A" and "B" as possible. Interceptor "A" is on the interior of the building and access will be limited. Interceptor "B" is on the west side of Building 876 and underground utilities are the only obstacles to this sampling location.

Grease pit, interceptor, and line samples will be collected at 5 ft intervals beginning 5 ft bgs and continuing to a depth of 30 bgs, if necessary. For planning purposes, it is assumed that 60 screening samples (ten locations, six depths at each) will be collected as well as additional QA/QC samples.

If boreholes are determined to be necessary, they will be located as described above. For each borehole drilled, it assumed for planning purposes that the maximum borehole depth will be 100 ft and that a minimum of three soil samples will be collected and analyzed from each borehole as well as additional QA/QC samples.

*5.3.5.3.2. Fuel Dispensing Area North of Building 874*

At the fuel dispensing area north of Building 874, 18 shallow subsurface locations will be sampled to detect any releases from the three former tank locations and the fill and distribution lines, as shown in Figure 5-12. The sample locations were selected at points along distribution lines, at line elbows, near tanks, or adjacent to the concrete slab where there would be the highest probability of a release from the system. Starting at a depth of 5 ft bgs, samples will be collected at 5-ft intervals to a depth of 30 ft bgs. For planning purposes, it is assumed that 108 screening samples (18 locations, 6 depths at each) will be collected as well as additional QA/QC samples.

If boreholes are determined to be necessary, they will be located as described above. For planning purposes, borehole depth is estimated to range from 40 to 60 ft, but the depth may be extended based on the field screening data. Actual depth of vertical sampling may vary according to field conditions. At least three soil samples will be collected from each borehole as well as additional QA/QC samples.

*5.3.5.3.3. Fuel Dispensing Area East of Building 876*

Soil samples will be collected from one Geoprobe sample location adjacent to the former fuel pump and four locations at a distance of 20 ft laterally in four directions from the former dispensing area (Figure 5-13). Soil samples will be collected at 5-ft intervals, and will continue to a depth of 30 ft if necessary. For planning purposes, it is assumed that 30 screening samples (five locations, six depths at each) will be collected as well as additional QA/QC samples.

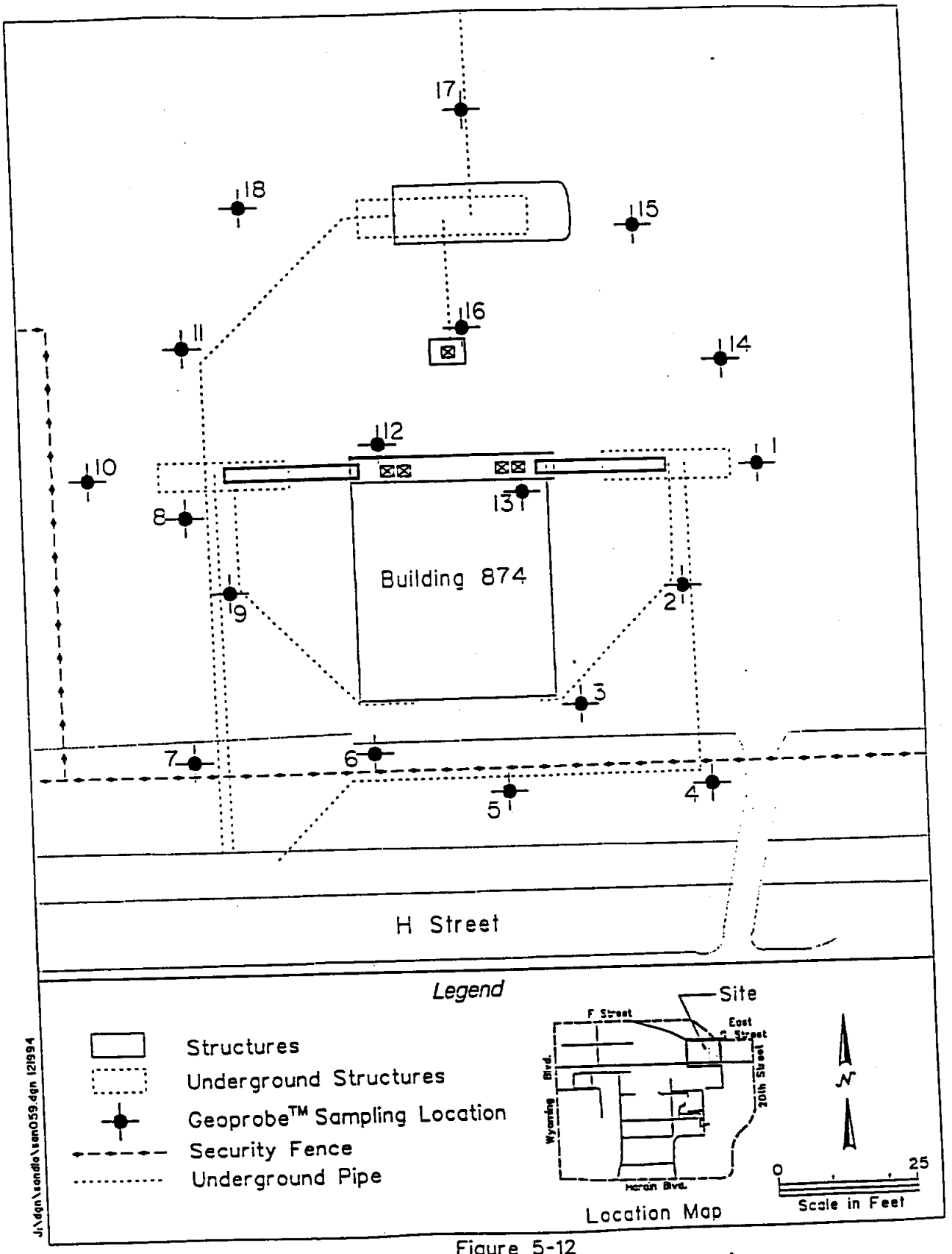



Figure 5-12
ER Site 33: Sampling Locations, Fuel Dispensing Area North of Building 874

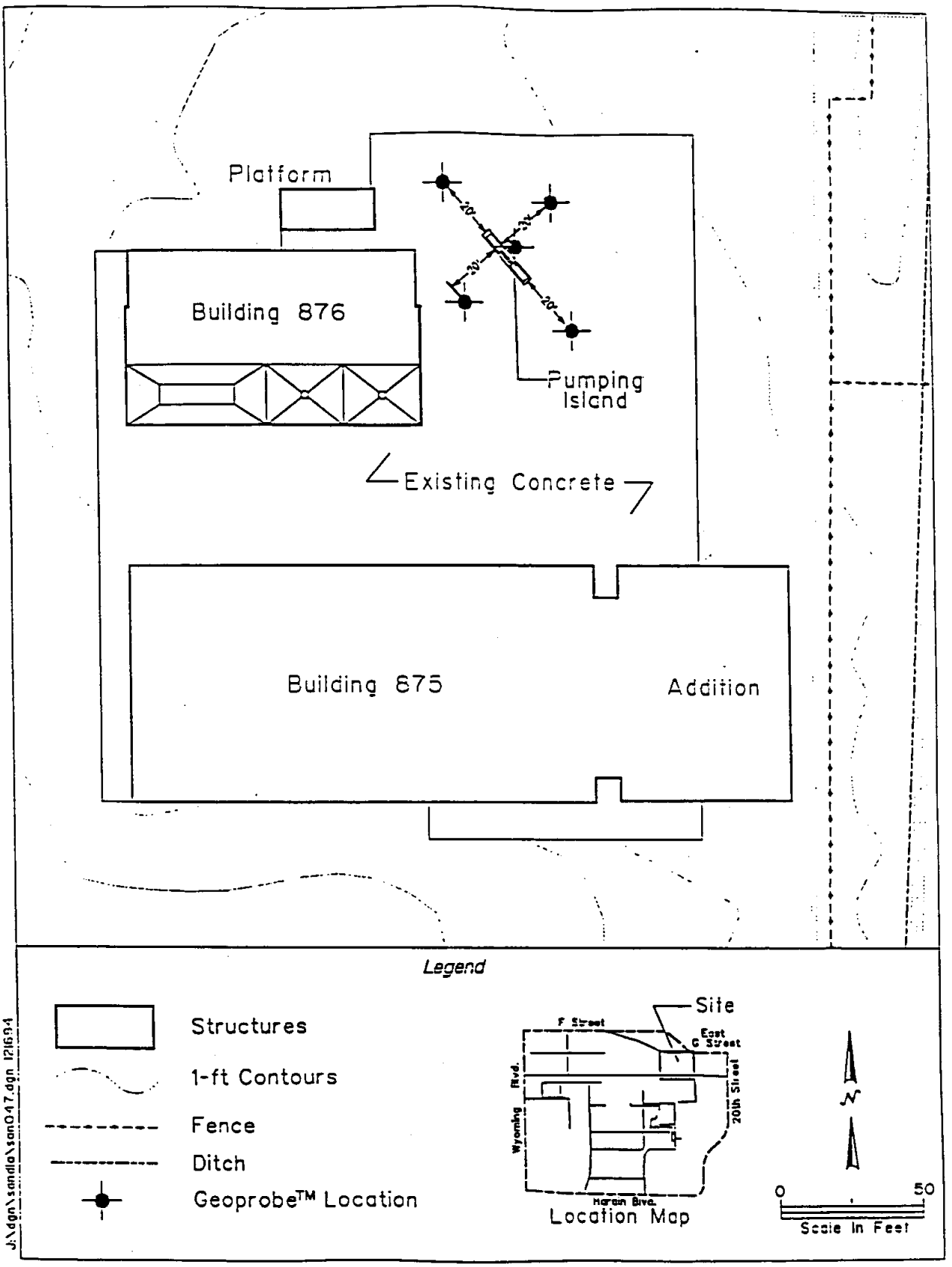



Figure 5-13
ER Site 33: Sampling Locations, Fuel Dispensing Area East of Building 876

If boreholes are determined to be necessary, they will be located as described above. For planning purposes, borehole depth is estimated to range from 40 to 60 ft, but the depth may be extended based on the field screening data. Actual depth of vertical sampling may vary according to field conditions. At least three soil samples will be collected from each borehole as well as additional QA/QC samples.

#### 5.3.5.3.4. *Wash/Steam Clean Area South of Building 876*

Initially, the wash/steam clean area will be visually inspected for evidence of cracks or deterioration in the concrete. Sample locations will be biased toward locations of any detected cracks or evidence of deterioration, if any. While metals are of concern at these locations, organic contaminants are expected to migrate farther from the source than metals. The depths of contamination will be determined based on the VOC and petroleum hydrocarbon field screening results.

Soil samples will be collected in four locations along the base of the grated pit and the adjacent containment areas. Two of the sample locations will be placed approximately 4 ft south of the floor drains to avoid damage to the plumbing connecting the floor drains to the sanitary sewer lines. The other two sample locations will be on pavement just south of the wash/steam clean area (Figure 5-14). The samples will be collected at 5-ft intervals starting 2 ft below the pit bottom (estimated to be 2 to 3 ft bgs) and continuing to a depth of 30 ft, if necessary, as described above. For planning purposes, it is assumed that 24 screening samples (four locations, six depths at each) will be collected as well as additional QA/QC samples. One sludge sample will be collected with a scoop, if possible, from the bottom of the drain pit for offsite laboratory analysis (Level III).

If boreholes are determined to be necessary, they will be located as described above. For planning purposes, borehole depth is estimated to range from 40 to 60 ft but the depth may be extended based on the field screening data. Actual depth of vertical sampling may vary according to field conditions. At least three soil samples will be collected from each borehole as well as additional QA/QC samples.

#### 5.3.5.3.5. *Analytical Parameters*

Tables 5-10 to 5-13 at the end of the subsection identify the screening analyses to be performed for the shallow subsurface sampling at the Motor Pool areas of potential concern. Shallow subsurface soil samples will be analyzed for petroleum hydrocarbons (*i.e.*, gasoline, diesel fuel and motor oil) by

a field immunoassay method, (draft SW-846 Method 4030), and for VOCs with a properly calibrated FID or by field GC/MS. Samples submitted for verification of screening results will be analyzed at an off-site analytical laboratory for the area-specific parameters listed in the same tables. The sludge sample from the wash/steam clean area will be analyzed at an offsite analytical laboratory for VOCs, SVOCs, and TAL inorganics.

Table 5-14 at the end of this subsection is an example table; it lists the environmental, QA/QC, and waste management samples for a single borehole in an area of the Motor Pool. All borehole soil samples will be analyzed for VOCs and SVOCs; additionally, samples collected from the former grease pit and interceptor lines and the wash/steam clean area will be analyzed for metals.

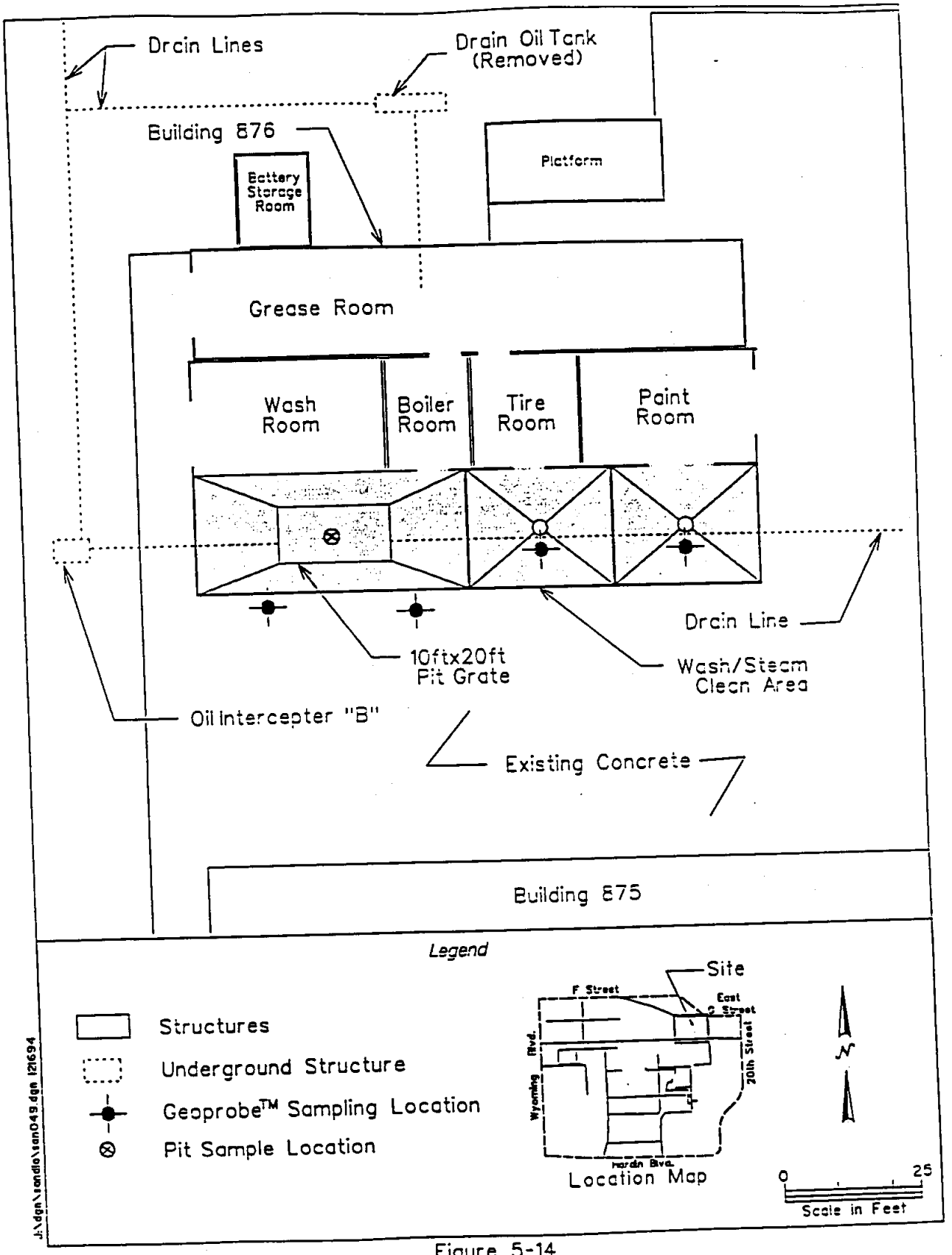



Figure 5-14
ER Site 33: Sampling Locations at the Wash/Steam Clean Area at Building 876

October 13, 2003

# ADDITIONAL /SUPPORTING DATA

CAN BE VIEWED AT THE
ENVIRONMENTAL, SAFETY, HEALTH
AND SECURITY (ES&H and Security)
RECORD CENTER

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844-4688