

20.004

LIMITED SUBSURFACE INVESTIGATION

THRIFTY OIL STATION #049

3400 SAN PABLO AVENUE

OAKLAND, CALIFORNIA

PREPARED FOR:

Thrifty Oil Co.
10000 Lakewood Boulevard
Downey, California 90240

PREPARED BY:

Hydrotech Consultants, Inc.
5 Mason
Irvine, California 92718

JOB NO: 13-6782-017-00-00
LOG NO: H7-2006

SEPTEMBER 30, 1987

LIMITED SUBSURFACE INVESTIGATION
THRIFTY OIL STATION #049

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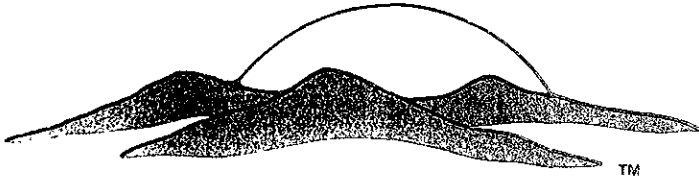
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HYDROTECH CONSULTANTS, INC.
GROUNDWATER AND HAZARDOUS WASTE MANAGEMENT

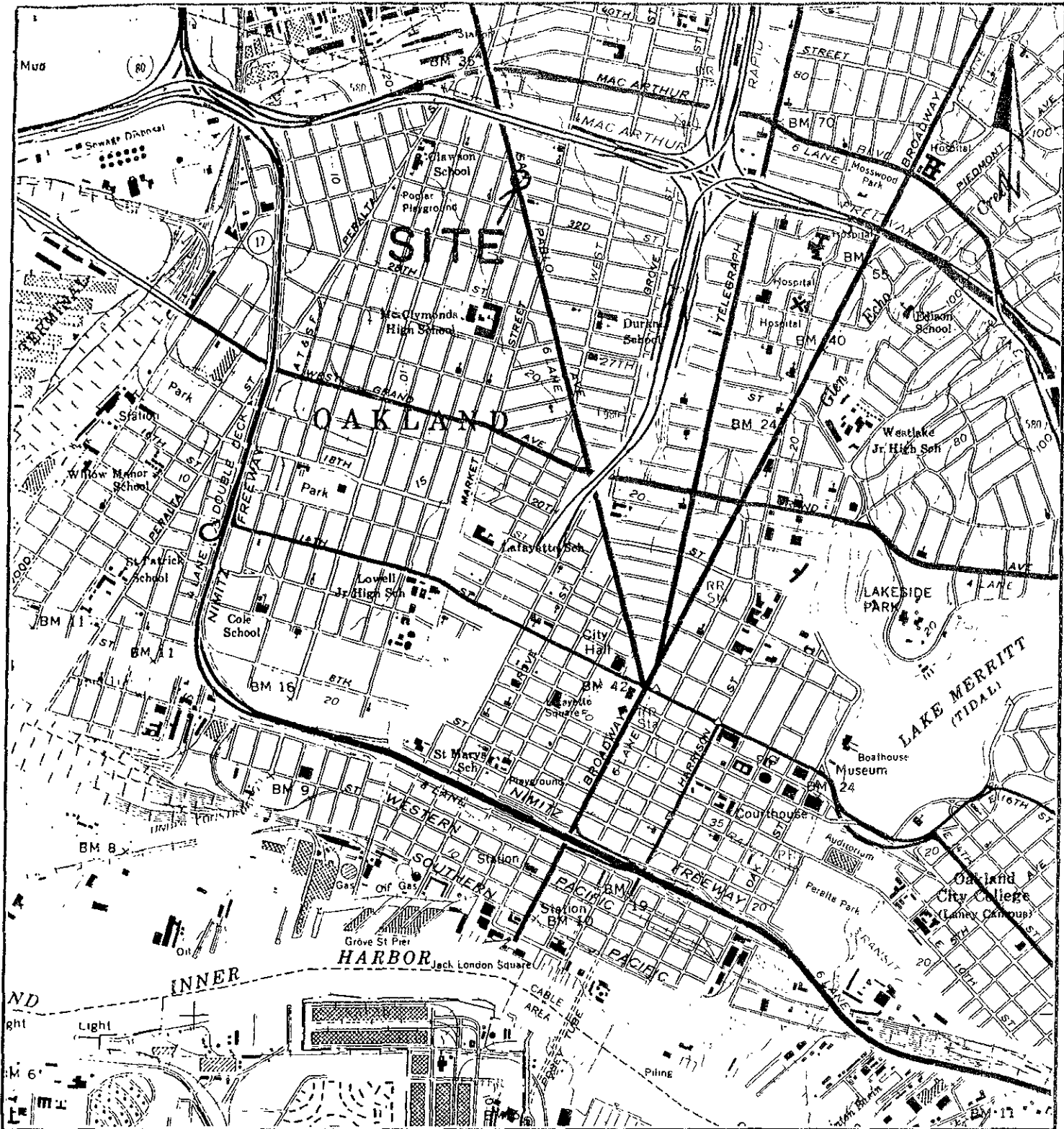
LIMITED SUBSURFACE INVESTIGATION
THRIFTY OIL STATION #049
OAKLAND, CALIFORNIA

1.0 INTRODUCTION

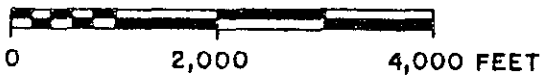
This report presents the results of a subsurface investigation performed at the subject site located at 3400 San Pablo Avenue in the City of Oakland, California (see Figure 1, Location Map). The site is currently occupied by an operating Thrifty Oil Co. (Thrifty) Service Station for the retail sale of various gasoline and petroleum products. This investigation was performed in response to a request from Thrifty to evaluate the site for the presence of any petroleum hydrocarbon contamination. The investigation was confined to the subsurface soil materials surrounding the underground storage tanks located at the south central section of the site. The purpose of this report is to document the specific procedures and equipment utilized during the investigation and to describe the observations, findings and results of our investigation.

1.1 Site Description

The subject site is located at the northeast corner of the intersection of San Pablo Avenue and 34th Street in the City of Oakland, California. An operating Thrifty Oil Co. service station currently exists on-site. The Thrifty facilities consist of two pump islands, a cashier's booth, and four underground petroleum storage tanks. The location of the site with respect to structures and topography is shown on Figure 1, Location Map.



APPROXIMATE SCALE:



ADAPTED FROM U.S.G.S. 7.5' OAKLAND WEST (1980) QUADRANGLE

LOCATION MAP

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FIGURE: 1

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The storage tanks contain regular unleaded, regular leaded, and unleaded premium gasoline. The storage capacity of the individual tanks ranges from 6,000 to 8,000 gallons. Locations of the tanks are shown relative to existing structures on Figure B-1, Plot Plan.

1.2 Scope of Investigation

The scope of work for this investigation is in direct response to parameters established by Thrifty Oil Company. Four soil borings were to be excavated around the underground storage tank cluster. Each boring was to be drilled to a depth of 20 feet or to groundwater and soil samples collected every 5 feet. Laboratory analysis for total petroleum hydrocarbons would be performed on selected soil samples where warranted by field observations. Appendix E contains the original scope of work for this investigation as presented by Thrifty.

2.0 GEOLOGY

2.1 Regional Geology

The site is located within the San Francisco Bay structural depression of the Coast Ranges Physiographic Province in central Alameda County, California. Bedrock in the region consists of sedimentary, metasedimentary, volcanic and intrusive rocks of Jurassic through Tertiary geologic age. Quaternary age marine and alluvial sediments blanket the downwarped bedrock within the basin in which the site is located. Shallow groundwater is present locally within these Quaternary sediments.

2.2 Local Subsurface Conditions

Artificial fill materials encountered during our investigation consisted of fine silty sand. Native earth materials observed during drilling operations consisted of dark brown and grey green clay with silt, silt and highly fractured green and red siltstone. Detailed lithologic descriptions of each boring are shown in Appendix B, Figures B-3 through B-6.

Groundwater was encountered in borings at a depth of approximately 15 feet below ground surface. Depth to groundwater was also measured in existing on-site groundwater monitoring wells (installed by others) at a depth of approximately 10 feet below the ground surface.

3.0 INVESTIGATION PROCEDURES

3.1 General

A total of five borings were excavated around the tank cluster (B1 through B5). Four vertical borings were excavated around the tank cluster to a depth of 16 feet (one foot below observed groundwater in the borings). Boring B-4 was abandoned at a depth of 4 feet due to the presence of underground vent lines. The vent lines were not damaged. A fifth boring was drilled to a depth of 16 feet below ground surface to complete the scope of work. Soil samples were collected from the vadose-zone portions of Borings B-1, B-2, B-3 and B-5. Each boring was backfilled with concrete. Apparently contaminated soil cuttings were placed in three 55-gallon drums (17-H), sealed, labeled and stored on the site for future disposal by others.

3.2 Drilling and Soil Sampling

Borings B-1 through B-5 were completed on September 11, 1987 by Interstate Soils Sampling under the observation of an engineering geologist from Hydrotech. Boring B-5 was drilled on September 29, 1987 by Hew drilling. Drilling was conducted using a truck-mounted hollow-stem auger rig. Standard care and practice relating to sample collection and handling was employed. Details of sample collection and handling are described in Appendix B. Table I lists the borings with the corresponding depths at which soil samples were collected.

TABLE I
Depth of Soil Sample Collection

<u>Boring Number</u>	<u>Sample Depth (feet)</u>
B-1	5
B-1	10
B-2	5
B-2	10
B-3	5
B-3	10
B-5	4
B-5	8
B-5	15

3.3 Laboratory Analysis

Chemical analyses were performed on selected soil samples by Truesdail Laboratories, Inc., an independent testing laboratory located in Tustin, California. Soil samples were analyzed for total petroleum hydrocarbons, the constituent stored in the underground tanks, using

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Modified EPA Method 8015. Official laboratory results are included in Appendix C. Chain-of-custody procedures were followed and copies of these documents are included in Appendix D.

4.0 FINDINGS

Visible staining or discoloration of soil materials was observed in samples collected from depths of less than 10 feet in each boring. Petroleum hydrocarbon odors were also detected in most of these samples.

Indications of petroleum hydrocarbons were detected with the organic vapor meter in samples at depths of 4 to 10 feet below ground surface in all the borings. Meter readings from the samples ranged from 125 ppm to greater than 500 ppm.

Laboratory analysis was performed on soil samples from Borings B-2 and B-3 because the field OVM readings on samples from these borings were the highest encountered during our investigation. Laboratory results indicate petroleum hydrocarbons were present in the sample collected from a depth of 5 feet below the ground surface in Boring B-2. Table II lists the results of laboratory analysis.

TABLE II
Results of Laboratory Analysis

<u>Boring Number</u>	<u>Sample Depth (feet)</u>	<u>Petroleum Hydrocarbon Concentration mg/kg</u>	<u>Sample Type</u>
B-2	5	3600	Soil
B-2	10	<10	Soil
B-3	10	<10	Soil

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As mentioned in Section 2.2, shallow groundwater is present below the site at a depth of approximately 10 feet. Groundwater was first observed in our exploratory borings at a depth of 15 feet. Water samples recovered with a hand bailer through the auger flights showed traces of free product in the form of small globules. Water samples were therefore not submitted for analytical testing. Additionally, a check of groundwater existing monitoring wells on-site confirmed the presence of floating product. Approximately 3/8 inch of product was observed in a monitoring well located west of the tank cluster near Boring B-3 on November 23, 1987.

5.0 LIMITATIONS OF INVESTIGATION

Our investigation was performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable Soils Engineers and Geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

The samples taken and used for testing and the observations made are believed representative of the entire project; however, soil and geologic conditions as well as groundwater conditions can vary significantly between borings, test pits, and surface outcrops.

As in most projects, conditions revealed by excavation may be at variance with preliminary findings. If this occurs, the changed conditions must be evaluated by the Project Soils Engineer and Geologist and designs adjusted as required or alternate designs recommended.

This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are brought to the attention of the regulatory agencies.

The interpretations and recommendations of this report are based on the data collected and our present working knowledge of underground tank storage investigation. As such, this report is valid as of the date shown and we cannot be responsible for subsequent changes in physical conditions and/or legislation over which we have no control.

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The opportunity to be of service is appreciated. If you have any questions, please call.

Very truly yours,

HYDROTECH CONSULTANTS, INC.



Scott Warren
Staff Geologist



Scott L. Neville, R.G. 4252
Project Geologist
Registration expires 6/30/88

REVIEWED BY:



Craig A. Stewart, C.E.G. 1277
Senior Hydrogeologist
Registration expires 6/30/88

SW:SLN:CAS/jm

Distribution: (3) Addressee

APPENDIX A

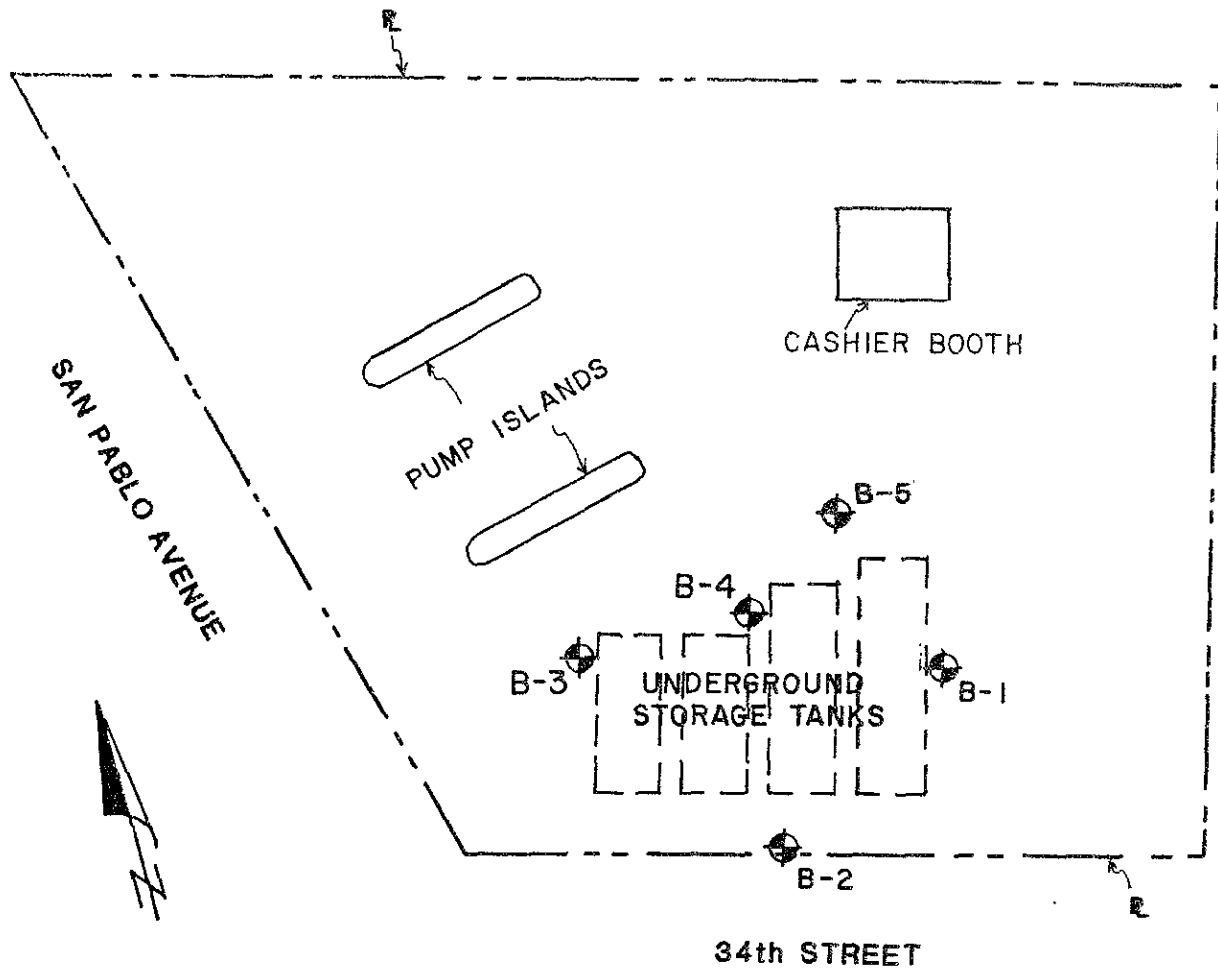
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REFERENCES

1. Davis, S.N., 1966, Hydrogeology Field Trip East Bay Area and Northern Santa Clara Valley in Bailey, E.H., Geology of Northern California: Calif. Div. Mines and Geology. Bull. 190, p. 465-471.
2. Page, B.M., 1966, GEOLOGY OF THE COAST RANGES IN CALIFORNIA, in Bailey, E.H., Geology of Northern California: Calif. Div. Mines and Geology, Bull. 190, p. 255-276.
3. Jennings, C.W., Burnett, J.L., 1961 Geologic Map of California , San Francisco Sheet: California Division of Mines.

APPENDIX B

FIELD INVESTIGATION



APPROXIMATE SCALE:

0 ————— 25 FEET

EXPLANATION

⊕ B-4 EXPLORATORY BORING

PLOT PLAN THRIFTY OIL STATION # 49

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DATE: SEPTEMBER, 1987

FIGURE: B-1
















DESCRIPTION OF SAMPLING, HANDLING AND PREPARATION PROCEDURES

Auger flights were hollow-stem types with an inside diameter of 3.25 inches and an outside diameter of 8.0 inches. Individual auger flights were five feet in length. Soil samples were collected at five foot intervals. A retractable plug prevented soil from entering into the auger flights during the boring process. The plug, which is inserted or retrieved by a wireline, is at the end of a 140 pound drive hammer. When a target depth is reached, a Modified California Sampler is placed at the bottom of the hammer and lowered by wireline to the bottom of the boring. The sampler is then driven into the soil by repeatedly raising and dropping the hammer 30 inches until the sampler has been advanced 12 inches. This driving action forces relatively undisturbed soil into the sampler barrel. Details of the components of the Modified California Sampler are described below. Following the driving operation, the hammer and sampler are retrieved from the boring and separated; soil is removed from the sampler and prepared for shipment to an analytical laboratory.

The Modified California Sampler consists of an outer sampler barrel and an inner, thin-walled set of rings. As soil is forced into the sample barrel by the driving action described above, a soil sample is collected in the inner rings. For this application, two 6-inch long by 2.5-inch diameter brass rings were used. After retrieval from the boring and subsequent detachment from the hammer, the sampler was dismantled and the inner rings containing the soil sampler were removed. The lower ring was sealed by covering the ends with aluminum foil, placing plastic caps on each tube end, and securing the caps with duct tape. Each sample was then labeled and placed in an ice chest for cold storage for shipment to an analytical laboratory.

To avoid cross-contamination between samples and boreholes, the Modified California Sampler and the brass ring inserts were cleaned before each use. The sampling equipment was washed with an aqueous solution of trisodium phosphate, rinsed twice with tap water and allowed to air dry.

Each soil sample collected was analyzed for possible hydrocarbon contamination by use of an organic vapor meter (Gastechtor model 1314). A portion of the sample was placed in a sealable (ziplock) plastic bag. After the bag had been sealed for a minimum of 5 minutes the sample was "sniffed" and the meter readings (parts per million) recorded on the boring log. The model 1314 Gastechtor-Hydrocarbon Surveyor is a battery-powered instrument that can detect and indicate concentrations of combustible gas or vapor in air, in the explosibility and parts per million ranges. Samples under test are drawn continuously by means of a built-in pump and analyzed for combustible gas on a heated catalytic platinum element. This instrument will respond to at least 23 different gases including various petroleum products. Results of the Gastechtor are given in parts per million and are used only as a qualitative field measure of potential soil contamination.

DEFINITION OF TERMS					
PRIMARY DIVISIONS			SYMBOLS	SECONDARY DIVISIONS	
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	CLEAN GRAVELS (LESS THAN 5% FINES)		GW	Well graded gravels, gravel-sand mixtures, little or no fines.
		GRAVEL WITH FINES		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)		GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
				GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
		SANDS WITH FINES		SW	Well graded sands, gravelly sands, little or no fines.
				SP	Poorly graded sand or gravelly sands, little or no fines.
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50%		SM	Silty sands, sand-silt mixtures, non-plastic fines.	
			SC	Clayey sands, sand-clay mixtures, plastic fines.	
			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.	
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50%		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays.	
			OL	Organic silts and organic silty clays of low plasticity.	
			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	
HIGHLY ORGANIC SOILS			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.	

GRAIN SIZES							
SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		
	200	40	10	4	3/4"	3"	12"
U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENINGS			

RELATIVE DENSITY

SANDS, GRAVELS AND NON-PLASTIC SILTS	BLOWS/FOOT*
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

CONSISTENCY

CLAYS AND PLASTIC SILTS	STRENGTH**	BLOWS/FOOT*
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32

*NUMBER OF BLOWS OF 140 POUND HAMMER FALLING 30-INCHES TO DRIVE A 2-INCH O.D. (1-3/8-INCH I.D.) SPLIT SPOON (ASTM D-1586).

**UNCONFINED COMPRESSIVE STRENGTH IN TONS/SQ. FT. AS DETERMINED BY LABORATORY TESTING OR APPROXIMATED BY THE STANDARD PENETRATION TEST (ASTM D-1586), POCKET PENETROMETER, TORVANE, OR VISUAL OBSERVATION

TYPE OF SAMPLES:

RING SAMPLE STANDARD PENETRATION TEST GEOCHEMICAL SAMPLE

DRILLING NOTES:

- SAMPLING AND BLOW COUNTS
 - RING SAMPLER - NUMBER OF BLOWS PER FOOT OF A 140 POUND HAMMER FALLING 30 INCHES
 - STANDARD PENETRATION TEST - NUMBER OF BLOWS PER 12 INCHES SHOWN
 - GEOCHEMICAL SAMPLER - 2.5 I.D. TUBE DRIVEN BY 140 POUND HAMMER FALLING 30 INCHES
- P.P. - POCKET PENETROMETER (TONS/SQUARE FOOT)

KEY TO LOGS

JOB NO.: 13-6782-017-00-00	DATE: SEPTEMBER 1987	FIGURE: B-2
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DATE OBSERVED: 9-11-87

METHOD OF DRILLING: HOLLOW STEM AUGER

LOGGED BY: SAW

GROUND ELEVATION: 30'

LOCATION: SEE PLOT PLAN FIGURE 1

DEPTH (FEET)	CLASSIFICATION	BLOWS/FOOT	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	IN PLACE DRY DENSITY (PCF)	BORING NO. <u>B-1</u>	SOIL TEST
							DESCRIPTION	CASTECHTOR READING in ppm
0							CONCRETE COVER	
5		26					NATURAL GROUND: WEATHERED BEDROCK: Dark Brown CLAY with silt, moist, no petroleum odor @ 5' color change to grey-green, becomes very stiff, petroleum odor noted	225 ppm
10		38					@ 10' becomes hard, petroleum odor noted	225 ppm
15		16					@ 15' Groundwater Present	
20							TOTAL DEPTH: 16 FEET GROUNDWATER @ 15 FEET	
25								
30								
35								
40								

JOB NO.: 13-6782-017-00-00

LOG OF BORING

FIGURE: B-3

DATE OBSERVED: 9-11-87 METHOD OF DRILLING: HOLLOW STFM AUGER

LOGGED BY: SAW GROUND ELEVATION: 30' LOCATION: SEE PLOT PLAN FIGURE 1

DEPTH (FEET)	CLASSIFICATION	BLOWS/FOOT	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	IN PLACE DRY DENSITY (PCF)	BORING NO. <u>B-2</u>	SOIL TEST
							DESCRIPTION	GASTECHTOR READING in ppm
0								
5	SM	23	█				FILL: Brown fine silty SAND, dry slight petroleum odor @ 5' strong petroleum odor noted	500 ppm
10	Ss	24	█				NATURAL GROUND: BEDROCK: Grey-green weathered SILTSTONE, very moist to wet, very stiff, no petroleum odor noted	125 ppm
15		24	█				@ 15' Groundwater noted	
20							TOTAL DEPTH: 16 FEET GROUNDWATER @ 15 FEET	
25								
30								
35								
40								

DATE OBSERVED: 9-11-87

METHOD OF DRILLING: HOLLOW STEM AUGER

LOGGED BY: SAW

GROUND ELEVATION: 30'

LOCATION: SEE PLOT PLAN FIGURE B-1

DEPTH (FEET)	CLASSIFICATION	BLOWS/FOOT	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	IN PLACE DRY DENSITY (PCF)	BORING NO. B-3	SOIL TEST
							DESCRIPTION	GASTECHTOR READING in ppm
0							CONCRETE COVER	
0-5	CL						FILL: Black to dark brown, CLAY with silt, moist, stiff, slight petroleum odor	
5		28	█				BEDROCK: Green weathered SILTSTONE, moist very stiff, petroleum odor noted	220 ppm
10	Ss	8	█				@ 10' color changed to brown, petroleum odor noted @ 12' becomes wet, no petroleum odor noted @ 15' Groundwater noted	500 ppm
15-20							TOTAL DEPTH: 16 FEET GROUNDWATER @ 15 FEET	
20-25								
25-30								
30-35								
35-40								

JOE NO.: 13-6782-017-00-00

LOG OF BORING

FIGURE: B-5

DATE OBSERVED: 9-11-87 METHOD OF DRILLING: HOLLOW STEM AUGER

LOGGED BY: SAW GROUND ELEVATION: 30' LOCATION: SEE PLOT PLAN FIGURE 1

DEPTH (FEET)	CLASSIFICATION	BLOWS/FOOT	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	IN PLACE DRY DENSITY (PCF)	BORING NO. <u>B-4</u>	SOIL TEST
							DESCRIPTION	GASTECHTOR READING in ppm
0							CONCRETE COVER	
0 - 4	ML CL						FILL: Black CLAY and SILT, moist stiff, strong petroleum odor	500 ppm
4 - 5							@ 4' boring terminated due to presence of subsurface vent lines, no damage	
5 - 40							TOTAL DEPTH: 4 FEET NO GROUNDWATER	

DATE ACQUIRED: 9-29-87

METHOD OF DRILLING: HOLLOW STEM AUGER

LOGGED BY: SAW

GROUND ELEVATION: 30'

LOCATION: SEE PLOT PLAN FIGURE B-1

DEPTH (FEET)	CLASSIFICATION	BLOWS/FOOT	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	IN PLACE DRY DENSITY (PCF)	BORING NO. B-5	
							DESCRIPTION	SOIL TEST GASTECHTOR READING
0							6" concrete cover	
0-5							FILL: Gray-green silty SAND with gravel	
5		24					Dark brown to black silty CLAY to clayey SILT, moist, very stiff, no petroleum odor.	50 ppm
10	Ss	50					NATURAL GROUND: BEDROCK: Gray-green weathered SILTSTONE, moist, very stiff to hard, strong petroleum odor.	480 ppm
16		32					@ 15' groundwater noted	30 ppm
20							TOTAL DEPTH 16 FEET GROUNDWATER AT 15 FEET	
25								
30								
35								
40								

APPENDIX C

LABORATORY RESULTS

PRESENTED BY TRUESDAIL LABORATORIES, INC.

APPENDIX D

CHAIN-OF-CUSTODY DOCUMENTS

HYDROTECH CONSULTANTS, INC.
 5 MASON
 IRVINE, CALIFORNIA 92718
 (714) 951-8888

CHAIN OF CUSTODY RECORD

PROJECT NO. 049 ^{thru} _{oil} PROJECT NAME Oakland - San Pablo - ^{thru} _{oil}

SAMPLERS: (Signature) Scott W. OBSERVERS:

STATION NUMBER	DATE	TIME	CONTAINER DESCRIPTION	SAMPLE DESCRIPTION	ANALYSES										NUMBER OF CONTAINERS	REMARKS		
					1	2	3	4	5	6	7	8	9	10				
B1-5	7/1/87	7:20	Soil - 6" Brass ring	Soil													1	Hold
10		8:00															1	Hold
B2-5		8:50			X												1	24 hrs rush
10		8:45			X												1	" "
B3-5		9:30															1	Hold
10		10:00			X												1	24 hr rush
TRIP BLANK		8:55	UOAS O2	water													1	Hold
B-1		9:45	" "														1	↓
B-2		10:30	" "														1	↓

TOTAL NUMBER OF CONTAINERS

RELINQUISHED BY: (Signature) Scott W. DATE/TIME 7/1/87 3pm RECEIVED BY: (Signature) RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

METHOD OF SHIPMENT: SHIPPED BY: (Signature) COURIER: (Signature) RECEIVED FOR LAB BY: (Signature) DATE/TIME 7/1/87 3:05

RESULTS TO: Scott Newell / HYDROTECH BILL TO: HYDROTECH LABORATORY DELIVERED TO: Tuesday

JOB NO.: 13-6782-017-00-00 DATE: 7/1/87 FIGURE: SHT 1 of 1

APPENDIX E

THRIFTY OIL CO.

SCOPE OF WORK

SCOPE OF WORK
SUBSURFACE SITE ASSESSMENT

PURPOSE

The purpose of work as outlined is to provide a subsurface assessment of the presence of petroleum hydrocarbon contamination in the soil and/or groundwater at the Thrifty Oil Co. ("Thrifty") properties referenced on the attached lists.

SOIL BORINGS

Four soil borings will be installed in the area adjacent to the underground gasoline/diesel storage tanks. The location of these borings shall be subject to Thrifty's approval. The borings will be a minimum of 2" in diameter and to a depth of twenty feet or groundwater, whichever first occurs.

Borings will be installed with a truck mounted hollow stem auger drill rig equipped with a continuous core sampler.

Soil cuttings shall be placed in 55 gallon drums pending results of laboratory analysis. If the soil is free of contamination, the disposition shall be the responsibility of the contractor. If contamination exists, disposition shall be Thrifty's responsibility.

The borings shall be backfilled to a depth of five feet with a mixture of bentonite and clean native soil. The remaining five

feet will be backfilled with a bentonite cement mixture.

Prior to drilling, underground utilities, gasoline/diesel tanks and piping will be verified in the field.

Drilling permits for boring installations will be obtained where required by local agencies.

SOIL SAMPLES

Soil samples shall be taken every 5 feet and evaluated in the field with an organic vapor meter (OVM) and a head space analysis technique for the purpose of identifying the visible presence or odor of hydrocarbons.

In the event a material presence or odor of hydrocarbons is detected in the samples, the soil samples taken every ten feet shall be analyzed in a laboratory for the presence of hydrocarbons. Results shall be reported as total petroleum hydrocarbons (TPH) using E.P.A. method 8015.

WATER SAMPLES

If the groundwater table is encountered, it shall be characterized as to the presence or absence of free floating hydrocarbons. If free floating hydrocarbons are not encountered

at the groundwater table, a sample of the water shall be taken and analyzed for the presence of dissolved hydrocarbons. The results shall be reported as total petroleum hydrocarbons (TPH) using E.P.A. method 8015.

REPORT

Upon completion of the Subsurface Site Assessment and receipt of the laboratory results, a report will be prepared and submitted to Thrifty together with 2 additional copies for a total of 3 copies. The report will include a summary of activities conducted at the site, boring logs, laboratory results and a site plan outlining the locations of the borings.

REPORT

TRUESDAIL LABORATORIES, INC.



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CABLE: TRU ELABS

CHEMISTS - MICROBIOLOGISTS - ENGINEERS
RESEARCH - DEVELOPMENT - TESTING

CLIENT Hydrotech Consultants, Inc.
15 Mason
Irvine, CA 92718
Attention: Scott Neville

DATE September 17, 1987

RECEIVED September 14, 1987

SAMPLE Soils from Thrifty Oil - Oakland - San Pablo
Project #049

LABORATORY NO. 21816

INVESTIGATION

Total Petroleum Hydrocarbons (EPA 8015)

RESULTS

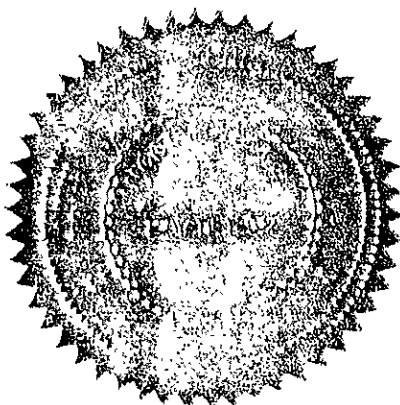
<u>Sample</u>	<u>Milligrams per Kilogram</u>
B2-5'	3,600
B2-10'	<10
B3-10'	<10

Total Petroleum Hydrocarbons (Modified EPA 8015): The petroleum hydrocarbons analysis for this sample was analyzed by GC-FID (Modified EPA 8015) using the procedure listed in the revised analytical method (11/5/85), Attachment 2. The limit of detection is 10 mg/kg.

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Tim Scott
Analytical Chemist



This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these Laboratories.