

ALAMEDA COUNTY
HEALTH CARE SERVICES



AGENCY
DAVID J. KEARS, Agency Director

June 4, 1997

ENVIRONMENTAL HEALTH SERVICES

1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
(510) 337-9335 (FAX)

STID 2306

Mr. Bill Hoppes
Lawrence Livermore National Laboratory
P.O. Box 808, L-627
Livermore, CA 94550

RE: LLNL Subsite 511-D1U1, 7000 East Avenue, Livermore

Dear Mr. Hoppes:

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25299.37[h]) of the California Health and Safety Code. The State Water Resources Control Board (SWRCB) has required since March 1, 1997 that this agency use this case closure letter for all UST leak sites. We are also transmitting to you the enclosed case closure summary. These documents confirm the completion of the investigation and cleanup of the reported release at this site.

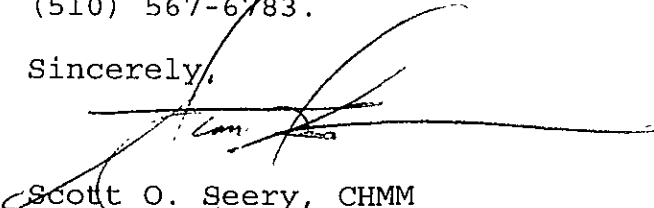
SITE INVESTIGATION AND CLEANUP SUMMARY

Please be advised that the following conditions exist at the site:

- o Up to 2300 parts per million (ppm) Total Petroleum Hydrocarbons as Diesel and 0.00073 ppm benzene, among other constituents, remain in native soil beneath the former UST at a depth of 20.5 - 20.8 feet below current grade.

If you have any questions, please contact the undersigned at (510) 567-6783.

Sincerely,


Scott O. Seery, CHMM
Senior Hazardous Materials Specialist

Enclosures:

1. Case Closure Letter
2. Case Closure Summary

cc: Robert Weston, ACDEH Environmental Protection Division

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REMEDIAL ACTION COMPLETION CERTIFICATION

Lawrence Livermore National Laboratory
P.O. Box 808, L-627
Livermore, CA 94550
Attn: Bob Hoppes

RE: LLNL Subsite 511-D1U1, 7000 East Avenue, Livermore

Dear Mr. Hoppes:

This letter confirms the completion of a site investigation and remedial action for the underground storage tank formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action related to the underground tank release is required.

This notice is issued pursuant to a regulation contained in Section 2721(e) of Title 23 of the California Code of Regulations.

Please contact our office if you have any questions regarding this matter.

Sincerely,

Mee Ling Tung
Director, Environmental Health Services

c: Gordon Coleman, Chief, Env. Protection Division
Robert Weston, ACDEH
Kevin Graves, RWQCB
Chris Boykin, Livermore-Pleasanton Fire Dept. (w/attachment)
SOS/files

Leaking Underground Fuel Storage Tank Program

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Report(s) on file? **YES** Where is report filed? **Alameda County**
1131 Harbor Bay Pkwy
Alameda CA 94502

Treatment and Disposal of Affected Material:

<u>Material</u>	<u>Amount</u> (include units)	<u>Action (Treatment</u> <u>of Disposal w/destination)</u>	<u>Date</u>
Tank	500 gals	<u>Disposal</u> - Erickson, Inc. Richmond, CA	10/08/93
Piping	14 ft	<u>Disposal</u> - as above	
Product	150 gals	<u>Recycle</u> - Evergreen Oil Newark, CA	10/07/93
Soil	20 yds ³	<u>Disposal</u> - BFI L.F. Livermore, CA	12/16/95
Groundwater	NA		
Barrels	"		

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm)		Water (ppm)	
	Before ¹	After ²	Before	After
TPH (Gas)	NA	NA	NA	NA
TPH (Diesel)	3500	2300		
Benzene	ND	0.00073		
Toluene	"	0.015		
Xylene	130	0.062		
Ethylbenzene	ND	0.089		
Other: radioactivity	"	NA		

- Note:
- 1) "Before" soil sample results represented by sample TK511-D1U1-SM-01-88 collected from the base of the east wall of the excavation at a depth of 88" BG.
 - 2) "After" soil results represented by samples SIB-511-001-20.5 and -20.8 collected from boring advanced through the base of the former UST pit at depths of 20.5 and 20.8' BG.

Comments (Depth of Remediation, etc.):

A single 500 gallon diesel UST and all accessible piping was removed from this LLNL subsite in October 1993. This tank was used to fuel an emergency generator in Building 511. Although historic tank tests indicated a "tight" tank, fuel contamination, likely due to overfilling, was observed in native and backfill materials once the tank was uncovered.

Two (2) environmental samples were initially collected, one each from the UST pit and piping trench, in addition to stockpile and asphalt samples. Laboratory results revealed up to 3500 ppm TPH-D and 130 ppm toluene in the

Leaking Underground Fuel Storage Tank Program

sample collected from the base of the east wall of the excavation; remaining target compounds were "ND." The trench sample also was "ND" for all target compounds.

Approximately 25 yds³ of diesel-impacted material was excavated from the UST pit and stockpiled on-site for two years. The stockpile was eventually transported to BFI landfill (Livermore, CA) for disposal during December 1995.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? _____

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? _____

Does corrective action protect public health for current land use? YES
Site management requirements: NA

Should corrective action be reviewed if land use changes? YES

Monitoring wells Decommisioned: NA (no monitoring wells associated with this subsite)

Number Decommisioned: NA Number Retained: NA

List enforcement actions taken: NONE

List enforcement actions rescinded: NA

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Scott Seery Title: Sr. Haz Mat Specialist
Signature: _____ Date: 5-14-97

Reviewed by
Name: Tom Peacock Title: Supervising Haz Mat Specialist
Signature: _____ Date: 5-14-97

Name: Kevin Tinsley Title: Haz Mat Specialist
Signature: _____ Date: 4-11-97

VI. RWQCB NOTIFICATION

Date Submitted to RB: 5/14/97 RB Response:
RWQCB Staff Name: Kevin Graves Title: San. Eng. Assoc. Date:

Leaking Underground Fuel Storage Tank Program

VII. ADDITIONAL COMMENTS, DATA, ETC.

During March of 1995, four (4) boreholes were drilled to depths of 50' BG - one through the center of the UST pit, and the remaining 3 within ~ 15' radius of the pit. Samples were collected at standard intervals to the depth explored, and all were analyzed for the presence of TPH-D and BTEX.

Only those samples collected from the boring advanced through the UST pit (SIB-511-001) identified detectable concentrations of target compounds. Various concentrations of such compounds were identified in samples retrieved up to the 44' depth. A maximum of 2300 ppm TPH-D and 0.00073 ppm benzene, as well as trace concentrations of TEX, were noted in the ~20.5' sample.

Although SVOCs were not specifically sought during the investigation, the maximum expected concentration of *naphthalene*, one of the critical risk-driving SVOC species of diesel fuel, is 4.6 ppm. This expected concentration is based on the maximum concentration of TPH-D identified in environmental samples (3500 ppm), and the assumption that fresh diesel fuel consists of 0.13% naphthalene by volume (LUFT Manual).

ASTM's Tier 1 RBSL Look-Up Table with values corrected for CalEPA's toxicity criteria indicates neither naphthalene nor benzene concentrations exceed the chronic hazard quotient (HQ) or 1.0E-6 excess cancer risk, respectively, for all plausible soil exposure pathways and receptor scenarios. Further, no other soil media exposure pathway HQs for remaining target compounds (i.e., TEX) were exceeded.

**CLOSURE REPORT
FOR
UNDERGROUND STORAGE TANK**
UST 511-D1U1

**AT LAWRENCE LIVERMORE NATIONAL LABORATORY
LIVERMORE, CALIFORNIA**

March 1997

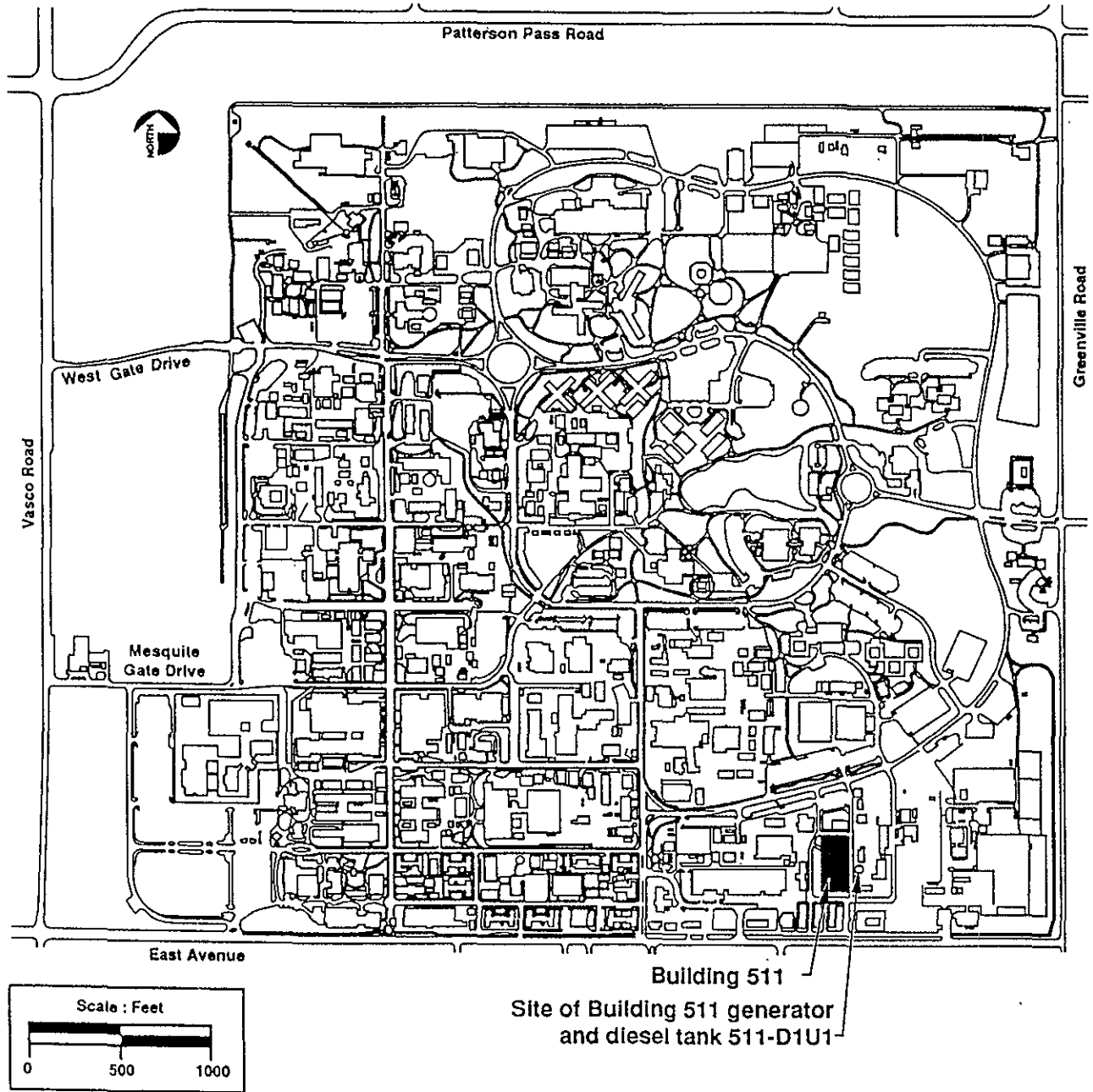


Figure C-1. Location Map for Diesel Tank 511-D1U1, Lawrence Livermore Laboratory, Livermore, California.

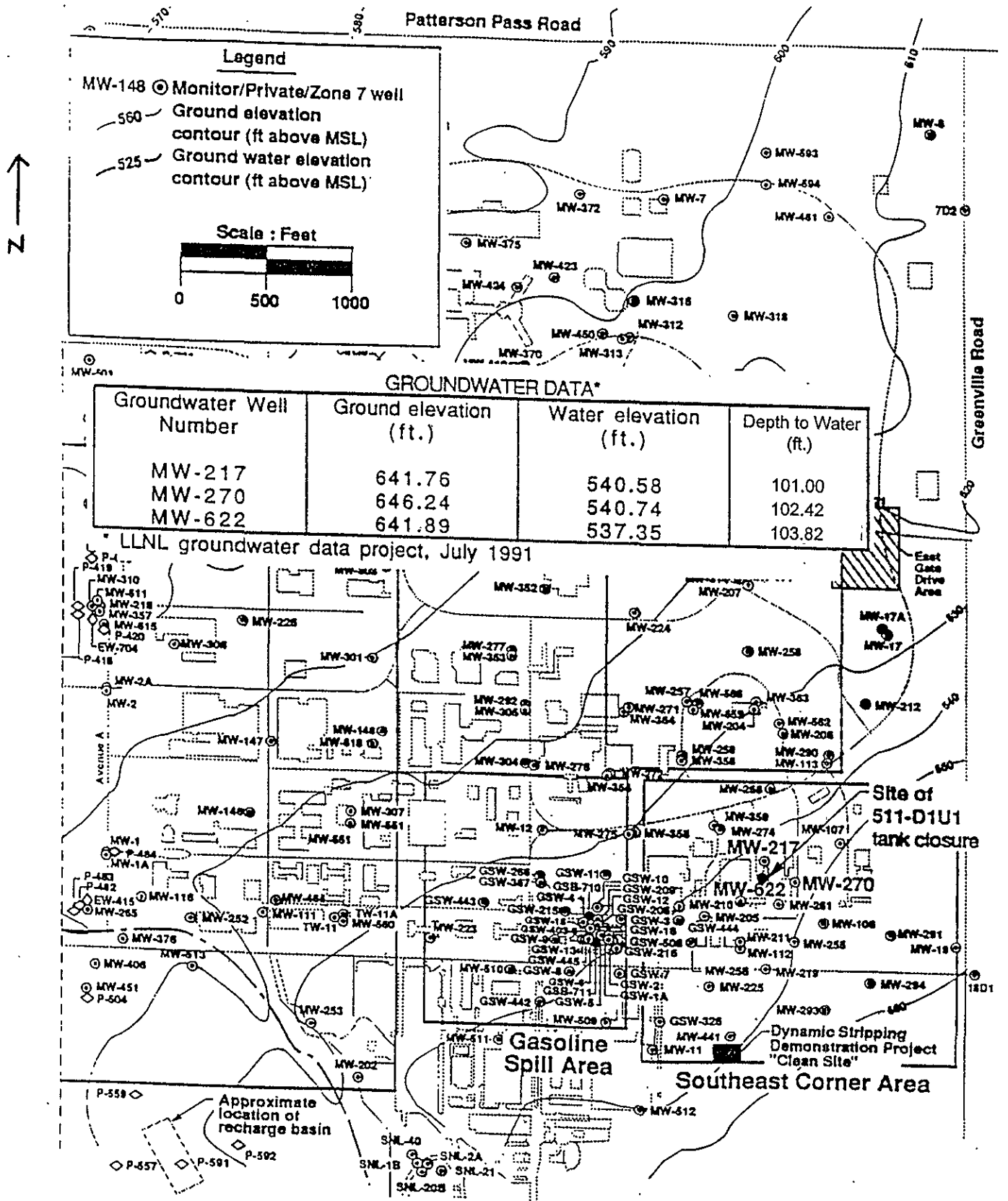
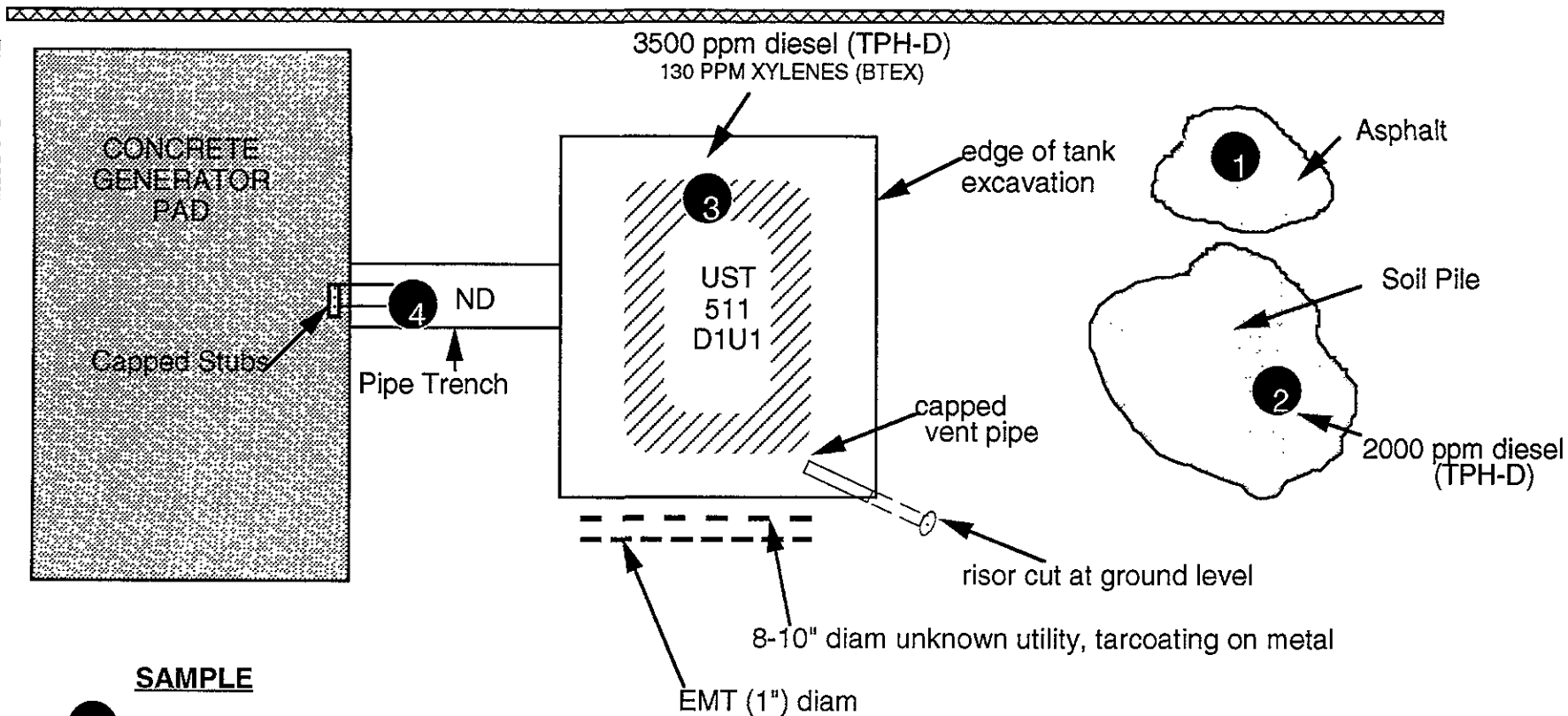


Figure C-4 Location of Nearby Groundwater Monitoring Wells and Groundwater Data.



Figure C-2 UST 511-D1U1 Excavation, Trench & Soil Sampling Location Plot Diagram

C-2



SAMPLE

- 1 TK511DU1-01-AS-COM
- 2 SP511D1U1-SM-01-COM
- 3 TK511D1U1-SM-01-88
- 4 PT511D1U1-SM-01-19



Stained Soil

not to scale
2/5/97

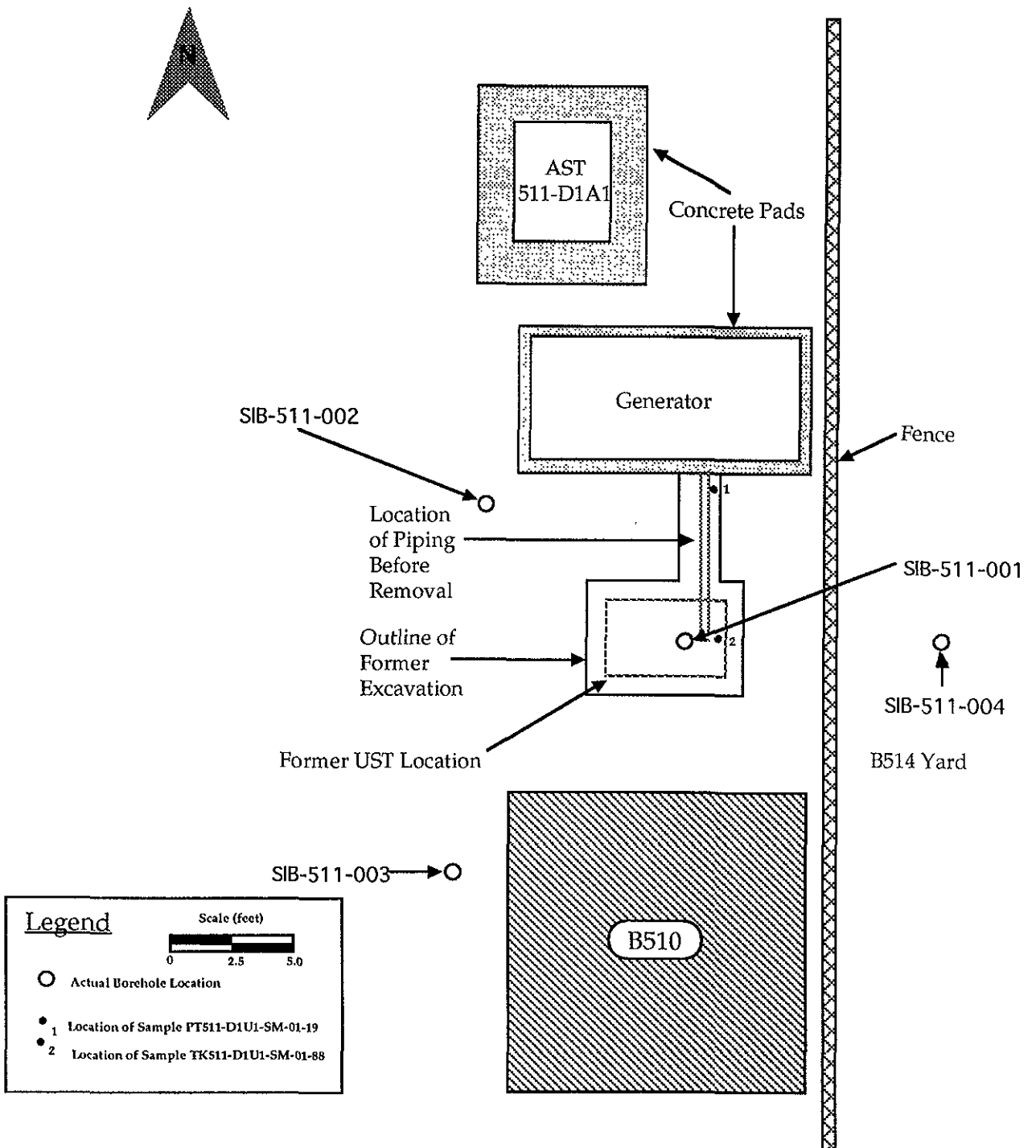


Figure C-3 Borehole Location near Former UST 511-D1U1.

UST CLOSURE SAMPLE RESULTS

SUMMARY OF LABORATORY ANALYTICAL RESULTS FOR ENVIRONMENTAL SAMPLES:

Sample Identification	Analyte	EPA Method Number	Sample Concentrations (mg/kg)
TK511-D1U1-SM-01-88	TPH-Diesel	8015	3500
TK511-D1U1-SM-01-88	Benzene	8020	ND
	Toluene		ND
	Ethylbenzene		ND
	Xylenes		130
PT511-D1U1-SM-01-19	TPH-Diesel	8015	ND
PT511-D1U1-SM-01-19	Benzene	8020	ND
	Toluene		ND
	Ethylbenzene		ND
	Xylenes		ND

NOTE:
 mg/Kg = milligrams per Kilogram
 ND = Not detected above laboratory method detection limits

SUMMARY OF LABORATORY ANALYTICAL RESULTS FOR STOCKPILE SAMPLES:

Sample Identification	Analyte	EPA Method Number	Sample Concentrations (mg/kg)
SP511-D1U1-SM-01-COM	TPH-Diesel	8015	2000
SP511-D1U1-SM-01-COM	Benzene	8020	ND
	Toluene		ND
	Ethylbenzene		ND
	Xylenes		ND

NOTE:
 mg/Kg = milligrams per Kilogram
 ND = Not detected above laboratory method detection limits

BORING SAMPLE RESULTS

SAMPLE ID	TPH-D	Benzene	Ethylbenzene	Toluene	Xylenes
	-----mg/kg----->				
SIB -511-001-10.8	310	-----	-----	-----	-----
SIB -511-001-11.0	-----	<0.0005	0.00095	-----	0.0010
SIB -511-001-16.3	190	-----	-----	-----	-----
SIB -511-001-16.5	-----	<0.0005	0.011	-----	0.017
SIB -511-001-20.5	-----	0.00073	0.089	0.015	0.062
SIB -511-001-20.8	2300	-----	-----	-----	-----
SIB -511-001-25.5	2200	-----	-----	-----	-----
SIB -511-001-25.8	-----	<0.0005	0.030	0.0018	0.045
SIB -511-001-30.5	270	-----	-----	-----	-----
SIB -511-001-30.8	-----	<0.0005	0.041	0.0031	0.074
SIB -511-001-35.3	1200	-----	-----	-----	-----
SIB -511-001-35.5	-----	<0.0005	0.030	0.0013	0.043
SIB -511-001-40.0	13	-----	-----	-----	-----
SIB -511-001-40.3	-----	<0.0005	<0.0005	<0.0005	<0.001
SIB -511-001-44.0	2.6	-----	-----	-----	-----
SIB -511-001-44.3	-----	<0.0005	<0.0005	<0.0005	<0.001

The Borehole cuttings were placed in 12 drums, covered and sealed, and moved to the LLNL Waste Accumulation Area (WAA). Although gross alpha or gross beta were not detected in the radiological sampling of the drummed soil, tritium was