SOIL AND GROUNDWATER INVESTIGATION

AT

STERN PROPERTY COMPANY SITE
PIEDMONT PLAZA PROJECT
175 41ST STREET
OAKLAND, CALIFORNIA

Introduction

Exceltech, Inc., is pleased to present this report of a soil and groundwater investigation at the proposed Piedmont Plaza site located at 175 41st Street in the City of Oakland, Alameda County, California. The groundwater conditions underlying the site were evaluated at a reconnaissance level. This site was previously occupied by a gasoline service station with underground storage tanks and a hydraulic hoist which may have released petroleum hydrocarbon products into the surrounding soil.

Site History

In October and November 1990, Exceltech removed three underground fuel storage tanks, one underground waste oil tank and another firm removed the hydraulic hoist. Laboratory analyses of soil samples collected from beneath the underground storage tanks detected low levels of petroleum hydrocarbons and metals, and analyses of soil samples from beneath the hydraulic hoist detected high levels of petroleum hydrocarbons. Additional excavation around the hydraulic hoist revealed an approximately 2 feet thick layer of what appeared to be contaminated soil at a depth interval of approximately 5 feet to 7 feet below the surface. The lateral extent of this layer was not known at that time (Exceltech, 1990). The current investigation determined that the contamination (high boiling point petroleum hydrocarbons) are confined to the general vicinity of the former hoist.

Literature Search

A review of the records of the California Regional Water Quality Control Board, San Francisco Bay Region offices identified four fuel leak cases within 0.6 mile of the site. Petroleum hydrocarbon contamination has been detected in the groundwater at all of these facilities.

Facility Name	Address	Type of Groundwater Contamination
Mehdzadeh Property	5175 Broadway Street	TPHG, BTEX
Shell Service Station	500 40th Street	TPHG, TPHD, TPH-MO, BTEX
La Mancha Development	4299 Piedmont Avenue	Benzene
Unocal Service Station	3943 Broadway Street	TPHG, Benzene

TPHG	Total petroleum hydrocarbons as gasoline	TPH-MO	Total petroleum hydrocarbons as motor oil
TPHD	Total petroleum hydrocarbons as diesel	BTEX	Benzene, toluene, ethyl benzene, total xylenes

The groundwater flow direction reported for three of these sites was south to southwest. No flow direction could be determined for the La Mancha Development Company site because they only had one groundwater monitoring well. The Stern Property Company site is approximately 1,100 feet south southwest of the La Mancha facility. Benzene was detected in the groundwater from that well at a concentration of 80 parts per billion (ppb).

Scope of Work

Exceltech conducted an investigation which included exploratory borings and soil sampling for laboratory analyses to obtain information regarding the vertical and lateral extent of contamination, the depth to groundwater, and the various soil types beneath the site from the ground surface to the groundwater. In addition, at a selected location a groundwater sample for laboratory analyses was collected from a boring through the use of a HydroPunch™ groundwater sampling device. The work was conducted in two phases consisting of exploratory drilling and soil sampling with HydroPunch™ sampling and exploratory drilling and soil sampling without HydroPunch™ sampling.

Hydrogeology and Geology

The site is located on the bay plain which is situated on the eastern side of the San Francisco Bay depression. Specifically, the site is between the Berkeley Alluvial Plan Subarca and the Oakland Upland and Alluvial Plain. The geologic structure of the east bay plain is dominated by northwest trending, steeply dipping faults such as the Hayward Fault. The Hayward Fault zone is a known groundwater barrier which lies near the base of the East Bay Hills and traverses the alluvial deposits of the east bay plain.

The alluvial sediments in the east bay plain consist of a mixture of gravel, sands, and clays. In general, the particle sizes and bed thickness decrease toward the bay. Aquifers in the area exist under both unconfined and confined conditions. The unconfined aquifers are recharged by direct infiltration from precipitation and stream flow. The confined aquifers are replenished mainly by subsurface inflow from adjacent aquifers and leakage between aquifers (Alameda County Flood Control and Water Conservation District, 1984).

Exploratory Drilling and Soil Sampling

Prior to any drilling, Exceltech contacted Underground Service Alert (USA) so that the underground utilities on adjacent public right-of-ways could be marked by their respective companies. Exceltech then drilled the borings at the approximate locations shown in Figure 2 using a truck-mounted drill rig and hollow-stem auger. The auger and other tools used in the hole were steam cleaned before use. Relatively undisturbed soil samples were collected following Exceltech's soil sampling protocol (Appendix B)

at 5-foot depth intervals or at any significant change in lithology. A pre-cleaned modified California split-spoon sampler with pre-cleaned internal brass liners were used to collect the samples. The borings were advanced to the desired sampling depth and the sampler was then lowered to the bottom of the hole. It was then driven ahead of the auger, removed from the boring, and disassembled into its components parts. The lowermost brass liner with sample were capped, labeled, logged on a chain-of-custody form, and placed in a chilled ice chest for transport to a state-certified laboratory for analysis.

An Exceltech geologist prepared descriptions of the subsurface conditions encountered during drilling which are presented on the boring logs (Appendix A). The encountered soils were classified using the Unified Soil Classification System and Munsell Soil Color Charts. The geologist also conducted a field test for hydrocarbon contaminant vapors from selected soil samples using a portable photoionization detector.

Drill cuttings were placed on and covered with plastic sheeting and left at the site. After drilling and sampling was completed, each borehole was backfilled with a cement grout mixture.

HydroPunch™ Groundwater Sampling

A groundwater sample was collected from within boring H-1B using the HydroPunch™ sampling device. The technique used to collect a water sample is described below.

The HydroPunch™ groundwater sampler is constructed almost entirely of stainless steel and teflon, with vitron o-rings and a polypropylene screen. It is just over 4-1/2 feet long, has an outside diameter (O.D.) of 2-inches and weighs approximately 25 pounds. After drilling to the desired depth a 48-inch long polypropylene screen is placed inside the HydroPunch™, attached to a drive point, and sealed inside the sampler's stainless steel body. The sampler is attached to the drill rod, lowered to the bottom of the boring and driven to the desired depth. As the sampler is pushed or driven through the soil the polypropylene screen is shielded in a watertight housing that prevents contaminated soil or groundwater from entering the sampler. The shape of the sampler and its smooth exterior surface prevent the downward transport of the surrounding soil and liquid as the tool is advanced. When the desired sampling depth is reached the stainless steel body is withdrawn approximately 45 inches, leaving the point in the ground and exposing the screen so that groundwater and floating product can enter. A 1-inch O.D. clear acrylic bailer can be lowered through the hollow-stem of the drive casing and the HydroPunch™ body into the polypropylene screen to collect groundwater samples to check for the presence of floating product and for laboratory analyses. After sampling is complete the HydroPunch™ body is removed from the borehole leaving behind the drive point and the screen. The borehole is then backfilled with cement grout. In our original work plan dated February 12, 1991, Exceltech had proposed using the HydroPunch™ to obtain groundwater samples in three borings. These proposed locations are identified in Figure 2 as H-1, H-2, and H-3. At location

H-1A, we identified the depth to groundwater at 28 feet and then in order to properly locate the HydroPunch™ screen across the upper groundwater surface a new borehole was drilled at location H-1B to a depth of 25 feet. Using the drill rig's hydraulic ram, the HydroPunch™ was pushed to a depth of 30 feet and the outer steel body was withdrawn 45 inches, exposing the inner polypropylene screen. The water bearing soils at this location were composed of a sandy to silty clay. The retrieved groundwater contained considerable suspended silt and clay which also clogged the screen, making sampling the groundwater a very difficult and time consuming task. After a considerable period of time, enough water was collected for analysis of one water sample. It was decided after the first sample was collected, that the formation at the site was not suitable for the HydroPunch™ technique. Based on field conditions, only one water sample was collected for laboratory analysis.

Subsurface Conditions

Boring logs from the drilling operation indicate that the site is predominantly underlain silty clay interbedded with sandy clay and occasional gravelly clay grading to clayey gravel. The silty clay was generally brown to yellow-brown, very stiff to hard, moist to very moist and containing 10 to 15 percent fine to medium grained sands. The gravelly clay and clayey gravels were dark yellowish brown to dark reddish brown, with subrounded gravel ranging from 1/2- to 1-inch in diameter. The subsurface soils at the site were explored to a maximum depth of 36.5 feet. Cross-section of the subsurface are interpreted in Figures 3 and 4. Groundwater was encountered at depths between 28 to 34 feet. The general groundwater flow direction underlying the site is believed to be toward the south to southwest. This is based on established groundwater gradients at three other sites located within a 0.6-mile radius of the investigated site.

Laboratory Analyses

Exceltech collected total of 34 soil samples and one water sample at the site during this investigation. In addition, three composite soil samples were collected from two stockpiles of soil at the site. The samples were taken to Anametrix, Inc., a state-certified laboratory located in San Jose, California for analysis. The various soil and water samples were analyzed for total petroleum hydrocarbons as gasoline (TPHG) using a Gas Chromatograph Flame Ionization Detector (GCFID) following EPA Extraction Method 5030. Benzene, toluene, ethyl benzene, and total xylenes (BTEX) content were determined by modified EPA Test Method 8020. Total petroleum hydrocarbons as diesel (TPHD) were analyzed using GCFID and EPA Extraction Method 3510. Total oil and grease (TOG) was determined by Method 5520EF. The stockpiled soil was analyzed for hazardous waste using methods from SW-846 (U.S. Environmental Protection Agency, 1984) as required by the selected disposal facility.

Summary of Analytical Results

The following is a brief description of the soil and groundwater analytical data. A summary of the laboratory results can be found in Tables 1A, 1B, 2 and 3. Chain-of-custody and laboratory analytical reports can be found in Appendix C.

Soil

TPHG/BTEX was detected in soil samples from borings B-1, B-3, B-4, B-7, and B-9. The depths of contamination were generally between 15 and 20 feet below the current ground surface. Concentrations of TPHG ranged from 1.1 parts per million (ppm) at B-3 to 2,900 ppm at B-4. Various concentrations of BTEX were also detected at these locations. The highest BTEX concentrations were found at boring B-4 with benzene at 14 ppm, toluene at 54 ppm, ethyl benzene at 24 ppm, and total xylenes at 54 ppm. Laboratory analysis did not detect any TOG in any of the soil samples submitted for analysis. The composite soil samples from the stockpiled soil revealed concentrations of TPHG at 520 ppm, toluene at 2.0 ppm, ethyl benzene at 2.2 ppm, and total xylenes at 8.8 ppm. Minor levels of barium and lead were detected at 1.37 ppm and 0.087 ppm, respectively. The remainder of the constituents were reported as below the detection limits.

Groundwater

One groundwater sample was analyzed for TPHG/BTEX and TPHD. The laboratory results indicate that 420 ppb of diesel, 1.4 ppb benzene, and 0.6 ppb total xylenes were detected in the groundwater sample collected from H-1B. No other constituents were detected in this sample.

Conclusions and Recommendations

The investigation identified TPHG and BTEX contamination in soil underlying the northern portion of the site. The highest concentrations of TPHG detected in soil samples from the exploratory borings were 2,000 and 2,900 ppm in borings B-1 and B-4, respectively. Both of these samples were collected at approximate depths of 15 to 16 feet below grade.

Exceltech believes that the TPHG and BTEX concentrations detected in the soil underlying the northern portion of the site will require remediation. The vertical and horizontal limits of the soil contamination have been defined sufficiently for remedial action to proceed. We have prepared a proposal for the excavation, aeration, and disposal of the affected soil which has been forwarded to Stern Property Company.

Soil samples were collected from the borings drilled around the perimeter of the hydraulic hoist excavation and analyzed for TPHG, BTEX, and TOG. None of these constituents were detected in the samples. We recommend that the excavation be

extended laterally within the perimeter formed by the borings until the contaminants identified in that area have been removed.

One reconnaissance level groundwater sample was recovered from the site, under difficult conditions, with a HydroPunch™ sampling device. The laboratory reported that the sample, from boring H-1B, contained TPHD, benzene, and xylenes. Exceltech recommends that a groundwater monitoring well be installed in the vicinity of H-1B. This well should be sampled shortly after installation and twice more at 2-week intervals. After the three samples have been collected, the well should then be properly abandoned so that construction of proposed building at the site may commence.

When the proposed new building has been constructed, we recommend the installation of two additional groundwater monitoring wells at the perimeter of the site. The groundwater flow direction in the site vicinity has been found to be to the south to southwest at three other nearby sites. One of these wells shall be on the upgradient side of the property and the other on the downgradient side. The exact locations of these wells and a proposed monitoring schedule will be presented in a work plan to be prepared in May 1991.

TABLE 1A
PETROLEUM HYDROCARBON COMPONENTS - SOIL
Stern Property
175 41st Street
Exceltech Project No. 3-30060-32

Sample Number	Sample Depth (feet)	TPOG (ppm)	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl benzene (ppm)	Total Xylenes (ppm)
H-1-2	6.5 - 7	<30	<0.5	<0.005	<0.005	<0.005	<0.005
H-1-3	8 - 8.5	<30	<0.5	<0.005	<0.005	<0.005	<0.005
H-1-4	11 - 11.5	NR	<0.5	<0.005	<0.005	<0.005	<0.005
H-1-5	17.5 - 18	NR	<0.5	<0.005	<0.005	<0.005	<0.005
H-1-7	26 - 26.5	NR	<0.5	<0.005	<0.005	<0.005	<0.005
H-2-1	6 - 6.5	<30	<0.5	<0.005	<0.005	<0.005	<0.005
H-2-3	11 - 11.5	<30	<0.5	<0.005	<0.005	<0.005	<0.005
H-2-4	22.5 - 23	NR	<0.5	<0.005	<0.005	<0.005	<0.005
H-2-5	26 - 26.5	NR	<0.5	<0.005	<0.005	<0.005	<0.005
H-2-6	31 - 31.5	NR	<0.5	<0.005	<0.005	<0.005	<0.005
H-2-7	36 - 36.5	NR	<0.5	<0.005	<0.005	0.007	0.011
H-3-3	15 - 15.5	NR	<0.5	<0.005	<0.005	<0.005	<0.005
H-3-4	20 - 20.5	NR	1.1	<0.005	0.042	0.026	0.050
H-3-5	24.5 - 25	NR	<0.5	<0.005	<0.005	<0.005	<0.005
H-3-7	34.5 - 35	NR	<0.5	<0.005	<0.005	<0.005	<0.005
B-1-3	15 - 15.5	NR	2,000	4.0	34	25	24
B-1-5	25 - 25.5	NR	<0.5	<0.005	<0.005	<0.005	<0.005
B-2-2	12.5 - 13	<30	<0.5	<0.005	<0.005	<0.005	<0.005
B-2-3	6.5 - 7	<30	<0.5	<0.005	<0.005	<0.005	<0.005
B-3-1	6 - 6.5	<30	<0.5	<0.005	<0.005	<0.005	<0.005
B-4-1	3.5 - 4	<30	14	<0.05	0.094	0.25	0.38
B-4-2	10.5 - 11	<30	84	0.43	1.9	2.2	2.8
B-4-3	15.5 - 16	NR	2,900	14	54	24	42
B-4-4	25.5 - 26	NR	<0.5	<0.005	<0.005	<0.005	<0.005

TPOG Total petroleum oil and grease
TPHG Total petroleum hydrocarbons as gasoline
NR Analysis not requested
ppm Parts per million (mg/kg)
<30 Not detected at or above listed practical quantitation limit for the method

TABLE 1B
PETROLEUM HYDROCARBON COMPONENTS - SOIL
Stern Property
175 41st Street
Exceltech Project No. 3-30060-32

Sample Number	Sample Depth (feet)	TPOG (ppm)	TPHG (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl benzene (ppm)	Total Xylenes (ppm)
B-5-1	5.5 - 6	<30	<0.5	<0.005	<0.005	<0.005	<0.005
B-6-2	7.5 - 8	<30	<0.5	<0.005	<0.005	<0.005	<0.005
B-6-3	16 - 16.5	<30	<0.05	<0.005	<0.005	<0.005	0.006
B-7-1	6 - 6.5	<30	<0.05	<0.005	<0.005	0.005	0.012
B-7-3	16 - 16.5	NR	77	<0.005	0.28	0.27	0.75
B-8-2	10.5 - 11	NR	<0.5	<0.005	<0.005	<0.005	<0.005
B-8-4	26 - 26.5	NR	<0.5	<0.005	<0.005	<0.005	<0.005
B-9-2	15.5 - 16	NR	12	<0.01	0.043	<0.01	0.27
B-9-3	20.5 - 21	NR	<0.5	<0.005	<0.005	<0.005	<0.005
B-10-1	15.5 - 16	NR	<0.5	<0.005	<0.005	<0.005	<0.005

TPOG Total petroleum oil and grease
TPHG Total petroleum hydrocarbons as gasoline
NR Analysis not requested

ppm Parts per million (mg/kg)
<30 Not detected at or above listed practical quantitation limit for the method

TABLE 2
EXCAVATED SOIL PILE COMPOSITE ANALYSES
Stern Property
175 41st Street
Exceltech Project No. 3-30060-32

Description	Sample HP-1, FTP-1, FTP-3
TPHG (ppm)	520
Benzene (ppm)	<0.25
Toluene (ppm)	2.0
Ethyl benzene (ppm)	2.2
Total xylenes (ppm)	8.8
pH	7.5
Flash Point (°C)	>100
Cyanide Reactivity (ppm)	<0.5
Sulfide Reactivity (ppm)	<1.
Silver (ppm)	<0.010
Arsenic (ppm)	<0.050
Barium (ppm)	1.37
Cadmium (ppm)	<0.005
Total Chromium (ppm)	<0.010
Mercury (ppm)	<0.001
Lead (ppm)	0.087
Selenium (ppm)	<0.025

TPHG Total petroleum hydrocarbons as gasoline
ppm Parts per million (mg/kg or mg/L)
<0.25 Not detected at or above listed practical quantitation limit for the method

TABLE 3
PETROLEUM HYDROCARBON COMPONENTS - WATER
Stern Property
175 41st Street
Exceltech Project No. 3-30060-32

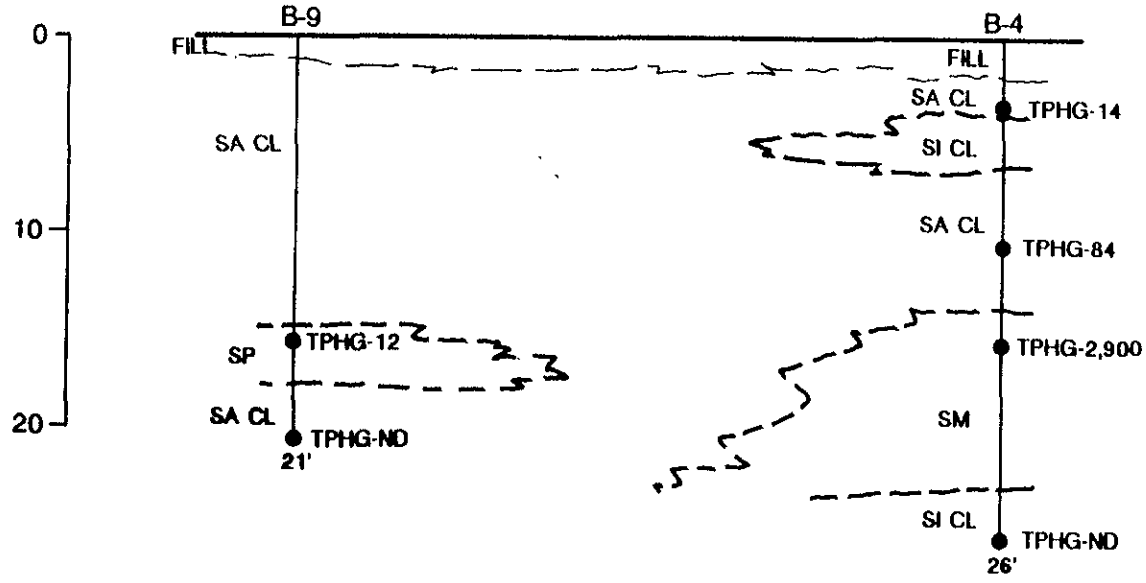
Sample Number	TPHD (ppb)	TPHG (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl Benzene (ppb)	Total Xylenes (ppb)
HP-1W	420	<50	1.4	<0.5	<0.5	0.6

1.0 ppb MCL ?

TPHD Total petroleum hydrocarbons as diesel
TPHG Total petroleum hydrocarbons as gasoline
ppb Parts per billion (µg/kg)
<50 *Not detected at or above listed practical quantitation limit for the method*

Laboratory Note: The concentration reported as TPHD is primarily due to the presence of a discrete hydrocarbon peak not indicative of diesel fuel.

CROSS SECTION B-9 - B-4
LOOKING EAST



LEGEND

B-9 |	EXPLORATORY BORING LOCATION
SI CL	SILTY CLAY (LOW TO MEDIUM PLASTICITY)
SA CL	SANDY CLAY
SP	GRAVELLY SANDS
SM	SILTY SAND

HOR'ZONTAL = VERTICAL

0 10

SCALE IN FEET

●	LOCATION OF SOIL SAMPLE SUBMITTED FOR ANALYSIS
TPHG-2,900	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE DETECTED AT LISTED CONCENTRATIONS IN PARTS PER MILLION
TPHG-ND	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE NOT DETECTED AT OR ABOVE METHOD PRACTICAL QUANTITATION LIMIT

EXCELTECH

CROSS SECTION B-9 - B-4

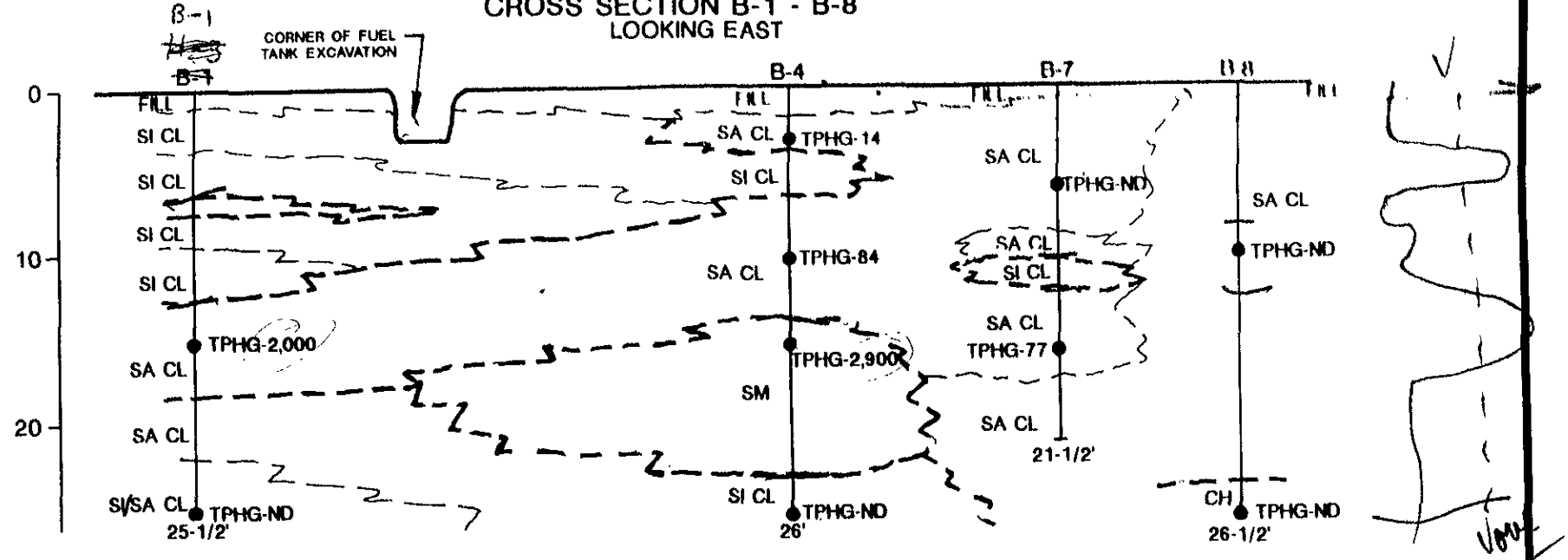
STERN PROPERTY COMPANY SITE

175 41st STREET

OAKLAND, CALIFORNIA

REVIEWED BY:	APPROVED BY:
JOB #: 3-30060-32	DRAWN BY: J.D.S.
DATE: 4/26/91	DRAWING #: FIG. 4

CROSS SECTION B-1 - B-8
LOOKING EAST



HORIZONTAL = VERTICAL

0 — 10
SCALE IN FEET

LEGEND

B-1	EXPLORATORY BORING LOCATION
SI CL	SILTY CLAY (LOW TO MEDIUM PLASTICITY)
SA CL	SANDY CLAY
CL/GC	GRAVELLY CLAY TO CLAYEY GRAVEL
SM	SILTY SAND
CH	SILTY CLAY (HIGH PLASTICITY)
●	LOCATION OF SOIL SAMPLE SUBMITTED FOR ANALYSIS
TPHG-2,900	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE DETECTED AT LISTED CONCENTRATIONS IN PARTS PER MILLION
TPHG-ND	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE NOT DETECTED AT OR ABOVE METHOD PRACTICAL QUANTITATION LIMIT

EXCELTECH

CROSS SECTION B-1 - B-8

STERN PROPERTY COMPANY SITE

175 41st STREET

REVIEWED BY:	APPROVED BY:
	LP
JOB #: 3-30060-32	DRAWN BY: J.D.S.
DATE:	DRAWING #:

EXCELTECH

STANDARD SYMBOLS

Legend

- Soil sample location
- Soil sample collected for laboratory analysis
- No soil recovery
- First encountered groundwater level
- Potentiometric groundwater level
- Disturbed or bag soil sample

2.5 YR 6/2 Soil color according to Munsell Soil Color Charts (1975 Edition)

Penetration

Sample drive hammer weight - 140 pounds falling 30 inches. Blows required to drive sampler 1 foot are indicated on the lo

Well Construction

- Annular seal
- Bentonite seal
- Sand pack
- Well riser section
- Well screen section

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS More than half of material is larger than No. 200 sieve size	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size	Clean Gravels	GW	Well-graded gravels, gravel-sand mixtures, little or no fin
			GP	Poorly graded gravels, gravel-sand mixture, little or no fi
		Gravels with Fines	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS More than half of coarse fraction is smaller than No. 4 sieve size	Clean Sands	SW	Well-graded sands, gravelly sand, little or no fines
			SP	Poorly graded sands, gravelly sands, little or no fines
		Sands with Fines	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS More than half of material is smaller than No. 200 sieve size	SILTS AND CLAYS	Low Liquid Limit	ML	Inorganic silts and very fine sands, rock flour, silty or cla fine sands, or clayey silts, with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly cla sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
		High Liquid Limit	MH	Inorganic silts, micaceous or diatomaceous fine sandy or soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
			Pt	Peat and other highly organic soils

NOTES:

1. Boundary Classification: Soils possessing characteristics of two groups are designated by combinations of group symbols. Fo example, GW-GC, well-graded gravel-sand mixture with clay binder.
2. All sieve sizes on this chart are U.S. standard.
3. The terms "silt" and "clay" are used respectively to distinguish materials exhibiting lower plasticity from those with higher plasticity.
4. For a complete description of the Unified Soil Classification System, see "Technical Memorandum No. 3-357," prepared for Office, Chief of Engineers, by Waterways Equipment Station, Vicksburg, Mississippi, March 1953.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. H-1

Date Drilled: 3/7/91

Logged By: RAG

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
				Fill, gravelly clay		
1–4			CL	SILTY CLAY, brown (10 YR 5/3), with some dark gray to black (2.5Y 4/0 to 2/0) mottling, up to 10% fine sands, stiff, moist		
5	H-1-1	12				11
5–7			CL	SANDY CLAY, black (2.5Y 2/0), localized fine grained sands up to 40%, some gravels, stiff, moist to very moist, "oily" soil		
6						7
7	H-1-2	7		Color changing to dark greenish gray, decreasing sands		
8	H-1-3	28	CL	SILTY CLAY, dark yellowish brown (10YR 4/4), very stiff, moist, water on sampler, probably recent rain water perched on underling hard clay		26
9–11			CL	SANDY CLAY to SILTY CLAY, yellowish brown (10YR 5/4), localized fine grained sands up to 40%, hard, moist		
11	H-1-4	79		Increased drilling resistance from ~9 to 12 feet		16
12–15						
15–16		41		No sample recovery		
17–18	H-1-5	56		Some concentrations of gravels in very moist to wet sandy clay		11
19–21			CL	SANDY CLAY, dark brown to yellowish brown, up to 10% fine to medium sands, hard, moist		
21	H-1-6	46				19

REVIEWED BY R.G./C.E.G. LDP

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stem Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. H-1

Date Drilled: 3/7/91

Logged By: RAG

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
22			CL	SILTY CLAY (Con't)		
23						
24			CL	SANDY CLAY to SILTY CLAY, yellowish brown to dark yellowish brown (10YR 5/4 to 4/4), localized fine grained sands up to 30%, hard, moist to very moist		
25						
26	H-1-7	73				3
27						
28				Groundwater encountered at ~28'	▽	
29						
30				Adjacent excavation sidewalls caving, no sampling attempted		
31				Bottom of boring = 30 feet		
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. H-2

Date Drilled: 3/7/91 - 3/8/9

Logged By: RAG

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
1				Fill, gravelly clay		
2			CL	SANDY CLAY to SILTY CLAY, brown (7.5 YR 5/2 to 5/4), fine grained sands, soft, moist to very moist		
3						
4			CL	SANDY CLAY, black, sticky "oily" soil		
5						
6	H-2-1	22		Color change to olive (5 Y 5/3 to 4/3), fine grained sands, very stiff, very moist		11
7						
8	H-2-2	39		Color change to yellowish brown to dark yellowish brown (10 YR 5/4 to 4/4), hard, moisture to moist		7
9				Perched water, probably from recent rains		
10			CL/GC	GRAVELLY CLAY to CLAYEY GRAVEL, reddish brown (5 YR 4/4) with olive (5 Y 5/3) mottling, fine gravels up to 1/2" across, wet		7
11	H-2-3	47	CL	SANDY CLAY, olive (5 Y 5/4 to 4/4), up to 40% fine grained sands, hard, very moist to moist		
12						
13						
14						
15				No sample recovery, some fine to medium grained sand and clay smeared on outside of sampler, sandy clay drill cuttings		
16		31				
17						
18						
19						
20		30		No sample recovery, some fine to medium grained sand and clay smeared on outside of sampler, sandy clay drill cuttings		
21						

REVIEWED BY R.G./C.E.G. LDP

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. H-2

Date Drilled: 3/7/91 - 3/8/91

Logged By: RAG

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
22		52	CL	SILTY CLAY to SANDY CLAY, dark yellow brown (10 YR 4.4), fine to medium grained sands, some gravel, hard, moist, coarse gravel approximately 2 inches across blocking most of sampler		11
23	H-2-4					
24						
25						
26	H-2-5	86 @ 11"		Color change to yellowish brown to dark yellowish brown (10 YR 5/4 to 4/4), fine to medium grained sands, 10% to 15% fine gravel, hard, moist, lots of mud coming up in drill cuttings, may be perched water from recent rains		7
27						
28						
29						
30						
31	H-2-6	50 @6"				15
32						
33						
34						
35			CL	SILTY CLAY, light yellowish brown to yellowish brown (10 YR 6/4 to 5/4), hard, moist		7
36	H-2-7	69				
37				Bottom of boring = 36-1/2 feet		
38						
39						
40						
41						
42						

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. H-3

Date Drilled: 3/8/91

Logged By: RAG

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
				Fill, gravelly clay		
1-3			CL	SILTY CLAY, very dark grayish brown (10 YR 3/2), some fine grained sands, very stiff, very moist-moist		
4-5	H-3-1	43	CL	SILTY CLAY with SANDY CLAY, yellowish brown to dark yellowish brown (10 YR 4/4 to 5/4), some black oxide staining , localized fine grained sands up to 20%, most soil is silty clay, hard, moist		3
7			CL/GC	GRAVELLY CLAY to CLAYEY GRAVEL, dark yellowish brown (10 YR 3/4 - 4/4), subrounded gravel up to 1-inch across, very moist - moist		
8-10	H-3-2	30	CL	SILTY CLAY, yellowish brown to dark yellowish brown (10 YR 4/4 to 5/4), up to 10% fine grained sands, very stiff, moist		3
14-15	H-3-3	56	SC	CLAYEY SAND, olive gray to olive (5Y 5/2 to 4/3), 75% to 90% fine to medium grained sands, hard, moist		232
19-20	H-3-4	29	CL	SANDY CLAY, motled dark brown and yellowish brown (10 YR 3/3 and 5/4), 20% to 40% fine and medium grained sands, some rounded to subrounded fine gravel up to about 1/4-inch across, very stiff, moist		57

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. H-3

Date Drilled: 3/8/91

Logged By: RAG

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
				Fill, gravelly clay		
1			CL	SILTY CLAY, very dark grayish brown (10 YR 3/2), some fine grained sands, very stiff, very moist-moist		
2						
3						
4			CL	SILTY CLAY with SANDY CLAY, yellowish brown to dark yellowish brown (10 YR 4/4 to 5/4), some black oxide staining , localized fine grained sands up to 20%, most soil is silty clay, hard, moist		
5	H-3-1	43				3
6						
7			CL/GC	GRAVELLY CLAY to CLAYEY GRAVEL, dark yellowish brown (10 YR 3/4 - 4/4), subrounded gravel up to 1-inch across, very moist - moist		
8			CL	SILTY CLAY, yellowish brown to dark yellowish brown (10 YR 4/4 to 5/4), up to 10% fine grained sands, very stiff, moist		
9						3
10	H-3-2	30				
11						
12						
13						
14						
15	H-3-3	56	SC	CLAYEY SAND, olive gray to olive (5Y 5/2 to 4/3), 75% to 90% fine to medium grained sands, hard, moist		232
16						
17						
18						
19			CL	SANDY CLAY, motled dark brown and yellowish brown (10 YR 3/3 and 5/4), 20% to 40% fine and medium grained sands, some rounded to subrounded fine gravel up to about 1/4-inch across, very stiff, moist		
20	H-3-4	29				57
21						

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, Califonria

Project Number: 3-30060-32

Boring No. H-3

Date Drilled: 3/8/91

Logged By: RAG

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
22			CL	SANDY CLAY (Con't)		
23						
24		50				3
25	H-3-5	@ 6"	CL	SILTY CLAY, pale olive (5 Y 6/3 to 6/4) with streaks of greenish gray (5Y 6/1), some black oxide staining, localized fine grained sands, hard, moist		
26						
27						
28						3
29			CL	SANDY CLAY, brown to dark brown (7.5 YR 5/4 to 3/4), 30% to 40% fine grained sands with some medium to coarse sands, hard, moist		
30	H-3-6	60				
31						
32						
33			CL	SILTY CLAY, brown to dark brown (7.5 YR 5/4 to 4/4), 10% to 15% localized fine grained sands, hard, moist		
34				Groundwater encountered at ~34'	▽	
35	H-3-7	50 @ 3"		Bottom of boring = 35 feet		3
36						
37						
38						
39						
40						
41						
42						

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. B-1

Date Drilled: 3/8/91

Logged By: RAG

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
				Fill, gravelly clay		
1			CL	SILTY CLAY, black to very dark brown (10YR 2/1 to 2/2), stiff, moist		
2						
3						
4			CL	SILTY CLAY, olive (5Y 5/4 to 4/4), up to 10% fine grained sands, very stiff, moist		3
5	B-1-1	25				
6						
7			CL/GC	GRAVELLY CLAY to CLAYEY GRAVEL, dark reddish brown (5YR 3/4), moist		
8			CL	SILTY CLAY, dark brown (7.5YR 4/4 to 3/4), up to 10% fine grained sands, very stiff, moist		
9						3
10	B-1-2	46	CL	SILTY CLAY, light yellowish brown to yellowish brown (10YR 6/4 to 5/4), hard, moist		
11						
12						
13			CL	SANDY CLAY, olive (5Y 5/3 to 4/3), up to 40% fine to medium grained sands, some fine gravels, hard, moist		
14						133
15	B-1-3	65				
16						
17						
18						
19			CL	SILTY CLAY, dark yellowish-brown (10YR 4/4 to 3/4), up to 10% fine grained sand and fine gravels up to 1/2-inch across, hard, moist		15
20	B-1-4	50 @ 4"				
21						

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. B-1

Date Drilled: 3/8/91

Logged By: RAG

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
22			CL	SILTY CLAY (Con't)		
23			CL	SILTY CLAY to SANDY CLAY, light olive gray to olive gray (5Y 6/5 to 5/2) with streaks of greenish gray (5G to 5/1), localized fine grained sands up to 25%, hard, moist		
24						
25	B-1-5	70				15
26				Bottom of boring = 25-1/2 feet		
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. B-3

Date Drilled: 3/9/91

Logged By: LDP

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
0				Fill, gravelly clay		
1			CL	SANDY CLAY, brown, medium, stiff, moist		
2						
3				Moisture increasing to very moist		
4						
5			CL	SILTY CLAY, grayish brown, some very fine grained sand, soft, moist		
6	B-3-1	4	CH	SILTY CLAY, mottled light brown, gray and reddish brown, minor fine grained sand, very stiff, moist		0
7						
8	B-3-2	32		Minor gravel		0
9						
10			CL	SANDY CLAY, light brown, medium stiff, moist		
11						
12						
13						
14						
15				Bottom of boring = 15 feet		
16						
17						
18						
19						
20						
21						

REVIEWED BY R.G./C.E.G. LDP

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 14st Street
Oakland, California

Project Number: 3-30060-32

Boring No. B-2

Date Drilled: 3/9/91

Logged By: LDP

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
				Fill, gravelly clay		
1			CL	SANDY CLAY, brown, medium stiff, moist		
2						
3				Color change to light brown, medium stiff, very moist		
4						
5						
6			CL	SANDY CLAY, very dark gray, abundant sands, very stiff, moist		0
7	B-2-3	30		Color change to gray, hard		0
	B-2-1	50				
8		@ 3"	CL	SANDY CLAY, mottled reddish brown and gray, decreasing sands, some gravels, hard, moist		
9			CL	SANDY CLAY, light brown, up to 40% coarse sands and minor fine gravels, very stiff, moist		
10						
11						
12						0
13	B-2-2	60		Bottom of boring = 13 feet		
14						
15						
16						
17						
18						
19						
20						
21						

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. B-4

Date Drilled: 3/9/91

Logged By: LDP

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
1				Fill, gravelly clay		
2						
3		6	CL	SANDY CLAY, light olive green, medium stiff, very moist		
4	B-4-1					3.8
5			CL	SILTY CLAY, very dark brown, medium stiff, moist		
6						
7						
8			CL	SANDY CLAY, light reddish brown, stiff, moist		
9						
10						
11	B-4-2	70				0
12						
13						
14						
15			SM	SILTY SAND, olive green, fine to medium grained sand, dense, very moist to wet		1299
16	B-4-3	40				
17						
18						
19						
20						
21						

REVIEWED BY R.G./C.E.G. LDP

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. B-4

Date Drilled: 3/9/91

Logged By: LDP

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
22			SM	SILTY SAND (Con't)		
23						
24			CL	SILTY CLAY, light brown with minor black inclusions, hard, moist		
25						
26	B-4-4					11.4
				Bottom of boring = 26 feet		
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. B-5

Date Drilled: 3/9/91

Logged By: RAG

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
				Fill, gravelly clay		
1–4			CL	SANDY CLAY, light brown, medium stiff, very moist		
5			ML	CLAYEY SILT, dark brown, very stiff, moist to very moist		
6	B-5-1	5				0
6–7			CL	SANDY CLAY, brown, very stiff, moist to very moist		
7	B-5-2	23				7
10				Moisture changing to moist		
13				Increasing sands		
15				Bottom of boring = 15 feet		

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-312

Boring No. B-6

Date Drilled: 3/9/91

Logged By: LDP

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
1				Fill, gravelly clay		
2			CL	SANDY CLAY, light brown, medium stiff, moist		
3						
4						
5						
6	B-6-1	7				3.8
7						0
8	B-6-2	21	CH	SILTY CLAY, mottled reddish brown and gray, very stiff, moist		
9						
10						
11						
12			CL	SANDY CLAY, light brown, stiff, moist		
13						
14						
15				Abundant fine to medium grained sand with minor fine gravel, hard, moist		
16	B-6-3	66				0
17				Bottom of boring = 16-1/2 feet		
18						
19						
20						
21						

REVIEWED BY R.G./C.E.G. LDP

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. B-7

Date Drilled: 3/9/91

Logged By: LDP

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
				Fill, gravelly clay		
1			CL	SANDY CLAY, grayish-green, medium stiff, moist		
2						
3						
4				Color change to dark gray		
5				Becoming stiff		
6	B-7-1	49		Color change to greenish gray, hard		3.8
7						
8						
9						
10			CL	SANDY CLAY, reddish brown, hard, moist		
11	B-7-2	81				0
12			CH	SILTY CLAY, mottled reddish brown and gray, hard, moist		
13			CL	SANDY CLAY, olive green, minor fine gravel, hard, moist		
14						
15				Moisture increasing to very moist, increasing sand and gravel		
16	B-7-3	45		Interbed of silty clay 16-1/2 - 17 feet		190
17						
18						
19			CL	SANDY CLAY, brown, fine to coarse sand, hard, moist		
20						
21	B-7-4	85				0
				Bottom of boring = 21-1/2 feet		

REVIEWED BY R.G./C.E.G. LDP

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. B-8
Date Drilled: 3/9/91
Logged By: LDP

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
				Fill, gravelly clay		
1			CL	SANDY CLAY, brown, medium stiff, moist		
2						
3				Color change to light green		
4						
5						
6	B-8-1	22		Becoming very stiff		3
7						
8						
9						
10						
11	B-8-2	60		Color change to brown with black inclusions, hard		0
12						
13						
14				Color change to light brown		
15						
16	B-8-3	52				0
17						
18						
19						
20						
21						

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. B-8

Date Drilled: 3/9/91

Logged By: LDP

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
22			CL	SANDY CLAY (Con't)		
23						
24						
25			CH	SILTY CLAY, light tan, hard, moist		
26	B-8-4	42		Tip of sampler wet		0
27				Bottom of boring = 26-1/2 feet		
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. B-9

Date Drilled: 3/9/91

Logged By: LDP

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
				Fill, gravelly clay		
1			CL	SANDY CLAY, brown, medium stiff, very moist		
2						
3						
4				Moisture decreasing to moist		
5						
6	B-9-1	38		Color change to light brown, hard		0
7						
8						
9						
10						
11						
12						
13						
14						
15			SP	GRAVELLY SAND, greenish gray, medium to coarse grained sand, minor fine gravel, very dense, moist		
16	B-9-2	65				900
17						
18			CL	SANDY CLAY, brown, fine to coarse sand, hard moist		
19						
20						
21	B-9-3	44		Wet at 20-1/2 feet	▽	3
				Bottom of boring = 21 feet		

REVIEWED BY R.G./C.E.G.

EXPLORATORY BORING LOG

EXCELTECH

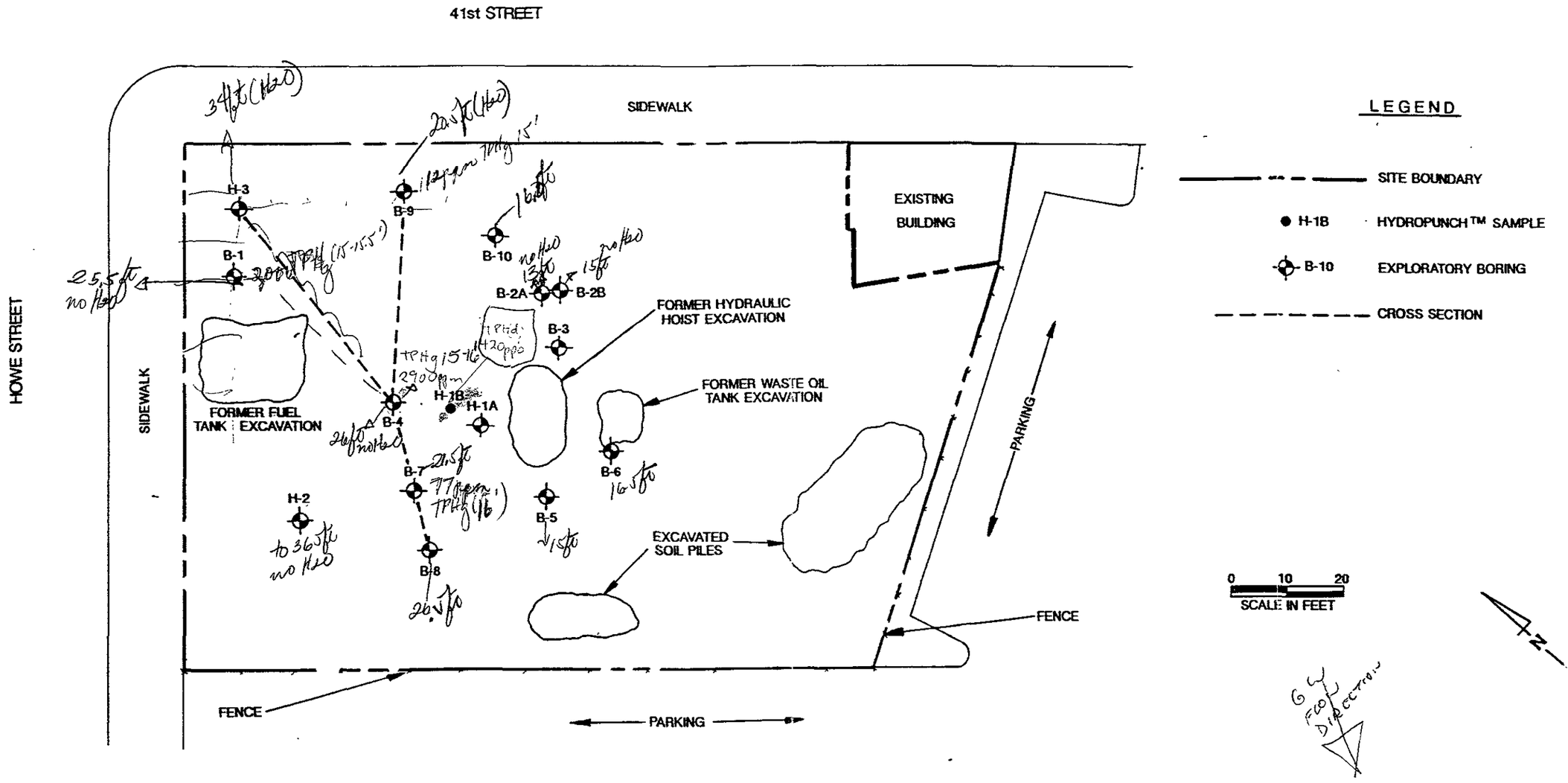
Project Name: Stern Property Company
175 41st Street
Oakland, California

Project Number: 3-30060-32

Boring No. B-10
Date Drilled: 3/9/91
Logged By: LDP

Depth (ft.)	Sample No.	Blows/Foot	Unified Soil Classification	SOIL DESCRIPTION	Water Level	OVM Reading (ppm)
				Fill, gravelly clay		
1			CL	SANDY CLAY, light olive brown, soft, wet		
2						
3						
4				Color change to dark brown		
5						
6						
7				Color change to grayish green, very moist		
8			CL	GRAVELLY CLAY, reddish brown, very stiff, moist		
9						
10						
11			CL	SANDY CLAY, light brown, stiff, moist		
12						
13						
14						
15				Becoming to hard, minor fine gravel		0
16	B-10-1			Bottom of boring = 16 feet		
17						
18						
19						
20						
21						

REVIEWED BY R.G./C.E.G. LDP



EXCELTECH	**SITE PLAN**	REVIEWED BY:	APPROVED BY: LP
	STERN PROPERTY COMPANY SITE	DESIGNED BY:	DATE:
	175 41st STREET	JOB #: 3-30060-32	DRAWN BY: J.D.S.
	OAKLAND, CALIFORNIA	DATE: 4/24/91	DRAWING #: FIG. 2

H2OGEOL
A GROUNDWATER CONSULTANCY

Mr. Frank S. Stern
STERN PROPERTY COMPANY
2030 Franklin Street
Suite 200
Oakland, CA 94612

[redacted]

RE: Piedmont Plaza Site - 175 41st Street, Oakland, CA
Witnessing soil sampling at hydraulic lift area.

Dear Mr. Stern:

At your request I was present at the Piedmont Plaza Site, 175 41st Street, Oakland on the morning of September 26, 1991 (between 8:24 A.M. and 10:30 A.M.) to witness the collection of wall and bottom samples from the former hydraulic lift area excavation.

Your contractor, DECON ENVIRONMENTAL, selected soil sampling locations based on the position of the former hydraulic lift location as approximately shown on Figure 2 of the Soil And Groundwater Investigation (EXCELTECH, May 1991) and on actual locations of contaminated soils excavated by DECON. Evidence presented, and visible site feature at the time of my sample witnessing visit on September 26, 1991 allowed me to agree with the sampling locations. Sample SW1 came from the west sidewall, opposite the former lift location. Sample SW2 came from the east sidewall adjacent to the former lift location. Samples B1 and B2 came from the excavation floor beneath where oil contaminated soils were found to have migrated along a sewer pipe alignment.

Approximate sample locations, as surveyed on October 04, 1991, are show on attached Figure 1. The excavation floor in the vicinity of the hydraulic lift area had been deepened and widened between September 26 and October 4, so sample locations could only be approximated. The transit was set over the cement plug of borehole B-9 and angles were shot off of the west building corner. The actual location of Borehole B-9 was surveyed off the utility poles along Howe and 41st Streets (Figure 1). The curb line of these to streets was assumed to be accurately shown on the base map (EXCELTECH, May 1991, Figure 2) in the construction of attached Figure 1.

Each sample was collected by DECON using a clean 2-inch diameter, 6-inch long brass tube driven by a hand held slide hammer. The brass tube was removed from the slide hammer and the ends were covered by aluminum foil and a plastic cap. Excavation sidewall samples were collected from an approximate depth of eight feet. Sidewall sampling was limited to two sides (east and west) because the excavation was

ramped in an approximate north-south direction to allow heavy equipment access. Sidewall samples were collected at 10:15 A.M. (SW1) and at 10:19 A.M. (SW2) on September 26, 1991. Excavation bottom samples were collected from an approximate depth of ten feet. B1 was collected at 10:22 A.M. and B2 at 10:25 A.M. on September 26, 1991. Xerographic copies of Polaroid™ photographs of each sampling event are attached. The original photographs will remain in my project file as a third party witness.

DECON delivered the samples under chain-of-custody documentation (attached) to SEQUOIA ANALYTICAL in Redwood City, California for analysis. SEQUOIA analyzed the samples for high boiling point petroleum hydrocarbons, which are generally interpreted as diesel (TPH-D) and for low to medium boiling point hydrocarbons interpreted as gasoline (TPH-G) plus the aromatic hydrocarbons; benzene (B), toluene (T), ethylbenzene (E), and total xylenes (X).

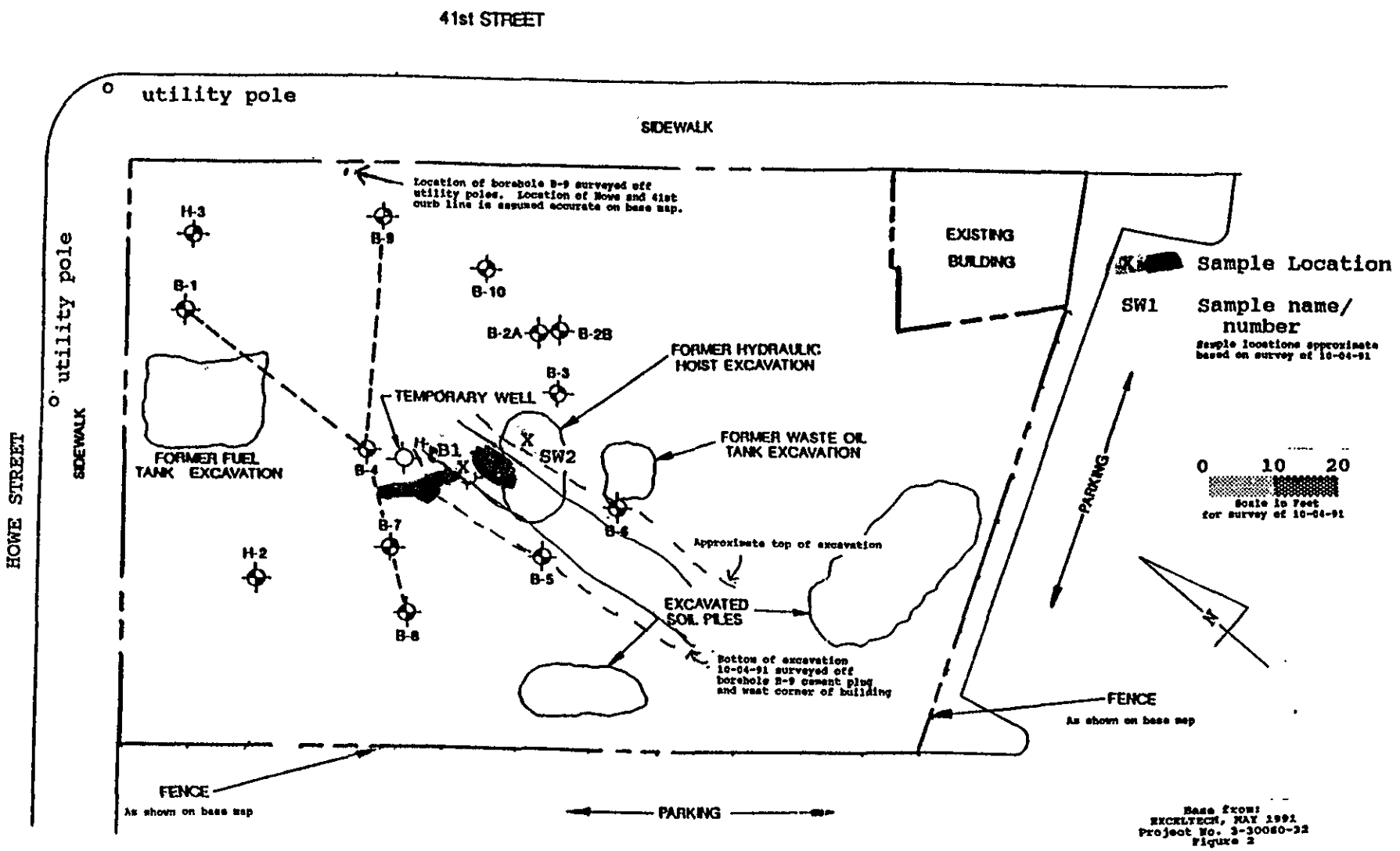
The analytical report from SEQUOIA is attached. TPH-G and BTEX were below the laboratory detection limits of 1.0 mg/Kg for TPH-G and 0.0050 mg/Kg for BTEX in all four samples. TPH-D was 5.0 mg/Kg in bottom sample B1, however the bottom location was extended to a depth of 12 to 12 feet on October 3 and 4. The remaining three samples were below the laboratory detection limits of 1.0 mg/Kg for TPH-D.

Based on these laboratory analytical reports and field observations it can be concluded that virtually all of the contaminated soil associated with the hydraulic lift area was removed from the subsurface by DECON.

Please do not hesitate to call me at (510) 373-9211 should you have any questions.

Sincerely,

Gary D. Lowe, R.G.,C.E.G.
California R.G. 3768, C.E.G. 1559
Principal, Hydrogeologist



H2OGEOL
A GROUNDWATER CONSULTANCY

STERN PROPERTY COMPANY

Hydraulic Hoist Area Verification Sample Locations

175 41ST STREET, OAKLAND, CALIFORNIA

FIGURE 1

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

DECON Environmental Services	Client Project ID:	662, Stern Properties	Sampled:	Sep 26, 1991
26102 Eden Landing Road, Suite 4	Matrix Descript:	Soil	Received:	Sep 26, 1991
Hayward, CA 94545	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Sep 30, 1991
Attention: Anthony Cappella	First Sample #:	109-4459	Reported:	Oct 1, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	TPH d
109-4459	SW-1 bgs (8ft)	N.D.	N.D.	N.D.	N.D.	N.D.	ND
109-4460	SW-2 bgs (8ft)	N.D.	N.D.	N.D.	N.D.	N.D.	ND
109-4461	B-1 (14-15ft 10ft)	N.D.	N.D.	N.D.	N.D.	N.D.	5.8
109-4462	B-2 10ft	N.D.	N.D.	N.D.	N.D.	N.D.	ND
109-4463	SP-1	N.D.	N.D.	N.D.	N.D.	N.D.	18
109-4464	SP-2	N.D.	N.D.	N.D.	N.D.	N.D.	ND
109-4465	SP-3	N.D.	N.D.	N.D.	N.D.	N.D.	ND
109-4466	SP-4	N.D.	N.D.	N.D.	N.D.	N.D.	ND

Detection Limits:	1.0	0.0050	0.0050	0.0050	0.0050	

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Christine L. Middleton
Christine L. Middleton
Project Manager