REMEDIATION SERVICE, INT'L.

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ADDITIONAL SITE ASSESSMENT
at
Thrifty Oil Co.
Station No. 054
2504 Castro Valley Boulevard
Castro Valley, CA

Prepared for:
THRIFTY OIL CO.
10000 Lakewood Boulevard
Downey, CA 90240

Prepared by:
RSI - REMEDIATION SERVICE, INT'L
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May 31, 1991

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1.0 INTRODUCTION

The purpose of this report is to describe the further subsurface investigation at Thrifty Oil Co.'s former retail station No. 054. Previous investigations have determined that both the soil and groundwater beneath the site contain elevated levels of petroleum hydrocarbons. This investigation was proposed to delineate the extent of the area affected by petroleum hydrocarbons.

1.1 Site Location and Description

Station No. 054 was located at 2504 Castro Valley Boulevard, Castro Valley, Alameda County, California (Figure 1). The station, which has been closed, consisted of a small building, three pump islands, a cashier's booth and three underground fuel tanks (Figure 2).

As can be seen on the Vicinity Map (Figure 4), the site is located on the northeast corner of the intersection of Castro Valley Boulevard and Stanton Avenue. The other three corners of the intersection are also occupied by small businesses. Immediately east of the site, facing Castro Valley Boulevard, is another small business. North of the site, facing Stanton Avenue, is a residential area.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS

There have been at least two previous investigations at this

site. The first was by Hydrotech Consultants, Inc. (Subsurface Investigation for Petroleum Hydrocarbon Contamination Assessment. January 14, 1987). Four borings (labeled B-1, B-2, B-3 and B-4 on Figure 2) were drilled around the tanks to depths of 20 feet below ground surface (bgs). Evidence of hydrocarbon contamination was found in soil samples from all four borings (Table 1). The affected soils were generally confined to the upper 10 feet.

A second investigation was conducted by Robert Elbert and Associates (Report of Subsurface Investigation, April 11, 1988) to further define the extent of hydrocarbon contamination. Seven monitoring wells (labeled RE-1 through RE-7 on Figure 2) were drilled and installed at depths ranging from 15 to 25 feet bgs. Laboratory analysis of soil samples (Table 1) indicated that the main zone of soil contamination tends to trend northwest-southeast, through the former tank area.

Soils encountered during drilling operations were reported to be fairly uniform across the site. They consist of clay or clay with gravel and/or possible evaporites overlying clay with abundant shale gravel. Shale bedrock was encountered at depths of 15 feet or more in all wells or borings except RE-1, which was drilled to 25 feet bgs and did not encounter bedrock.

No groundwater was found by Hydrotech during their site investigation. However, groundwater was found by Robert Elbert

& Associates at depths ranging from 6 to 8 feet during drilling operations. On March 30, 1988, after monitoring wells RE-1 through RE-7 were installed, the depth to groundwater was measured and the wellhead elevations were surveyed. Previously existing wells PW-1 and PW-2 (Figure 2) were also measured and surveyed. It was determined that the water table elevation ranged from 158.64 to 161.87 feet above mean sea level (MSL). The gradient sloped approximately 1 foot every 35 feet towards the southeast. Water samples collected from wells RE-1 through RE-7 all contained elevated levels of petroleum hydrocarbons (Table 2). A small amount of free product was found in wells RE-3 (0.01 feet), PW-1 (0.07 feet) and PW-2 (0.03 feet).

3.0 ADDITIONAL ASSESSMENT

To assess the potential for off-site contamination three groundwater wells were completed as described in the RSI work plan of September 5, 1989. One well is directly east of the underground tanks, on the adjacent property (RS-8, Figure 3). The second well (RS-9, Figure 3) is located up gradient from the underground tanks, to the west of the site on Stanton Avenue. The third well (RS-10, Figure 3) will also be located down gradient from the underground tanks, southeast of the site on Castro Valley Boulevard. The drilling of proposed wells RS-9 and RS-10 is dependent on securing the necessary permits from Alameda County and Cal Trans.

3.1 Drilling, Sampling and Completion Procedures

Under the supervision of a RSI geologist, three soil borings were advanced using a truck mounted hollow-stem auger drilling rig. Soil samples were collected at every five foot interval, when feasible. Two soil samples, from each boring, were sent to a state certified laboratory for analyses. Total petroleum hydrocarbons (TPH) as gasoline was determined using DHS/LUFT methodology and benzene, toluene, ethylbenzene and xylenes (BTEX) using EPA method 8020.

Each soil boring had a diameter of approximately 6.75 inches and was completed with 2-inch diameter PVC casing as a groundwater monitoring well. Two wells were completed to 25 ft. bgs; the third was completed at 15 ft. bgs due to auger refusal.

The day following completion of the wells, each well was developed. Two of the wells, RS-8 and -9, were sampled following the procedures outlined in Appendix C. The water samples were analyzed by a state certified laboratory for TPH and BTEX using DOHS methodology and EPA methods 8020.

3.2 Soil Conditions

Sediments encountered during the recent drilling consist of clays and siltstone. These observations correlate fairly well with earlier assessments. The shale noted in the previous boring logs was determined to be siltstone during this investigation. In order to evaluate vertical and horizontal migration of

contaminants, all soil samples adequate for laboratory analyses were submitted. The only elevated levels of hydrocarbons were found in RS-9 at 5 ft. bgs, with 580 ppm TPH. The 10 ft. sample found only toluene, at 0.011 ppm. Samples from RS-8 identified gasoline compounds at both the 5 ft. and 10 ft. intervals. The 10 ft. sample was collected below the current static groundwater table. Only one sample from RS-10 was analyzed and only one compound was found: toluene at 0.005 ppm, right at the detection limit. Table 3 summarizes all soil test results to date.

3.3 Groundwater Conditions

The latest measurement of groundwater and free product was done on May 22, 1991 by Thrifty Oil personnel. Depth to groundwater ranged from 4.40 ft. in RE-5 to 11.70 ft. in RE-7. This data indicates a currently rising water table; Table 4 summarizes groundwater measurements since 1988. Depth to water measurements in [redacted] and [redacted] have decreased significantly and represent drawn-down conditions due to pumping. At present, only these two wells are recovering groundwater for treatment. Due to the tight soils, on-site recovery is very slow, with a limited radius of influence. Even so, both wells are accumulating floating product, which indicates rather high levels of hydrocarbons in the vadose and capillary zones.

Groundwater samples for laboratory analyses were collected from only the new wells. The "up gradient" well, RS-9, had the highest concentrations with 16000 ppb TPH. The "down gradient"

well, RS-8, had only one detectable compound: benzene at 0.5 ppb. This concentration is well below the state drinking water action levels. Unfortunately, the other potential "down gradient" well, RS-10, produced no water. Even with additional surging, there was no notable response. During drilling only clays and siltstone were found; the clay was fairly plastic and could have coated the borehole. It is possible that, with the use of more intensive development procedures, the wells would generate water.

Figure 4 is a groundwater elevation map of the on-site wells. A new survey of the wells is to be conducted after the on-site traffic covers have been repaired or replaced. This survey will include the new wells. Upon completion of this work an accurate assessment of the groundwater gradient can be completed.

4.0 S.A.V.E. SYSTEM OPERATIONS

The system was installed in August, 1989. However, due to unanticipated delays in permits, the system was not started until April, 1990. The system was operated only during the daylight hours recovering soil vapor during the first three months of operation. The equipment was moved in late June, 1990, and is now operating around the clock. Groundwater occurs at a very shallow depth, approximately 5 ft. to 6 ft. below ground surface. The vapor extraction process has been working in the vadose zone above the water table, and reducing free product levels. The

S.A.V.E. System performance tables are in Appendix G.

Groundwater treatment was initiated in January of this year. Down well pumps have been set in RE-4 and -7; by the end of April, a total of 1511 gallons of groundwater had been treated.

5.0 LIMITATIONS

The discussion and recommendation presented in this report are based on the following:

1. The professional performance of the personnel who conducted the investigations.

2. The observations of the field personnel

3. The results of laboratory analyses performed by a state certified laboratory.

4. Any referenced documents.

5. Our understanding of the regulations of the State of California; also, if applicable, other local regulations.

The services performed by Remediation Service Int'l have been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently

practicing under similar conditions in the State of California.

Please note that contamination of soil and/or groundwater must be reported to the appropriate agencies in a timely manner. No other warranty, expressed or implied, is made.

Wendy J. Wittl
Senior Project Geologist

Robert C. Michael
Registered Geologist No. 3849

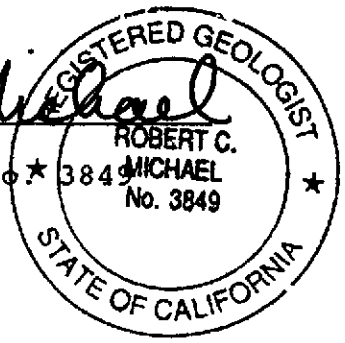


TABLE 1
Thrifty Oil Company #54

WELL CONSTRUCTION DATA

All results reported in parts per billion

Well Number	RS-8	RS-9	RS-10
Date Constructed	5/8/91	5/8/91	5/8/91
Casing Diameter	2 inches	2 inches	2 inches
Total Boring Depth	25	15	25
Blank Casing	0-5	0-5	0-5
Screen	5-25	5-15	5-25
Cement	0-3	0-2.5	0-3
Bentonite	3-4	2.5-3	3-4
Gravel Pack	4-25	3-15	4-25

TABLE 2
Thrifty Oil Company #54

SUMMARY OF LABORATORY RESULTS FOR GROUNDWATER SAMPLES

All results reported in parts per billion

Well No.	Date	TPH	Benzene	Toluene	Ethyl benzene	Xylenes
RE-1	02/18/88	37000	1900	8400	1200	15000
	04/06/90	45000	6100	7000	2000	8800
	10/30/90	72000	7700	5300	1800	8900
	01/18/91	150000	11000	14000	1800	4300
	02/12/91	140000	11000	12000	1600	13000
	03/20/91	53000	3100	4200	400	5500
	05/22/91	85000	8700	10000	1800	12000
RE-2	02/18/88	NOT SAMPLED				
	04/06/90	850	5.8	0.5	48	1.1
	10/30/90	440	2.8	0.91	13	3.14
	01/18/91	1100	8.4	3.1	ND	10
	02/12/91	1100	5.9	ND	0.77	ND
	03/20/91	550	4.3	ND	ND	ND
	05/22/91	1000	5.3	3.6	4.4	8.9
RE-3	02/18/88	70000	6600	5300	800	13000
	04/06/90	370000	2300	4900	3200	31000
	10/30/91	13000	860	660	220	2210
	01/17/91	42000	4700	4500	21	7700
	02/12/91	72000	3600	4500	ND	7600
	03/20/91	65000	2400	9400	50	9800
	05/22/91	NOT SAMPLED - FLOATING PRODUCT				
RE-4	02/18/88	150000	12000	8000	1000	27000
	04/06/90	NOT SAMPLED				
	10/30/90	87000	7200	10000	1600	12900
	01/17/91	70000	5000	5400	790	9900
	02/12/91	87000	5200	2800	240	11000
	03/20/91	6500	370	230	17	670
	05/22/91	NOT SAMPLED - FLOATING PRODUCT				
RE-5	02/18/88	14000	1300	1100	100	2600
	04/06/90	3000	690	190	40	270
	10/30/90	3400	910	48	87	249
	01/17/91	1400	180	8.6	0.52	48
	02/12/91	1000	ND	ND	0.65	ND
	03/20/91	3000	250	53	ND	110
	05/22/91	2500	330	7.8	5.6	200

TABLE 2 (CONTINUED)
Thrifty Oil Company #54

SUMMARY OF LABORATORY RESULTS FOR GROUNDWATER SAMPLES

All results reported in parts per billion

Well No.	Date	TPH	Benzene	Toluene	Ethyl benzene	Xylenes
RE-6	02/18/88	6000	3000	40	80	140
	04/06/90	3000	990	NF	70	NF
	10/30/90	3400	1000	28	ND	ND
	01/17/91	6300	1200	ND	3	15
	02/12/91	5200	850	8.4	4.9	41
	03/20/91	5800	680	12	8	16
	05/22/91	8500	1700	14	24	6.7
RE-7	02/18/88	<50000	17000	4400	600	8400
	04/06/90	16000	7000	1200	640	1600
	10/30/90	31000	14000	ND	ND	ND
	01/17/91	NOT SAMPLED - FLOATING PRODUCT				
	02/12/91	NOT SAMPLED - FLOATING PRODUCT				
	03/20/91	120000	12000	2800	490	6600
	05/22/91	NOT SAMPLED - FLOATING PRODUCT				
PW-1	02/18/88	NOT SAMPLED				
	04/06/90	230000	600	2700	1000	16000
	10/29/91	35000	240	970	240	2210
	01/17/91	37000	43	140	42	7700
	02/12/91	45000	99	130	25	7600
	03/20/91	1900	0.43	ND	ND	2.8
	05/22/91	41000	600	730	250	3800
PW-2	02/18/88	NOT SAMPLED				
	04/06/90	600000	1300	11000	4600	43000
	10/29/90	48000	310	2100	500	8200
	01/18/91	86000	230	1400	350	8300
	02/12/91	160000	680	1300	250	7000
	03/20/91	17000	34	50	ND	1100
	05/22/91	14000	57	61	10	480
RS-8	04/05/91	<0.0005	0.5	ND	ND	ND
RS-9	04/05/91	16000	ND	63	71	230
RS-10	04/05/91	DRY				

ND - not detected
TPH - total petroleum hydrocarbons (gasoline)

Samples collected by Robert Elbert & Associates, first reported April 11, 1988.

TABLE 3
Thrifty Oil Company #54

SUMMARY OF LABORATORY RESULTS OF [redacted]

All results reported in parts per million

Well	Depth	Benzene	Toluene	Ethylbenzene	Xylenes	TPH
B-1*	5'	--	--	--	--	230
B-1	10'	--	--	--	--	1120
B-1	20'	--	--	--	--	420
B-2	5'	--	--	--	--	320
B-2	15'	--	--	--	--	<1
B-3	5'	--	--	--	--	830
B-3	15'	--	--	--	--	<1
B-4	5'	--	--	--	--	850
B-4	15'	--	--	--	--	4
RE-1**	5'	10.0	92.0	27.0	180.0	1000.0
RE-1	10'	0.016	0.003	ND	0.005	ND
RE-2	5'	0.004	0.001	ND	ND	1.1
RE-2	10'	0.02	0.02	0.75	0.14	130.0
RE-3	5'	5.3	22.0	7.8	82.0	490.0
RE-3	10'	0.014	0.010	ND	0.013	0.1
RE-4	5'	13.0	120.0	44.0	410.0	1900.0
RE-4	10'	0.057	0.020	0.013	0.13	7.7
RE-5	5'	0.36	0.036	0.029	0.14	17.0
RE-5	10'	0.008	ND	0.007	0.017	3.0
RE-6	5'	0.033	0.003	0.010	0.025	1.2
RE-6	10'	0.025	0.002	0.004	0.005	0.6
RE-7	10'	1.3	2.9	0.6	7.0	50.0
RE-7	25'	0.57	0.05	0.08	0.37	110.0
RS-8	5'	0.045	0.013	0.006	0.023	ND
RS-8	10'	ND	ND	0.018	ND	20
RS-9	5'	ND	0.46	1.0	4.0	[redacted]
RS-9	10'	ND	0.011	ND	ND	ND
RS-10	5'	ND	0.005	ND	ND	ND

TPH - total petroleum hydrocarbons (gasoline)
ND - not detected

* Samples for B-1 through B-4 were collected by Hydrotech, Inc., analyzed by the modified EPA method 418.1, results first reported January 14, 1987.

** Samples for RE-1 through RE-7 were collected by Robert Elbert & Associates, results first reported April 11, 1988.

TABLE 4
Thrifty Oil Co. #054

GROUNDWATER DATA

All measurements are in feet

Well No.	Date	Well Head Elevation	Depth to Groundwater	Depth to Free Product	Groundwater Elevaton
RE-1	03/30/88	166.92	6.24	---	160.68
	08/22/89	167.08	6.09	---	160.99
	04/05/90		4.99	---	162.09
	10/29/90		5.95	NR	161.13
	11/09/90		5.80	NR	161.28
	01/17/91		5.17	NR	161.91
	02/11/91		4.16	NR	162.92
	03/19/91		4.75	NR	162.33
	05/22/91		4.42	---	162.66
RE-2	03/30/88	167.09	6.22	---	161.87
	08/22/89	167.21	5.47	---	161.74
	04/05/90		4.90	---	162.31
	10/29/90		5.34	NR	161.87
	11/09/90		5.24	NR	161.97
	01/17/91		4.90	NR	162.31
	02/11/91		4.94	NR	162.27
	03/19/91		4.32	NR	162.89
	05/22/91		4.43	---	162.78
RE-3	03/30/88	167.47	7.43	7.42	160.04
	08/22/89		7.78	7.70	159.75
	04/05/90		7.15	---	160.32
	10/29/90		7.84	NR	159.63
	11/09/90		7.75	NR	159.72
	01/17/91		6.90	NR	160.57
	02/11/91		6.62	NR	160.85
	03/19/91		5.87	NR	161.60
	05/22/91		5.98	FILM	161.49

TABLE 4 (CONTINUED)
Thrifty Oil Co. #054

GROUNDWATER DATA

All measurements are in feet

Well No.	Date	Well Head Elevation	Depth to Groundwater	Depth to Free Product	Groundwater Elevaton
RE-4	03/30/88	166.89	6.80	---	160.09
	08/22/89	167.00	6.97	6.87	160.10
	04/05/90		---	---	---
	10/29/90		7.04	NR	159.96
	11/09/90		6.99	NR	160.01
	01/17/91		11.62	NR	155.38
	02/11/91		11.63	NR	155.37
	03/19/91		11.61	NR	155.39
	05/22/91		10.30	SHEEN	156.70
RE-5	03/30/88	167.10	6.40	---	160.70
	08/22/89	167.13	5.90	---	161.23
	04/05/90		4.79	---	162.34
	10/29/90		5.86	NR	161.27
	11/09/90		5.68	NR	161.45
	01/17/91		5.08	NR	162.05
	02/11/91		4.52	NR	162.61
	03/19/91		4.39	NR	162.74
	05/22/91		4.40	---	162.73
RE-6	03/30/88	166.54	7.20	---	159.34
	08/22/89	166.75	6.61	---	160.14
	04/05/90		5.64	---	161.11
	10/29/90		6.68	NR	160.07
	11/09/90		6.48	NR	160.27
	01/17/91		6.61	NR	160.14
	02/11/91		6.20	NR	160.55
	03/19/91		5.62	NR	161.13
	05/22/91		6.05	---	160.70

TABLE 4 (CONTINUED)
Thrifty Oil Co. #054

GROUNDWATER DATA

All measurements are in feet

Well No.	Date	Well Head Elevation	Depth to Groundwater	Depth to Free Product	Groundwater Elevaton
RE-7	03/30/88	165.88	7.27	---	158.61
	08/22/89	166.10	7.31	---	158.79
	04/05/90		5.93	---	160.17
	10/29/90		8.21	NR	157.89
	11/09/90		8.20	NR	157.90
	01/17/91		11.75	NR	154.35
	02/11/91		10.75	NR	155.35
	03/19/91		9.96	NR	156.14
	05/22/91		11.70	SHEEN	154.40
PW-1	03/30/88	166.36	5.25	---	161.11
	08/22/89	166.58	5.04	5.02	161.56
	04/05/90		5.10	---	161.48
	10/29/90		6.17	NR	160.41
	11/09/90		6.50	NR	160.08
	01/17/91		6.28	NR	160.30
	02/11/91		5.88	NR	160.70
	03/19/91		4.75	NR	161.83
	05/22/91		5.10	---	161.48
PW-2	03/30/88	166.06	6.45	---	159.61
	08/22/89	166.28	6.58	6.55	159.72
	04/05/90		5.81	---	160.47
	10/29/90		6.95	NR	159.33
	11/09/90		6.90	NR	159.38
	01/17/91		6.92	NR	159.36
	02/11/91		6.78	NR	159.50
	03/19/91		5.54	NR	160.74
	05/22/91		6.07	---	160.21
RS-8	04/05/91		9.17	---	
RS-9	04/05/91		2.90	---	
RS-10	04/05/91		DRY	---	

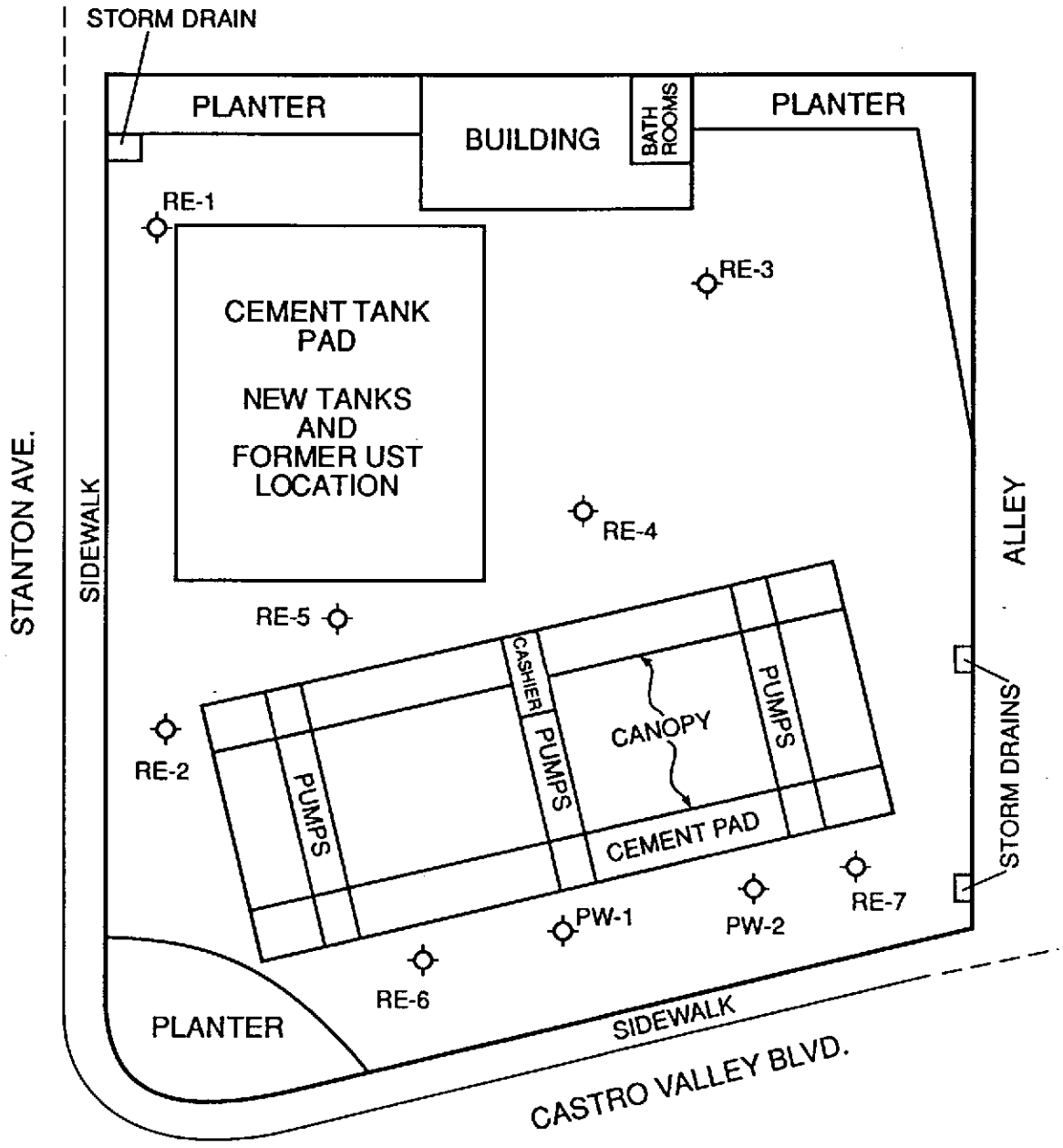
NR - Not recorded

A PORTION OF THE U.S.G.S. HAYWARD 7.5' QUADRANGLE

LOCATION MAP
THRIFTY OIL STATION NO. 054
CASTRO VALLEY, CALIFORNIA
Prepared for
THRIFTY OIL COMPANY
DOWNEY, CALIFORNIA

RCI RPI

Figure 1



SITE PLAN I

THRIFTY OIL CO. #054
CASTRO VALLEY, CALIFORNIA
Prepared for
THRIFTY OIL CO.
DOWNEY, CALIFORNIA

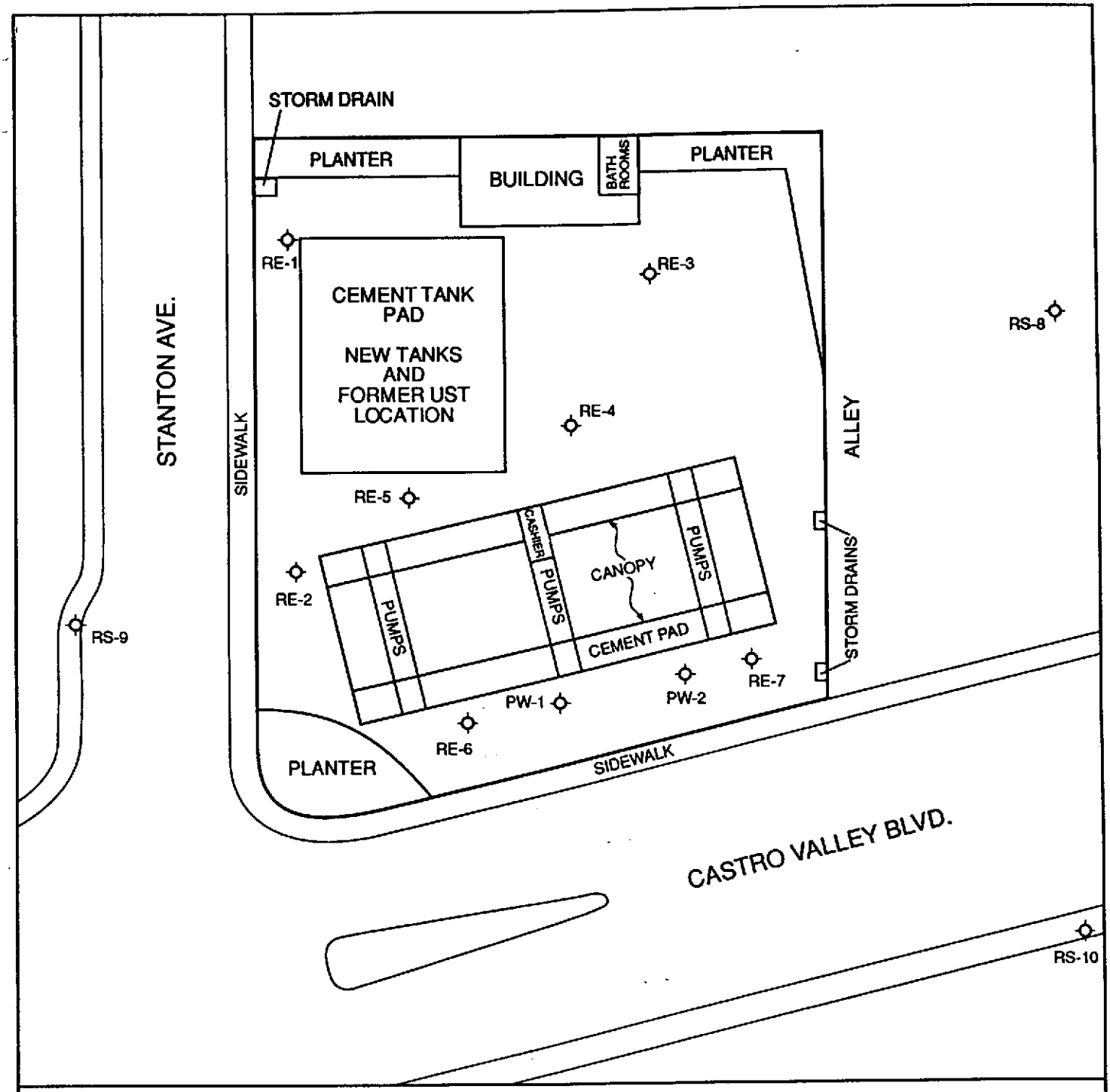
0 20 40
SCALE IN FEET

N

EXISTING MONITORING WELL

RCL

FIGURE 2



SITE PLAN II

THRIFTY OIL CO. #054

CASTRO VALLEY, CALIFORNIA

Prepared for

THRIFTY OIL CO.

DOWNEY, CALIFORNIA

0 25 50

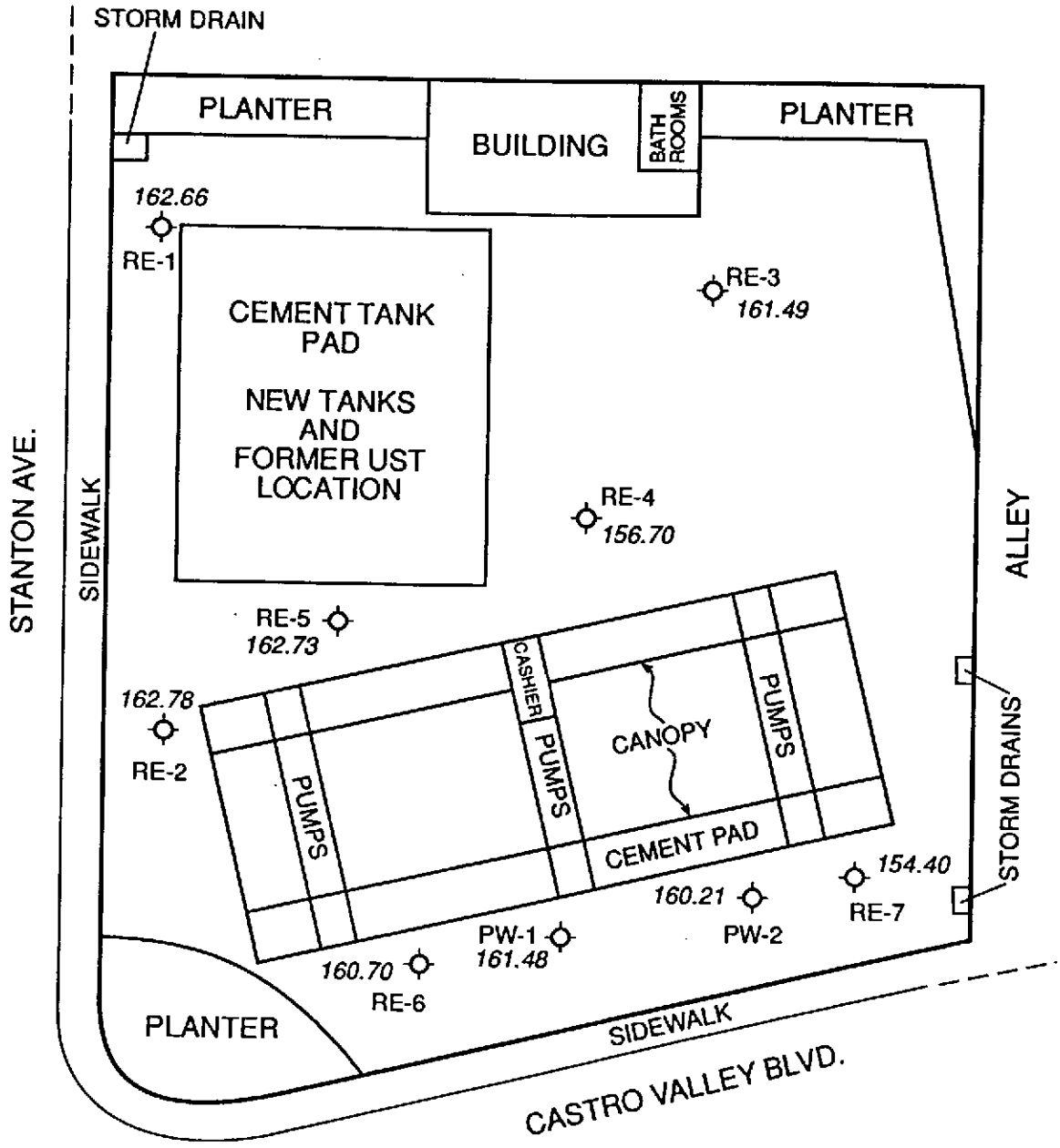
SCALE IN FEET

N

EXISTING MONITORING WELL

RCL

FIGURE 3



GROUNDWATER ELEVATION MAP
5/22/91
THRIFTY OIL CO. #054
CASTRO VALLEY, CALIFORNIA
Prepared for
THRIFTY OIL CO.
DOWNEY, CALIFORNIA

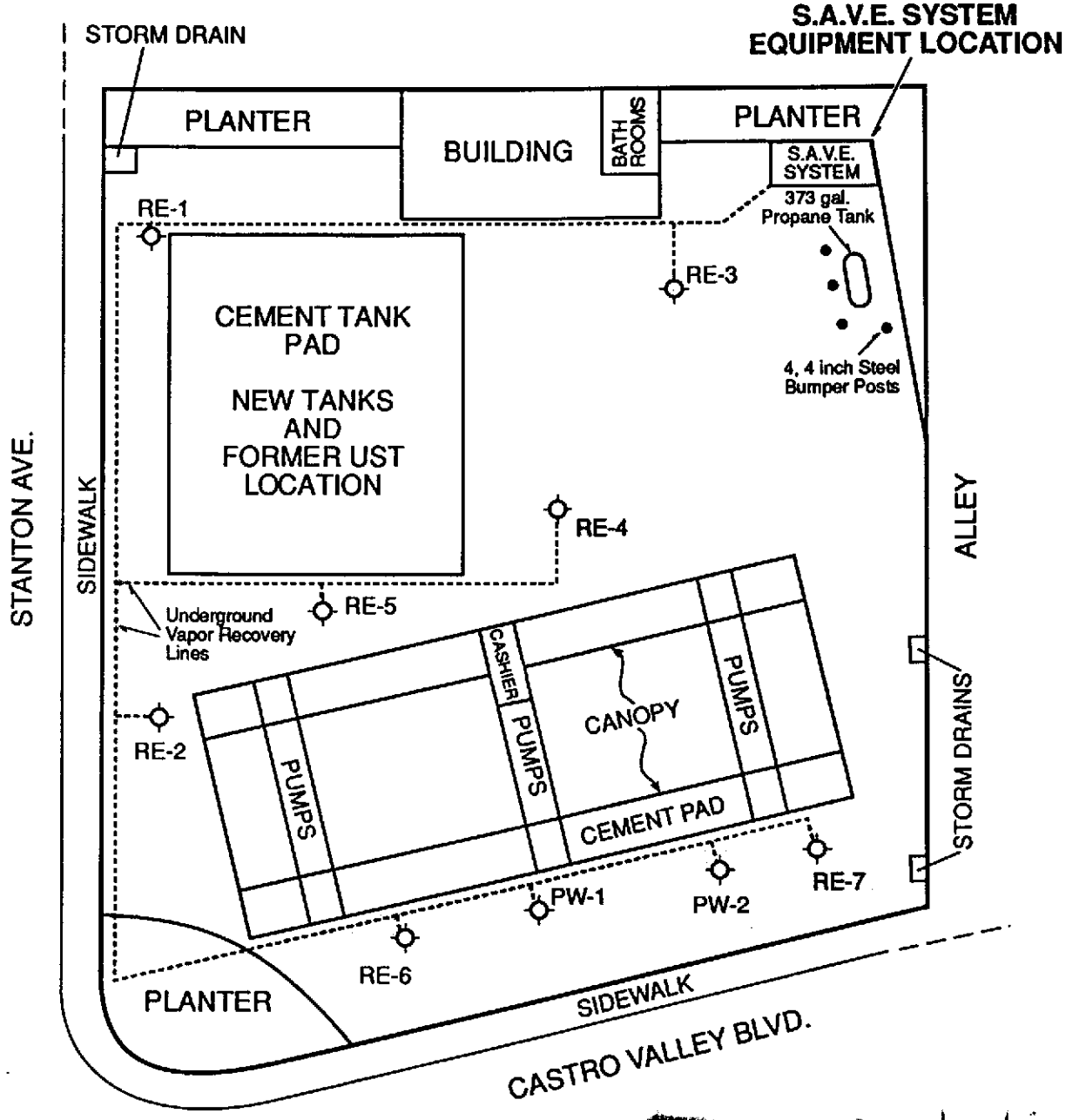
0 20 40
SCALE IN FEET

N

EXISTING MONITORING WELL

Depth Measurements done by Thrifty Personnel

FIGURE 4



REMEDIATION EQUIPMENT LOCATION

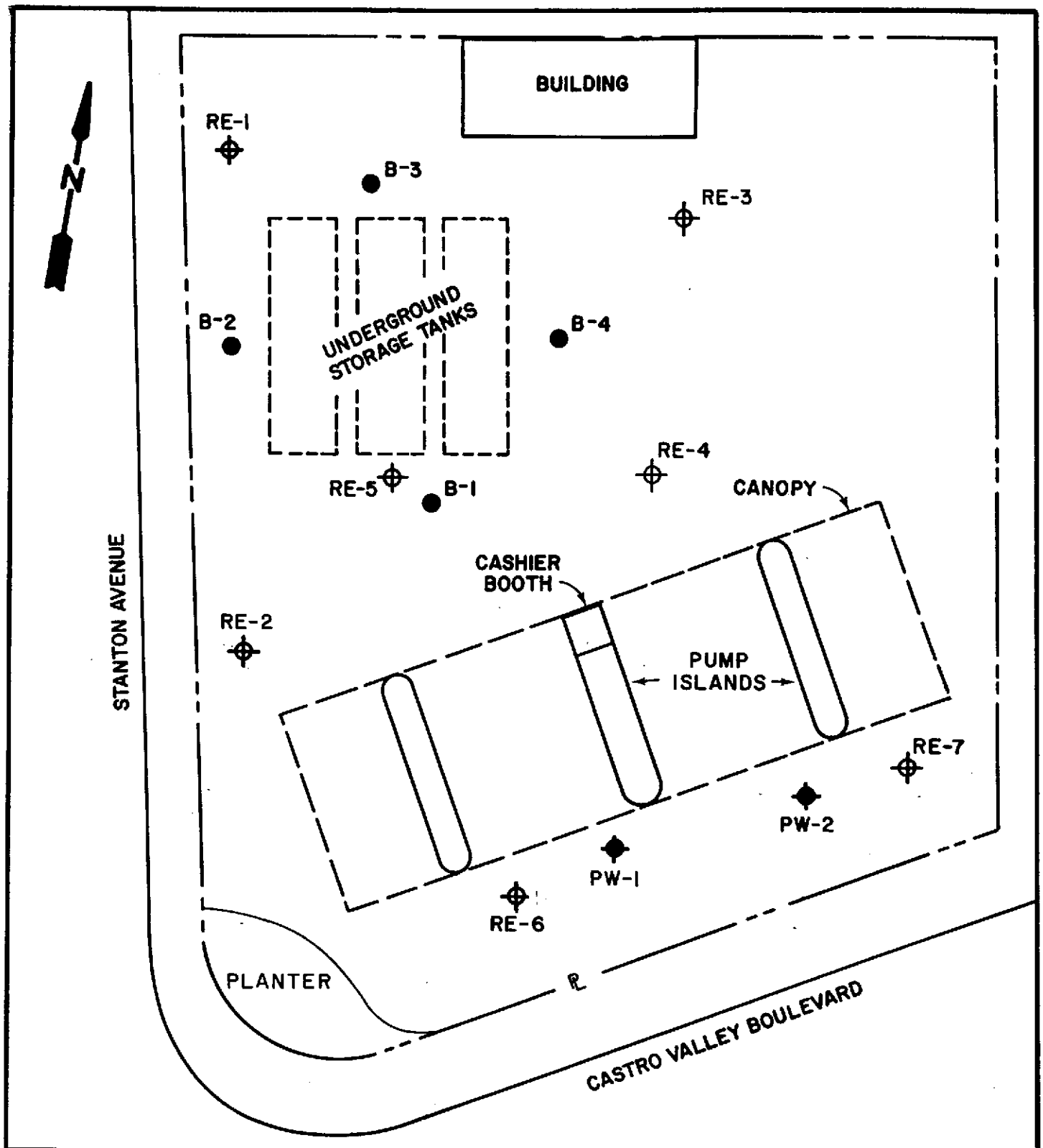
THRIFTY OIL CO. #054
CASTRO VALLEY, CALIFORNIA
Prepared for
THRIFTY OIL CO.
DOWNEY, CALIFORNIA

0 20 40
SCALE IN FEET

N

EXISTING MONITORING WELL

FIGURE 5



EXPLANATION:

B-4 ● Exploratory Boring

RE-7 ⊕ Monitoring Well

PW-1 ● Pre-existing Well

0 16' 32'

SCALE

PREVIOUS SITE PLAN
THRIFTY OIL STATION NO. 054
CASTRO VALLEY, CALIFORNIA
Prepared for
THRIFTY OIL COMPANY
DOWNEY, CALIFORNIA

RSI

Figure 6

REFERENCES

Hydrotech Consultants, Inc., January 14, 1987. Subsurface Investigation for Petroleum Hydrocarbon Contamination Assessment.

Robert Elbert and Associates, April 11, 1988. Report of Subsurface Investigation for Thrifty Oil Company #054.

Remediation Service Int'l, September 5, 1989. Proposed Work Plan for Additional Site Assessment at Thrifty Oil Company #054.

Remediation Service Int'l, July 10, 1991. Monitoring Report for Thrifty Oil Company #054.

Dames & Moore, December 3, 1990. Letter Report Quarterly Groundwater Monitoring for Thrifty Oil Company #054.

Dames & Moore, March 29, 1991. Letter Report Quarterly Groundwater Monitoring for Thrifty Oil Company #054.

DESCRIPTION OF BORING TECHNIQUES AND SAMPLING PROCEDURES

Under the supervision of a Remediation Service Int'l - (RSI) geologist, the soil borings are advanced using a truck mounted hollow-stem auger. Each auger flight is 5 feet in length with an inner diameter of 3.5 inches and an outer diameter of 8 inches. A pilot assembly, in conjunction with the auger head which is fitted with cutting blades, helps advance the auger through the soil and prevents solids from entering the hollow-stem portion of the auger. The hollow auger acts as a "temporary casing" preventing collapse of the borehole wall. Soil cuttings are carried up to the surface via the auger flights.

When the desired sample depth is reached, the drill bit and center plug are removed from the auger stem and replaced with a Modified California Split Spoon sampler. Usually, sampling is done at the end of each 5 foot auger flight. The sampler consists of an outer 12 to 18 inch long "split barrel" sampler in which a thin-walled set of rings is inserted. These rings are brass or stainless steel cylinders, each 2.0 to 3.25 inches in diameter and 3 to 6 inches long.

A 140 pound hammer is used to drive the sampler into the formation below the bottom of the auger flight, thereby filling all of the sampling rings with soil. This method allows for collection of an undisturbed soil sample, preventing introduction of overburden soil by the drilling process. The number of hammer blows (blows per foot, BPF) to advance the sampler a given distance is recorded on the boring log. This gives an indication of the amount of force required to recover the sample.

After retrieving and dismantling the sampler, all the thin tube rings are removed. The bottom ring is immediately sealed for laboratory analysis by covering both ends with teflon sheeting, plastic caps and securing the caps with tape. If some of the soil in the bottom ring has fallen out or appears to have been disturbed during the recovery operation, the second to last ring is used. This ring is labeled and placed in an ice chest for cold storage pending transportation to the laboratory. This packaging protocol is designed to prevent loss of volatiles from the soil sample, and to prevent any cross contamination. Standard chain of custody procedures are followed for all samples.

Soil from the second ring is used for field analysis of possible hydrocarbon contamination. The sample is placed in a Ziploc bag, sealed and allowed to volatilize for a HNU Photoionization Analyzer (PID) measurement. A head-space measurement is taken by breaking the seal just enough to insert the probe. The highest reading is recorded. However, if the reading stabilizes at a significantly different level, this also is noted. The PID has a detection range from 0.1 ppm to 2000 ppm for hydrocarbon vapors, when calibrated with a benzene standard.

Soils in the remaining rings are used for the field descriptions. The field data includes a written soils description, the Unified Soil Classification code, and any notable odors, staining or contamination. Also recorded are unusual drilling conditions, equipment malfunctions or other observations of field conditions for future reference. All data are included on the boring logs.

An alternative method to the use of brass rings is glass jars for sample collection. This method still utilizes the split spoon sampler, but no brass rings are inserted. Instead, soil from the base of the sampler is encapsulated in a glass jar. The jar is then treated in the same manner as soil samples in brass rings. The remaining soil in the sampler is used for field analysis and description.

To prevent any cross - contamination, the augers are steam cleaned prior to drilling each boring. The split spoon sampler is cleaned using a three step process commonly referred to as a "three bucket wash". This consist of first a trisodium phosphate wash, followed by a tap water rinse and finally a deionized water rinse. This process is completed between each sample run.

All cuttings and excess sample material recovered during the drilling operations are placed in 55 gallon DOT hazardous waste drums pending laboratory analysis results. Proper disposal is the client's responsibility.

LEGEND SHEET FOR BORING LOGS

BORING LOG SYMBOLS


Modified California Sampler (blow count)


No Sample Recovered


First Water Encountered


Measured Water Level

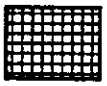
Inferred Contact

Known Contact


Gradational Contact

MONITORING WELL SYMBOLS


Concrete Seal


Bentonite Seal


Sand Pack


Native Backfill


Slotted Section of Casing

LITHOLOGIES


CLAY

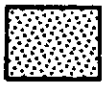

Silty CLAY

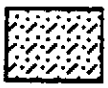

Sandy CLAY


SILT


Clayey SILT

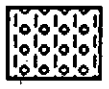

Sandy SILT


SAND


Clayey SAND


Silty SAND


Gravels & Gravel-Sand Mixtures


All Silty or Clayey Gravels


Bedrock


Fill


Asphalt/ Concrete

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

THRIFTY OIL CO. STATION #054
Castro Valley, CA
Date: 5/8/91
Time Started/Finished: 9:54/12:30
Sampling Method: Split Spoon
Rig Type: B-53
Drilling Contractor: Kvilhaugh

BORING/MONITORING WELL: RS-6
Logged By: WJW
Casing Size & Type: 2" PVC
Screen Size & Type: 2" PVC; 0.010" Slots
Filter Pack: #2 Sand
Traffic Cover Elevation:
Datum/Reference: Note: PID reading unreliable

DEPTH (FEET)	SAMPLE INT.	PID ppm	BLOWS PER HALF FOOT	WELL DETAILS	USCS	SOIL DESCRIPTION AND NOTES
0						
5		55	5, 7, 20		ML	SILT AND CLAY, TAN, WITH COARSE GRAINED SAND, DRY, NO ODOR OR STAIN. (8" SAMPLE CAUGHT)
10		55	6, 8, 10		CL	CLAY, TAN WITH GRAY AND BLACK MOTTLING, SOME PEBBLES, MOIST, VERY STIFF, NO ODOR OR STAIN. (12" SAMPLE)
15		150	10, 18, 35		CL	CLAY AND SILT, BROWN WITH GRAY AND BLACK MOTTLING, CRYSTALLINE ROCKS WITH 1" TO 2" PEBBLES OF HIGHLY INDURATED SILTSTONE, STIFF, MOIST, NO ODOR OR STAIN.
20		<1.0	30, 55, –		ML	SILTSTONE, HIGHLY INDURATED, NO CRYSTALLINE PEBBLES, VERY SLOW HARD DRILLING.
25		—			ML	TD 25 FEET.
30						SET WELL, 0.5 HOUR LATER 0.5" WATER IN WELL.
35						
40						
45						

THRIFTY OIL CO. STATION #054
Castro Valley, CA
Date: 5/8/91
Time Started/Finished: 12:40/1:55
Sampling Method: Split Spoon
Rig Type: B-53
Drilling Contractor: Kvilhaugh

BORING/MONITORING WELL: MW-3
Logged By: WJW
Casing Size & Type: 2" PVC
Screen Size & Type: 2" PVC; 0.010" Slots
Filter Pack: #2 Sand
Traffic Cover Elevation:
Datum/Reference:

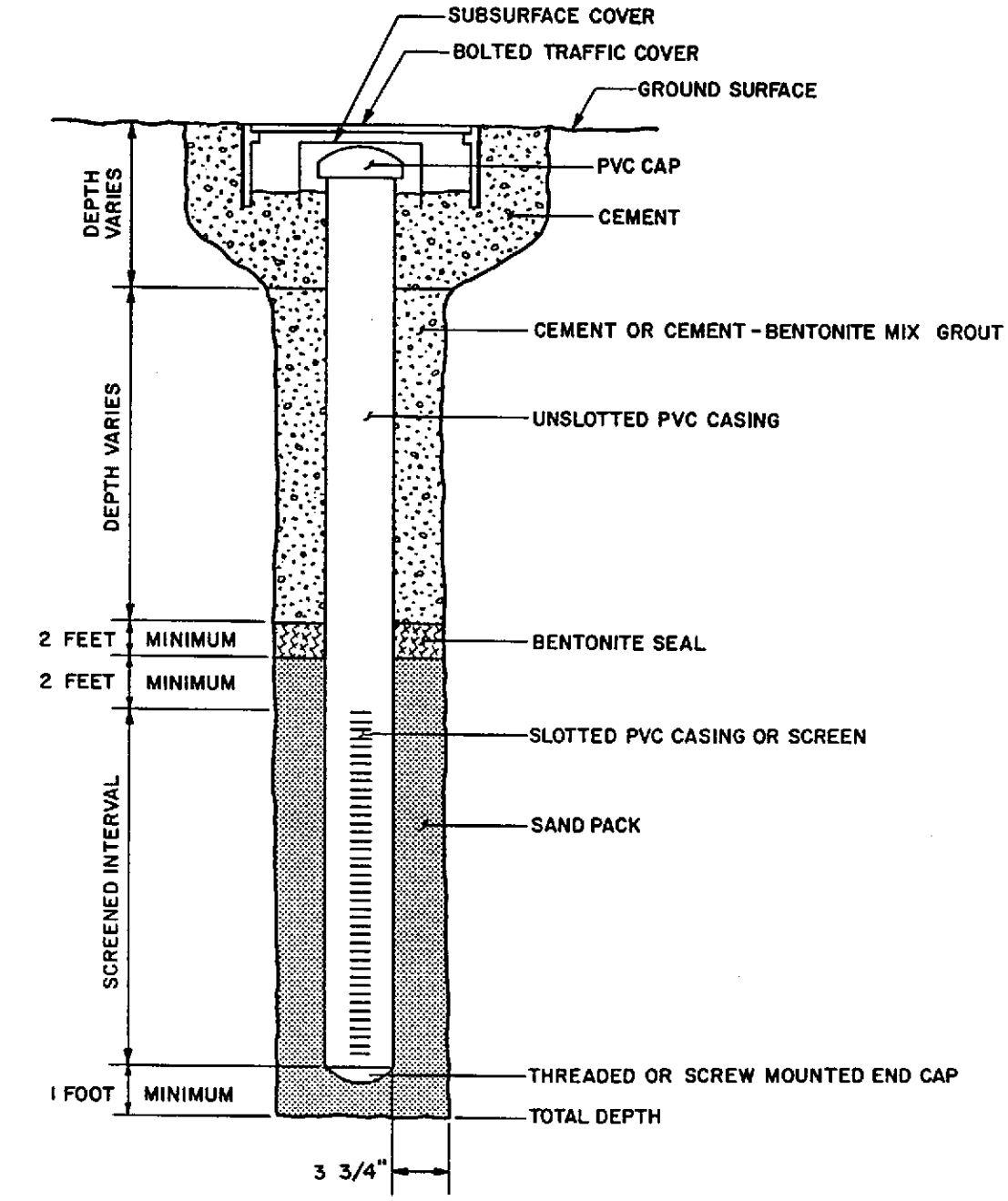
DEPTH (FEET)	SAMPLE INT.	PID ppm	BLOWS PER HALF FOOT	WELL DETAILS	USCS	SOIL DESCRIPTION AND NOTES
0						TOP 2' DARK BLACK CLAY.
5	X	100	7, 14, 14		CL	CLAY, GRAY-GREEN WITH BLACK STREAKS, FEW PEBBLES, STIFF, MOIST, SOME HYDROCARBON ODOR.
10	X	10	5, 7, 9		CL	SAME AS ABOVE, BUT MORE AND LARGER PEBBLES, ORANGE STAIN, SOME HYDROCARBON ODOR.
13						▽
15	—	—	55, –, –			3" SAMPLE, PEBBLES, DRY, STRONG ODOR ON SAMPLER.
						TD 15 FEET.
						EVIDENCE OF WATER AT 12-13 FEET.
20						
25						
30						
35						
40						
45						

PCI

THRIFTY OIL CO. STATION #054
Castro Valley, CA
Date: 5/8/91
Time Started/Finished: 2:15/4:50
Sampling Method: Split Spoon
Rig Type: B-53
Drilling Contractor: Kvilhaugh

BORING/MONITORING WELL: MW-10
Logged By: WJW
Casing Size & Type: 2" PVC
Screen Size & Type: 2" PVC; 0.010" Slots
Filter Pack: #2 Sand
Traffic Cover Elevation:
Datum/Reference:

DEPTH (FEET)	SAMPLE INT.	PID ppm	BLOWS PER HALF FOOT	WELL DETAILS	USCS	SOIL DESCRIPTION AND NOTES
0						
5	X	<1.0	3, 5, 8		CL	CLAY, BLACK, SOME PEBBLES, STIFF, MOIST, NO ODOR, ONE SANDY CLAY STRINGER. (12" SAMPLE)
10		<1.0	7, 10, 12		CL	CLAY, BROWN WITH ORANGE AND BLACK MOTTLING, PEBBLES (ANGULAR), MOIST, NO ODOR. (5" SAMPLE)
15		—	25, 54, –		ML	SILTSTONE, HIGHLY INDURATED, BROWN. (3" SAMPLE)
20		—	10, 17, 20		ML	SAME AS ABOVE, BLACK. (4" SAMPLE)
25		—	20, 20, 35		ML	SAME AS ABOVE, BLACK. (5" SAMPLE) TD 25 FEET.
30						
35						
40						
45						



NO SCALE
TYPICAL ONLY

TYPICAL MONITORING WELL CONSTRUCTION

Development of Groundwater Monitoring Wells in Unconfined Perched Aquifers

Groundwater monitoring wells are completed so that representative samples of formation water can be obtained at any time. The development of these wells is a key factor in obtaining representative samples which are free of sediment.

For a typical monitoring well in an aquifer composed mainly of sand size particles, development procedures have the following benefits:

1. They reduce the compaction and intermixing of grain sizes produced during drilling by removing fine material from the pore space.

2. They can increase the natural porosity and permeability of the previously undisturbed formation near the well bore by selectively removing the finer fraction of aquifer material.

This allows for the flow of formation water into the well without the addition of large amounts of clay and silt size particles which could affect sample quality.

However, for wells in aquifers which consist mainly of silt and clay size particles, there is no method of construction or development which will eliminate the flow of these particles into the well, and still produce representative samples of formation water.

For the situation where the aquifer is composed mainly of silt and clay size particles, it is best to keep well development to a minimum. To obtain fairly representative samples of formation water it is recommended that at least four casing volumes of water be removed from the well, or the well should be bailed or pumped dry. Before a sample is collected, the well should be allowed to recover to at least eighty percent of its initial volume. Confirmation that a representative sample is collected can be done by measuring pH, specific conductance, and temperature to determine if the formation water has stabilized. This method of development and sampling will produce a fairly representative sample of formation water, although it will not produce a sample free of fine grained sediment.

DEVELOPMENT
~~WATER SAMPLE~~ FIELD LOG

PROJECT NAME: 90C.54
LOCATION: _____
DATE: 5/9/91
SAMPLER: KDW

SAMPLE TYPE:

X WELL - WELL NUMBER: [redacted]
___ SURFACE WATER - DESCRIPTION _____
___ SEEP - DESCRIPTION: _____
___ OTHER - DESCRIPTION: _____

WEATHER CONDITIONS:

X CLEAR ___ PARTIAL CLOUDS ___ OVERCAST ___ RAIN
WIND: ___ STILL X LIGHT ___ MODERATE ___ STRONG
TEMPERATURE (DEGREES F): ___ <50 X 50-60 ___ 60-70
___ 70-80 ___ 80-90 ___ >90
HUMIDITY: ___ LOW X MODERATE ___ HIGH

DEPTH TO FREE PRODUCT: N/A
DEPTH TO WATER: KDW 9.17' FROM CT (CASING ELE) 25.08' TC
TOTAL WELL DEPTH: 25.08'
GALLONS TO BE EVACUATED (4 CASING VOLUMES): 10.8 GALS
TIME OF EVACUATION: START 9:05 AM FINISH 11:30 AM
TOTAL GALLONS EVACUATED: 12.5 gal
TIME OF SAMPLE: _____
APPEARANCE OF SAMPLE: _____
DEPTH TO WATER AT TIME OF SAMPLE: _____

MEASURING EQUIPMENT: ___ INTERFACE PROBE ___ ELECTRIC SOUNDER
___ OTHER _____
EVACUATION EQUIPMENT: ___ BAILER - TYPE _____
___ PUMP - TYPE _____
SAMPLING EQUIPMENT: ___ DISPOSABLE BAILER ___ TEFLON BAILER
___ OTHER _____
EQUIPMENT DECONTAMINATION: ___ 3-BUCKET WASH ___ STEAM CLEAN
___ DISPOSABLE (FACTORY WRAPPED)
SAMPLE CONTAINER: ___ GLASS ___ PLASTIC ___ OTHER _____
SAMPLE PRESERVATIVE: _____

SAMPLES: ___ HAND CARRIED ___ SHIPPED BY _____
DATE _____ TIME _____ TO _____
ANALYSIS REQUESTED: ___ TPH (GAS) ___ BTEX ___ TOTAL LEAD
___ OTHER _____

FIELD OBSERVATIONS: HEAVY TURBIDITY/MUDDY, SURGED FOR 0.5 HRS,
11:00 AM H_2O C 22.21' RECHARGE ≈ 0.5" per 20 secs.
NO CHANGE DURING DEVELOPMENT, VERY SILTY

DEVELOPMENT
~~WATER SAMPLE~~ FIELD LOG

PROJECT NAME: SOC 54
LOCATION: _____
DATE: 5/9/91
SAMPLER: WHD

SAMPLE TYPE:

X WELL - WELL NUMBER: 26-9
___ SURFACE WATER - DESCRIPTION _____
___ SEEP - DESCRIPTION: _____
___ OTHER - DESCRIPTION: _____

WEATHER CONDITIONS:

___ CLEAR ___ PARTIAL CLOUDS ___ OVERCAST ___ RAIN
WIND: ___ STILL ___ LIGHT ___ MODERATE ___ STRONG
TEMPERATURE (DEGREES F): ___ <50 ___ 50-60 ___ 60-70
___ 70-80 ___ 80-90 ___ >90
HUMIDITY: ___ LOW ___ MODERATE ___ HIGH

DEPTH TO FREE PRODUCT: N/A
DEPTH TO WATER: 8.20 mm 2.9' FROM CASING TOP (CT). TA 15' FROM CT
TOTAL WELL DEPTH: 16.0' FROM CT
GALLONS TO BE EVACUATED (4 CASING VOLUMES): 8.2 GALS
TIME OF EVACUATION: START 10:45 AM FINISH 11:35 RECHARGE WELL START 11:45 STOP 12:04 START 12:18
TOTAL GALLONS EVACUATED: ≈ 11 GAL
TIME OF SAMPLE: _____
APPEARANCE OF SAMPLE: _____
DEPTH TO WATER AT TIME OF SAMPLE: _____

MEASURING EQUIPMENT: X INTERFACE PROBE ___ ELECTRIC SOUNDER
___ OTHER _____
EVACUATION EQUIPMENT: ___ BAILER - TYPE _____
___ PUMP - TYPE _____
SAMPLING EQUIPMENT: ___ DISPOSABLE BAILER ___ TEFLON BAILER
___ OTHER _____
EQUIPMENT DECONTAMINATION: ___ 3-BUCKET WASH ___ STEAM CLEAN
___ DISPOSABLE (FACTORY WRAPPED)
SAMPLE CONTAINER: ___ GLASS ___ PLASTIC ___ OTHER _____
SAMPLE PRESERVATIVE: _____

SAMPLES: ___ HAND CARRIED ___ SHIPPED BY _____
DATE _____ TIME _____ TO _____
ANALYSIS REQUESTED: ___ TPH (GAS) ___ BTEX ___ TOTAL LEAD
___ OTHER _____

FIELD OBSERVATIONS: INITIAL ~~HEAVY~~ TURBIDITY, SURGED FOR 0.5 HRS, RECOVER ≈ 8 GAL, EACH TIME, DTW 13.56' @ 11:35

DEVELOPMENT
~~WATER SAMPLE~~ FIELD LOG

PROJECT NAME: WSC 54
LOCATION: _____
DATE: 5/9/91 9:50 AM
SAMPLER: WJW

SAMPLE TYPE:

X WELL - WELL NUMBER: MW-1
___ SURFACE WATER - DESCRIPTION _____
___ SEEP - DESCRIPTION: _____
___ OTHER - DESCRIPTION: _____

WEATHER CONDITIONS:

X CLEAR ___ PARTIAL CLOUDS ___ OVERCAST ___ RAIN
WIND: X STILL ___ LIGHT ___ MODERATE ___ STRONG
TEMPERATURE (DEGREES F): ___ <50 X 50-60 ___ 60-70
___ 70-80 ___ 80-90 ___ >90
HUMIDITY: ___ LOW X MODERATE ___ HIGH

DEPTH TO FREE PRODUCT: N/A
DEPTH TO WATER: 9:50 AM NONE IN WELL, NO REACTION FROM
TOTAL WELL DEPTH: 12:30 PM 24.48' READ TO H_2O INTERFACE PROBE
GALLONS TO BE EVACUATED (4 CASING VOLUMES): _____
TIME OF EVACUATION: START 12:40 PM FINISH 2:18 PM
TOTAL GALLONS EVACUATED: ~10.2 GALS WELL APPEARS TO BE VERY SLOWLY RECHARGING.
TIME OF SAMPLE: _____
APPEARANCE OF SAMPLE: _____
DEPTH TO WATER AT TIME OF SAMPLE: _____

MEASURING EQUIPMENT: X INTERFACE PROBE ___ ELECTRIC SOUNDER
___ OTHER _____
EVACUATION EQUIPMENT: ___ BAILER - TYPE _____
___ PUMP - TYPE _____
SAMPLING EQUIPMENT: ___ DISPOSABLE BAILER ___ TEFLON BAILER
___ OTHER _____
EQUIPMENT DECONTAMINATION: ___ 3-BUCKET WASH ___ STEAM CLEAN
___ DISPOSABLE (FACTORY WRAPPED)
SAMPLE CONTAINER: ___ GLASS ___ PLASTIC ___ OTHER _____
SAMPLE PRESERVATIVE: _____

SAMPLES: ___ HAND CARRIED ___ SHIPPED BY _____
DATE _____ TIME _____ TO _____
ANALYSIS REQUESTED: ___ TPH (GAS) ___ BTEX ___ TOTAL LEAD
___ OTHER _____

FIELD OBSERVATIONS: CUTTINGS VERY DRY DURING DRILLING. POSSIBLE THAT H_2O ZONE, IF THERE, SEALED OFF BY CLAY. NEED TO ADD SIGNIFICANT H_2O OR ADDITIVE TO BREAK SEAL.

ADDED 15 GALS, SURGED 0.5 HR, REMOVED ≈ 10 GALS, REST 15 MINS,

SAMPLING PROCEDURES FOR GROUNDWATER MONITORING WELLS

1. Top of casing or wellhead is surveyed and referenced to datum point.

2. Equipment is decontaminated using a three bucket wash. This consists of: (1) washing the equipment in water with trisodiumphosphate detergent; (2) rinsing with tap water; and, (3) rinsing with deionized water.

3. Depth to water, depth to free product (if present) and total depth of well is measured.

4. The well is bailed or pumped either until dry, or until 4 to 5 casing volumes of water have been removed. The water is discharged into a DOT hazardous waste drum which is labeled and left on site pending laboratory analysis of water sample.

5. After the well has recovered, a sample is taken using a teflon bailer and placed in a VOA vial such that no headspace is present. The vial is sealed, labeled, and cooled.

6. The field data sheet is completed with all pertinent information.

7. All the equipment is decontaminated using the 3-bucket wash.

8. The samples are transported to the laboratory as soon as possible following chain of custody procedures.

9. Wells are sampled from the cleanest to the most contaminated.

10. Site conditions are noted which may potentially contaminate the sample . . . any smoke, vapors from running engines, etc.

DTW

W

PROJECT NAME: TOC 54
LOCATION: _____
DATE: 6/11/91
SAMPLER: MW

SAMPLE TYPE:

X WELL - WELL NUMBER: [redacted]
___ SURFACE WATER - DESCRIPTION _____
___ SEEP - DESCRIPTION: _____
___ OTHER - DESCRIPTION: _____

WEATHER CONDITIONS:

___ CLEAR ___ PARTIAL CLOUDS ___ OVERCAST ___ RAIN
WIND: ___ STILL ___ LIGHT ___ MODERATE ___ STRONG
TEMPERATURE (DEGREES F): ___ <50 ___ 50-60 ___ 60-70
___ 70-80 ___ 80-90 ___ >90
HUMIDITY: ___ LOW ___ MODERATE ___ HIGH

DEPTH TO FREE PRODUCT: [redacted]
DEPTH TO WATER: 5/9 [redacted] 6/11 7:32 am [redacted]
TOTAL WELL DEPTH: 25.08'
GALLONS TO BE EVACUATED (4 CASING VOLUMES): ≈ 10.9 GALS
TIME OF EVACUATION: START 9:15 AM FINISH 9:56 AM
TOTAL GALLONS EVACUATED: 10.56 GALS ⇒ DRY 80% 11.7'
TIME OF SAMPLE: 12:15 PM
APPEARANCE OF SAMPLE: CLOUDY
DEPTH TO WATER AT TIME OF SAMPLE: 11.47'

MEASURING EQUIPMENT: X INTERFACE PROBE ___ ELECTRIC SOUNDER
___ OTHER _____
EVACUATION EQUIPMENT: X BAILER - TYPE _____
X PUMP - TYPE HAND
SAMPLING EQUIPMENT: X DISPOSABLE BAILER ___ TEFLON BAILER
___ OTHER _____
EQUIPMENT DECONTAMINATION: X 3-BUCKET WASH ___ STEAM CLEAN
X DISPOSABLE (FACTORY WRAPPED)
SAMPLE CONTAINER: X GLASS ___ PLASTIC ___ OTHER _____
SAMPLE PRESERVATIVE: _____

SAMPLES: X HAND CARRIED ___ SHIPPED BY _____
DATE _____ TIME _____ TO _____
ANALYSIS REQUESTED: ___ TPH (GAS) ___ BTEX ___ TOTAL LEAD
___ OTHER _____

FIELD OBSERVATIONS: PURGED H2O FAIRLY TURBID.

WATER SAMPLE FIELD LOG

PROJECT NAME: TOC 54
LOCATION: _____
DATE: 5/11/91
SAMPLER: MW

SAMPLE TYPE:

X WELL - WELL NUMBER: [redacted]-9
___ SURFACE WATER - DESCRIPTION _____
___ SEEP - DESCRIPTION: _____
___ OTHER - DESCRIPTION: _____

WEATHER CONDITIONS:

___ CLEAR ___ PARTIAL CLOUDS X OVERCAST ___ RAIN
WIND: ___ STILL X LIGHT ___ MODERATE ___ STRONG
TEMPERATURE (DEGREES F): ___ <50 X 50-60 ___ 60-70
___ 70-80 ___ 80-90 ___ >90
HUMIDITY: ___ LOW X MODERATE ___ HIGH

DEPTH TO FREE PRODUCT: N/A
DEPTH TO WATER: 5/9 [redacted] 5/11 7:42 AM [redacted]
TOTAL WELL DEPTH: 15'
GALLONS TO BE EVACUATED (4 CASING VOLUMES): 9.9 GALS
TIME OF EVACUATION: START 9:58 AM FINISH 10:28 AM
TOTAL GALLONS EVACUATED: ~ 9.7 GALS 80%
TIME OF SAMPLE: 10:35
APPEARANCE OF SAMPLE: FAIRLY CLEAR
DEPTH TO WATER AT TIME OF SAMPLE: 2.46'

MEASURING EQUIPMENT: X INTERFACE PROBE ___ ELECTRIC SOUNDER
___ OTHER _____
EVACUATION EQUIPMENT: X BAILER - TYPE DISPOSABLE
___ PUMP - TYPE _____
SAMPLING EQUIPMENT: X DISPOSABLE BAILER ___ TEFLON BAILER
___ OTHER _____
EQUIPMENT DECONTAMINATION: ___ 3-BUCKET WASH ___ STEAM CLEAN
X DISPOSABLE (FACTORY WRAPPED)
SAMPLE CONTAINER: X GLASS ___ PLASTIC ___ OTHER _____
SAMPLE PRESERVATIVE: _____

SAMPLES: X HAND CARRIED ___ SHIPPED BY _____
DATE _____ TIME _____ TO _____
ANALYSIS REQUESTED: ___ TPH (GAS) ___ BTEX ___ TOTAL LEAD
___ OTHER _____

FIELD OBSERVATIONS: VERY TURBID H2O

WATER SAMPLE FIELD LOG

PROJECT NAME: SDC 54
LOCATION: _____
DATE: 5/11/91
SAMPLER: MW

SAMPLE TYPE:

X WELL - WELL NUMBER: [redacted]
___ SURFACE WATER - DESCRIPTION _____
___ SEEP - DESCRIPTION: _____
___ OTHER - DESCRIPTION: _____

WEATHER CONDITIONS:

___ CLEAR ___ PARTIAL CLOUDS ___ OVERCAST ___ RAIN
WIND: ___ STILL ___ LIGHT ___ MODERATE ___ STRONG
TEMPERATURE (DEGREES F): ___ <50 ___ 50-60 ___ 60-70
___ 70-80 ___ 80-90 ___ >90
HUMIDITY: ___ LOW ___ MODERATE ___ HIGH

DEPTH TO FREE PRODUCT: _____
DEPTH TO WATER: 5/9 NONE 5/11 7:22 am 18.22'
TOTAL WELL DEPTH: 24.48'
GALLONS TO BE EVACUATED (4 CASING VOLUMES): 5.2 GALS
TIME OF EVACUATION: START 8:12 FINISH 8:45
TOTAL GALLONS EVACUATED: ~2.5 GALS → DRY 80% 18.6
TIME OF SAMPLE: _____
APPEARANCE OF SAMPLE: _____
DEPTH TO WATER AT TIME OF SAMPLE: 22.45' @ 12:54 pm

MEASURING EQUIPMENT: X INTERFACE PROBE ___ ELECTRIC SOUNDER
___ OTHER _____
EVACUATION EQUIPMENT: X BAILER - TYPE _____
X PUMP - TYPE HAND
SAMPLING EQUIPMENT: X DISPOSABLE BAILER ___ TEFLON BAILER
___ OTHER _____
EQUIPMENT DECONTAMINATION: X 3-BUCKET WASH ___ STEAM CLEAN
X DISPOSABLE (FACTORY WRAPPED)
SAMPLE CONTAINER: X GLASS ___ PLASTIC ___ OTHER _____
SAMPLE PRESERVATIVE: _____

SAMPLES: X HAND CARRIED ___ SHIPPED BY _____
DATE _____ TIME _____ TO _____
ANALYSIS REQUESTED: ___ TPH (GAS) ___ BTEX ___ TOTAL LEAD
___ OTHER _____

FIELD OBSERVATIONS: 5/11 ≈ 1.3 GALS H_2O IN WELL,
PURGING H_2O VERY TURBID,

Enseco
A Coming Company

Laboratory Report

R&I
P.O. Box 1601
Oxnard, CA 93032
ATTN: Wendy Wittl

Project: TOC 54

Analysis No.: V-9113303-006/007
Date Sampled: 11-MAY-1991
Date Sample Rec'd: 13-MAY-1991
Date Analyzed: 15-MAY-1991
Sample Type: LIQUID

Sample ID	TPH as Gasoline mg/L CA DHS LUFT-	Benzene mg/L EPA 602	Toluene mg/L EPA 602	Ethyl Benzene mg/L EPA 602	Total Xylenes mg/L EPA 602
RS-8	ND(0.5)	0.0005	ND(0.0003)	ND(0.0003)	ND(0.0006)
RS-9	16	ND(0.05)	0.063	0.71	2.3
Blank	ND(0.5)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0006)

Enseco
A Corning Company

Laboratory Report

RSI
P.O. Box 1601
Oxnard, CA 93032
ATTN: Wendy Wittl

Analysis No.: V-9113303-001/005
Date Sampled: 8-MAY-1991
Date Sample Rec'd: 13-MAY-1991
Date Analyzed: 17-MAY-1991
15-MAY-1991
21-MAY-1991
22-MAY-1991
20-MAY-1991
Sample Type: SOIL

Project: TOC 54

Sample ID	TPH as Gasoline mg/kg CA DHS LUFT	Benzene mg/kg EPA 8020	Toluene mg/kg EPA 8020	Ethyl Benzene mg/kg EPA 8020	Xylenes, Total mg/kg EPA 8020
RS-8 5'	ND(1)	0.045	0.014	0.006	0.023
RS-8 10'	20 *	ND(0.005)	ND(0.005)	0.018	ND(0.015)
RS-9 5'	580 *	ND(0.05)	0.46	1.0	4.0
RS-9 10'	ND(1)	ND(0.005)	0.011	ND(0.005)	ND(0.015)
RS-10 5'	ND(1)	ND(0.005)	0.005	ND(0.005)	ND(0.015)
Blank	ND(1)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.015)

* Chromatogram indicates weathered Gasoline.

Enseco
A CORNING Company

☐ 7440 Lincoln Way, Garden Grove, CA 92641, (714) 898-6370
☐ 2810 Bunsen Ave., Unit A Ventura, CA 93003, (805) 650-0546
☐ 2325 Skyway Dr., Unit K, Santa Maria, CA 93455, (805) 922-2776
☐ 9537 Telstar Ave., Unit 118, El Monte, CA 91731, (818) 442-8400
☐ Mobile Labs, (800) ENSECO-8

CHAIN OF CUSTODY RECORD

Date _____ Page _____ of _____

Lab Number V-911303

CLIENT RSI

ADDRESS P.O. Box 1601
Oxnard, CA

PROJECT NAME
TOC 54

CONTRACT / PURCHASE ORDER / QUOTE #

PROJECT MANAGER
W/ Whitt

PHONE NUMBER

SITE CONTACT

ANALYSES

Sample No. / Identification	Date	Time	Lab Sample Number	SAMPLE TYPE LIQ.	AIR	SOLID	No. of Containers	TPH (Gasoline)	BTXE					Sample Condition/ REMARKS
RS-8 5'	5/8/91					X	1	X	X					
RS-8 10'						X	1	X	X					
RS-9 5'						X	1	X	X					
~~RS-9 10'~~ keep?						X	1	X	X					
RS-10 5'						X	1	X	X					
~~RS-10 10'~~														
RS-8	5/11/91	12:15 PM		X			4	X	X					pres w/ HCl
RS-9	5/11/91	12:35		X			4	X	X					

SAMPLERS: (Signature) W/ Whitt

Relinquished by: (Signature) W/ Whitt

Received by: (Signature) — Date — Time

Received by: (Signature) — Date — Time

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Enseco Terms and Conditions, unless a contract or purchase order has been executed and is cited above.

Relinquished by: (Signature) W/ Whitt — Date — Time

Received for Laboratory by: R. Phelan

Date RECEIVED	Time	Date ACCEPTED	Time
5-13-91	0850		

Method of Shipment:

Special Instructions:
~~Normal TAT~~ NTAT

SAMPLE DISPOSITION:
1. Storage time requested: _____ days
(Samples will be stored for 30 days without additional charges; thereafter storage charges will be billed at the published rates.)
2. Sample to be returned to client: Y N
(Enseco will dispose of unreturned samples at no extra charge. Disposal will be by incineration wherever possible; otherwise, as appropriate, according to legal requirements.)

DISTRIBUTION: White with report, Yellow to Enseco, Pink to Courier, Gold to Sample Control

SMITH-EMERY COMPANY
The Full Service Independent Testing Laboratory, Established 1904

781 East Washington Boulevard • Los Angeles, California 90021 • (213) 749-3411 • Fax: (213) 746-7228
P.O. Box 880550, Hunter's Point Shipyard Bldg. 114 • San Francisco, California 94188 • (415) 330-3000 • Fax: (415) 822-3864
5427 East La Palma Avenue • Anaheim, California 92807 • (714) 693-1026 • Fax: (714) 693-1034

Sample #: 1144123303
Received: 05/24/91
Type: WATER

Collector: Client
Sampling Date & Time: 05/22/91, 1410
Method: GRAB

I.D.: WELL RE - 1

CONSTITUENT	METHOD	RESULT	UNIT
EPA 8015		ANALYZED	5/25/91
GASOLINE	EPA 8015	85,000	UG/L
EPA 602		ANALYZED	5/25/91
BENZENE	EPA 602	8700	UG/L
TOLUENE	EPA 602	10,000	UG/L
ETHYLBENZENE	EPA 602	1800	UG/L
XYLENES	EPA 602	12,000	UG/L

Sample #: 1144123304
Received: 05/24/91
Type: WATER

Collector: Client
Sampling Date & Time: 05/22/91, 1420
Method: GRAB

I.D.: WELL RE - 2

EPA 8015		ANALYZED	5/25/91
GASOLINE	EPA 8015	1000	UG/L
EPA 602		ANALYZED	5/25/91
BENZENE	EPA 602	5.3	UG/L
TOLUENE	EPA 602	3.6	UG/L
ETHYLBENZENE	EPA 602	4.4	UG/L
XYLENES	EPA 602	8.9	UG/L

Sample #: 1144123305
Received: 05/24/91
Type: WATER

Collector: Client
Sampling Date & Time: 05/22/91, 1435
Method: GRAB

I.D.: WELL RE - 5

EPA 8015		ANALYZED	5/25/91
GASOLINE	EPA 8015	2500	UG/L
EPA 602		ANALYZED	5/25/91
BENZENE	EPA 602	330	UG/L
TOLUENE	EPA 602	7.8	UG/L

(ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit)

11441233

SMITH-EMERY COMPANY
The Full Service Independent Testing Laboratory, Established 1904

781 East Washington Boulevard • Los Angeles, California 90021 • (213) 749-5411 • Fax: (213) 746-7228
P.O. Box 880SSC, Hunter's Point Shipyard Bldg. 114 • San Francisco, California 94188 • (415) 330-3000 • Fax: (415) 822-8464
5427 East La Palma Avenue • Anaheim, California 92807 • (714) 693-1026 • Fax: (714) 693-1034

CONSTITUENT	METHOD	RESULT	UNIT
ETHYLBENZENE	EPA 602	5.6	UG/L
XYLENES	EPA 602	200	UG/L

Sample #: 1144123306
Received: 05/24/91
Type: WATER

Collector: Client
Sampling Date & Time: 05/22/91, 1445
Method: GRAB

I.D.: WELL RE - 6

EPA 8015		
GASOLINE	EPA 8015	ANALYZED 5/25/91 8500 UG/L
EPA 602		ANALYZED 5/25/91
BENZENE	EPA 602	1700 UG/L
TOLUENE	EPA 602	14 UG/L
ETHYLBENZENE	EPA 602	24 UG/L
XYLENES	EPA 602	6.7 UG/L

Sample #: 1144123307
Received: 05/24/91
Type: WATER

Collector: Client
Sampling Date & Time: 05/01/91, 1609
Method: GRAB

I.D.: TRIP BLANK

EPA 8015		
GASOLINE	EPA 8015	ANALYZED 5/25/91 ND <50 UG/L
EPA 602		ANALYZED 5/25/91
BENZENE	EPA 602	ND <0.5 UG/L
TOLUENE	EPA 602	ND <0.5 UG/L
ETHYLBENZENE	EPA 602	ND <1.0 UG/L
XYLENES	EPA 602	ND <1.0 UG/L

Respectfully submitted,

Shahid Noori, Manager Chemical Lab

(ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit)

11441233

SMITH-EMERY COMPANY
The Full Service Independent Testing Laboratory, Established 1904

781 East Washington Boulevard • Los Angeles, California 90021 • (213) 749-3411 • Fax: (213) 746-7238
P.O. Box 880550, Hunter's Point Shipyard Bldg. 114 • San Francisco, California 94188 • (415) 330-3000 • Fax: (415) 822-5864
3427 East La Palma Avenue • Anaheim, California 92807 • (714) 693-1026 • Fax: (714) 693-1034

THRIFTY OIL COMPANY
FILE# 7144
10000 LAKEWOOD BLVD.
DOWNEY, CA. 90240

05/28/91

Attn: CONSTANTIN TUCULESCU
213/923/9876

SS# 054
CHAIN OF CUSTODY # 35050

Sample #: 1144123301
Received: 05/24/91
Type: WATER

Collector: Client
Sampling Date & Time: 05/22/91, 1455
Method: GRAB

I.D.: WELL PW - 1

CONSTITUENT	METHOD	RESULT	UNIT
EPA 8015		ANALYZED 5/21/91	
GASOLINE	EPA 8015	41,000	UG/L
EPA 602		ANALYZED 5/21/91	
BENZENE	EPA 602	600	UG/L
TOLUENE	EPA 602	730	UG/L
ETHYLBENZENE	EPA 602	250	UG/L
XYLENES	EPA 602	3800	UG/L

Sample #: 1144123302
Received: 05/24/91
Type: WATER

Collector: Client
Sampling Date & Time: 05/22/91, 1507
Method: GRAB

I.D.: WELL PW - 2

EPA 8015		ANALYZED 5/25/91	
GASOLINE	EPA 8015	14,000	UG/L
EPA 602		ANALYZED 5/25/91	
BENZENE	EPA 602	57	UG/L
TOLUENE	EPA 602	51	UG/L
ETHYLBENZENE	EPA 602	10	UG/L
XYLENES	EPA 602	480	UG/L

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]

11441233

LAB # 114143 SDJ

CHAIN OF CUSTODY FORM

P.O. # 35050	Client and Site Location: THRIFTY OIL CO., SS # 054	MONTHLY SAMPLING

Samplers (Signature): Lucian Gorny

Sample Number	Date	Time	Depth Below Grade (ft)	Sample Type	Suspect Contamination	No. of Containers (VIALS)	TPH 8015 *	BTXE 8020 *
WELL PW-1	5.22	2:55P	9	GRAB	GASOLINE	4	X	X
WELL PW-2	5.22	3:07P	10	GRAB	GASOLINE	4	X	X
WELL RE-1	5.22	2:10P	9	GRAB	GASOLINE	4	X	X
WELL RE-2	5.22	2:20P	9	GRAB	GASOLINE	4	X	X
(*) WELL RE-3	5.22	———	———	GRAB	GASOLINE	4	X	X
(*) WELL RE-4	5.22	———	———	GRAB	GASOLINE	4	X	X
WELL RE-5	5.22	2:35P	9	GRAB	GASOLINE	4	X	X
WELL RE-6	5.22	2:45P	10	GRAB	GASOLINE	4	X	X
(*) WELL RE-7	5.22	———	———	GRAB	GASOLINE	4	X	X
TRIP BLANK	5.21	4.09PM		-	-	2	X	X

(*) NOT SAMPLED FREE PRODUCT LOCATED

ANALYTICAL METHOD

Submit Results To:

THRIFTY OIL CO.
10000 LAKEWOOD BLVD.
DOWNEY, CA 90240

Attn: CONSTANTIN TUCULESCU
Phone No. (213) 923 - 9876

REMARKS

MONTHLY WATER SAMPLING

* COMBINED TEST

Sample Integrity:	✓
Samples Intact:	Yes ✓ No ___
Samples Properly Cooled:	Yes ✓ No ___
Samples Accepted:	Yes ✓ No ___
If not, why:	
Samples Placed in Lab Refrigerator	Yes ✓ No ___ Rep. Initials GM
Laboratory Name: SMITH - KENNY COMPANY	

Relinquished by:	Date / Time	Received by:
Lucian Gorny	5/22 3:55p	
Relinquished by:	Date / Time	Received by:
Relinquished by:	Date / Time	Received for Lab by:

Certification No.: ___

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94566 • (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Service Station
2504 Castro Valley Blvd.
Castro Valley, CA

CLIENT
Name Thrifty Oil Co
Address 10000 Lakewood Blvd Phone 213-923-9876
City Downey Zip 90240

APPLICANT
Name RSI
Address PO Box 1601 Phone 805-644-5892
City Oxnard, CA Zip 93032

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	___
Water Supply	___	Contamination	___
Monitoring	X	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other monitoring
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. #482390 C-57

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 25 ft.
Surface Seal Depth 5 ft. Number ___

GEOTECHNICAL PROJECTS
Number of Borings 3 Maximum
Hole Diameter 8 in. Depth 25 ft.

ESTIMATED STARTING DATE 4/15/91
ESTIMATED COMPLETION DATE 4/15/91

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] Date 3/25/91

FOR OFFICE USE

PERMIT NUMBER 91171
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(C.) GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 27 Mar 91
Wyman Hong

121989

ALAMEDA COUNTY PUBLIC WORKS AGENCY

MISCELLANEOUS

GENERAL AND SPECIAL PROVISIONS

These general and special provisions are attached to and made a part of Encroachment Permit No. _____, issued in accordance with Chapter 1 of Title 5 of the Alameda County Ordinance Code of the County of Alameda; failure to comply with the provisions noted shall void said permit.

GENERAL PROVISIONS

1. It is understood and agreed upon by the Permittee that the performance of any work authorized by this permit shall constitute acceptance of the terms, provisions and conditions of the permit.

2. This permit shall be readily available for inspection at the highway site and must be shown to any representative of the Public Works Agency or any Law Enforcement Officer upon demand.

3. All work authorized by the permit shall be performed in a workmanlike, diligent and expeditious manner and must be completed to the satisfaction of the Director of Public Works.

4. This permit is limited to work to be performed within, upon or adjacent to county roads and highways under the jurisdiction of the Board of Supervisors of the County of Alameda.

5. The Permittee shall be responsible for all liability imposed by law for personal injury or property damage which may arise out of the work permitted and done by Permittee under this permit, or which may arise out of the failure on the part of the Permittee to perform his obligations under said permit in respect to maintenance of the encroachment. The Permittee shall protect and indemnify the County of Alameda, its officers and employees, and save them harmless in every way from all action at law for damage or injury to persons or property that may arise out of or be occasioned in any way because of his operations as provided in this permit.

6. Except as specifically provided herein, the requirements of the vehicle code and any other applicable laws must be complied with in all particulars.

7. The Permittee shall be fully responsible for taking proper precautions for the prevention of accidents to persons and/or damage to public or private property at the site of the work. The Permittee shall provide watchmen and flagmen and shall provide and maintain such fences, barriers, signs, guardrails, red lights and other safety devices adjacent to and on the site at or near all barriers as may be necessary to control traffic and prevent accidents to the public. He shall furnish, place and maintain such lights as may be necessary for illuminating the said signs and fences. Signs, flags, lights and other warning and safety devices shall conform to the requirements set forth in the latest edition of "Manual of Traffic Controls for Construction and Maintenance Work Zones", issued by the California State Department of Transportation.

8. The Permittee shall schedule and pursue his operations in such a manner that undesirable construction conditions will be minimized.

9. The Permittee agrees to exercise reasonable care in properly maintaining any authorized encroachment placed in the county right of way and to exercise reasonable care in inspecting for and immediately repairing and making good any injury to any portion of the county right of way which occurs as a result of the maintenance of the encroachment in the highway or as a result of the work done under this permit, including any and all injury to the roadway which would not have occurred had such work not been done or such encroachment not placed therein. A separate encroachment permit will be required for maintenance of these facilities.

10. The permittee shall begin work as authorized under this permit within 90 days from the date of issuance, unless a different date is stated in the permit. If the work is not begun within the 90 days or the time stated in the permit, the permit shall become void. The permit shall be valid for a term of one year from the date of issuance, unless discontinued by the use or removal of the encroachment for which the permit was issued (Section 5-3.10 Ordinance Code of the County of Alameda).

11. The County Inspector shall be notified at (415) 670-5421, 24 hours prior to commencing work.

12. The County Inspector shall be notified at (415) 670-5421, within 3 days after work is completed.

13. Permittee shall furnish all safeguards for pedestrians and post warning signs in advance of work area for vehicular traffic and shall clear the roadway at the end of each workday of any obstructions or debris. Failure to comply with this provision will result in the County's taking whatever measures are necessary to conform and billing the permittee for all expenses incurred.

14. No lane closures will be allowed between 6:00 a.m. and 9:00 a.m. or between 3:30 p.m. and 6:30 p.m. At other times at least one lane of traffic shall be kept open to the general public. No public road under the jurisdiction of the Board of Supervisors shall be closed to travel by the general public without special permission, in writing, of the Board.

15. Environmental Impact Review - No significant impact.

16. This permit is issued only for that portion of work to be performed within the County road right of way.

17. In the event any future improvement of the road right of way necessitates the relocation of the encroachment for which this permit is issued, the permittee will relocate same at his sole expense.

18. Permittee is hereby cautioned that unless otherwise noted, traffic signal detectors, wiring, etc., are not to be disturbed. Any damage to traffic signal detector loops, wiring, etc. shall be repaired within 48 hours.

SPECIAL PROVISIONS

A. Alameda County Survey Monuments destroyed or displaced during the progress of the work shall be replaced by the Permittee at no expense to the County of Alameda. The monument pin will be set by the County of Alameda.

B. Priority shall be given to operations performed under contract let by the County of Alameda for certain work at this location. Coordination shall be effected through said Contractor and the Project Representative for the County.

C. Permit is issued for a temporary installation only with the expressed condition that the encroachment permitted hereby shall be removed and the right of way restored to its original condition at no expense to Alameda County, at expiration date of this permit, or if in the judgement of the Director of Public Works that prior to that time public interest so requires.

D. Permittee is hereby notified that major construction is programmed for the widening and realignment of within the next _____ years. Any driveway approach conforming to the existing _____ is to be considered temporary. Before permanent improvements are constructed by the permittee, it is suggested that permittee be aware of the future road improvements insomuch as they affect his property.

E. Roots and stump shall be removed two feet below ground surface. Maintenance and repairs to the right of way made necessary by the presence of such trees therein shall be the responsibility of the property owner and such maintenance and repairs shall be made by the property owner upon ten (10) days notice by the Director of Public works at no expense to Alameda County.

F. Permittee agrees to maintain the planted area and to keep it weed-free. The plants shall be kept at a height not exceeding _____ inches.

G. The tree(s) planted within the County road right of way shall be _____. The permittee agrees to maintain the tree(s) including trimming. The County will trim the trees only as necessary to provide safety to the users of the County road right of way.

H. All mailboxes must be placed in accordance and with the rules and regulations of the United States Postal Service, and no box shall be so placed within the road right of way as to endanger the life or safety of the traveling public.

I. (FOR PERMITS GRANTING PERMISSION FOR IMPROVING A DEDICATED BUT NOT ACCEPTED ROAD)

The issuance of this permit does not imply acceptance of _____ into the County Road System.

J. (FOR TEMPORARY ASPHALTIC CONCRETE DRIVEWAY AREA)

This permit is for a temporary installation only, to provide driveways to the adjacent property, and no construction under this authority will be replaced at County expense upon future widening and reconstruction of this road.

K. (FOR EXCAVATION)

Material excavated from within the County road right of way under this permit shall be removed from within the right of way and disposed of in a legal manner. Gutters, ditches, drop inlets, storm sewers, and other drainage facilities shall be cleaned of earth or other material deposited therein as a result of the work authorized herein and the right of way shall be left clean and orderly to the satisfaction of the Director of Public Works.

L. Line and grade shall be to the satisfaction of the Director of Public Works. All work shall conform to County specifications and requirements, and County Inspector shall be notified at _____, 24 hours prior to placing of surfacing.

a. Asphaltic concrete surfacing to be limited to driveway width within the County road right of way.
b. Existing drainage is not to be altered.
c. The grade at the property line shall be approximately the same as the grade at the crown of the road.

M. The position of each pole placement shall be approved by the County Inspector prior to installation. This is to insure proper clearance for all improvements.

N. The authority herein above contained does not include work to be done within the trackage limits of the _____ right of way.

O. This encroachment permit is issued recognizing that construction and/or installation was already completed at the time of application for permit, and, as such, appropriate inspection was not possible.

Under California Law (Government Code, Sections 4216-4217) it is not legal to excavate until a Regional Notification Center Inquiry identification number has been provided. This County permit is not valid unless this I.D. number has been obtained. Requirement of a Regional Notification number, along with a copy of the permit, must be available upon request by a City/County Inspector on all jobs within our right-of-way. Work found in progress (except emergency repairs) without a Regional Notification Center number will be stopped and our right-of-way cleared. The toll free number for your local Notification Center, U.S.A., is (800) 642-2444.

Q. Where pavement is to be removed, it shall be sawed along the edges of the excavation in order to leave a smooth contour of the pavement surface. Cutting with air tools or other devices leaving ragged edges will not be permitted.

R. Where concrete is to be removed, the edges shall be sawed. No concrete shall be poured until forms have been inspected and approved by County Inspector. County Inspector shall be notified at (415) 670-5421 24 hours prior to placement of concrete.

S. The cash bond placed for this work will be held for six (6) months after the final inspection. In the event the permittee does not give the County the notice required in Section 11, and the work is performed without inspection, the cash bond will be held for one year after the final inspection.

DONALD J. LABELLE
DIRECTOR OF PUBLIC WORKS

rev. 7/90

399 Elmhurst Street, Hayward, California 94544

ROAD ENCROACHMENT PERMIT

(In accordance with Chapter 1 of Title 5, Streets and Highways, Ordinance Code, County of Alameda, an ordinance providing for the protection of Public Highways and rights of way thereof regulating the use thereof; and the manner in which the same may be altered, excavated under, obstructed or encroached upon; and providing penalties for the violation of the provisions thereof)

Issued To: THRIFTY OIL CO
10000 LAKEWOOD BLVD
DOWNEY, CA, 90240
Phone: 213-923-9876

Permit Number: R00-910334
Issue Date: 4/ 5/1991
Expiration Date: 4/ 4/92
Permit Issue Receipt: 003269
Assessor Number: - - -
Work Order Number: 82063

Job Site: CASTRO VALLEY BLVD
Township: CV

In compliance with and subject to all the terms, conditions and restrictions contained in Chapter 1 of Title 5 of said Ordinance Code and as stated below or printed as general or special provisions on any part of or attached to and made a part of this encroachment permit,

THE ABOVE APPLICANT HEREBY REQUESTS PERMISSION TO:
INSTALL ONE 2-INCH DIA. SCHEDULE 40 PVC GROUND WATER MONITORING WELL 25 FEET DEEP. THE WELL WLL BE COMPLETED AT THE SURFACE WITH A CONCRETE VAULT. THE WELL WILL BE LOCATED ON THE SIDEWALK ALONG THE SOUTH SIDE OF CASTRO VALLEY BLVD. SEE ATTACHED SKETCH.

Excavation Length: 1.00 FT. Width: 1.00 FT. Depth: 25.00 FT.

Attention is directed to the general provisions printed on the attached sheets of this permit and to the special provisions attached hereto and made a part hereof.

ALL MISCELLANEOUS GENERAL PROVISIONS AND THE FOLLOWING SPECIAL PROVISIONS:

ALL FLUIDS MUST BE COLLECTED AND DISCHARGED TO A HAZARDOUS LANDFILL.
HOURS OF WORK SHALL BE 9:00 AM TO 3:30 PM.
THE COUNTY INSPECTOR SHALL BE NOTIFIED PRIOR TO SAMPLING OF THE WELL.
WELLS SHALL BE LOCATED OUTSIDE OF THE TRAVEL WAY.
WELLS LOCATED IN THE SIDEWALK SHALL HAVE A CONCRETE COVER.
WELLS LOCATED IN THE STREET SHALL HAVE A TRAFFIC RATED COVER.

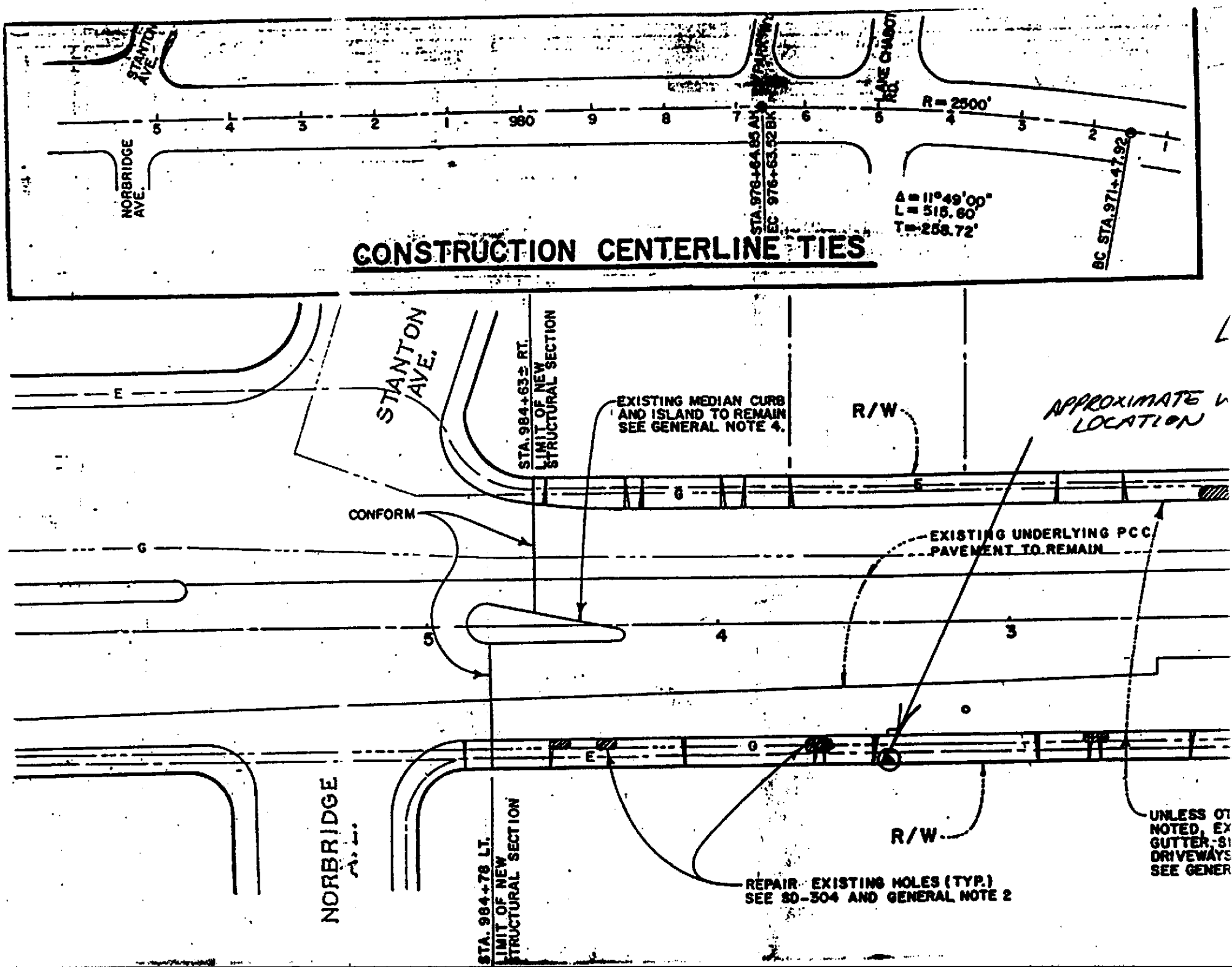
CASH BOND WILL NOT BE RELEASED UNTIL ALL WELLS HAVE BEEN DESTROIED. SEPERATE PERMIT WILL BE REQUIRED .

This permit does not authorize, and it shall not be construed to authorize any infringement upon the property rights of owners of the fee title of the highway referred to herein. Notice of start of work and other required notices shall be given to the field office, 22341 Redwood Road, Castro Valley Phone (415) 582-7781.

Other Required Permits: ZONE 7 WELL PERMIT REQ.
Bond Information: $3,000, CASH BOND
Inspection Deposit: $145 CASH

By _____ Applicant Reviewed By: DJL
Work Completed: __/__/__
By _____ ALAMEDA COUNTY Inspector: _____

Where no maps or plats are furnished, a sketch of the proposed work, showing location, name of road and other information must be made on a separate sheet, in triplicate.


STANTON AVE.
NORBRIDGE AVE.
LAKE CHABOT RD.
R=2500'
STA.976+64.85 AH
STA.976+63.52 BK
EC
Δ=11°49'00"
L=515.60'
T=258.72'
BC STA.971+47.92
CONSTRUCTION CENTERLINE TIES
STANTON AVE.
STA.984+63± RT.
LIMIT OF NEW STRUCTURAL SECTION
EXISTING MEDIAN CURB AND ISLAND TO REMAIN SEE GENERAL NOTE 4.
R/W
APPROXIMATE LOCATION
CONFORM
EXISTING UNDERLYING PCC PAVEMENT TO REMAIN
NORBRIDGE AVE.
STA. 984+78 LT.
LIMIT OF NEW STRUCTURAL SECTION
R/W
REPAIR EXISTING HOLES (TYP.) SEE SD-304 AND GENERAL NOTE 2
UNLESS OT
NOTED, EX
GUTTER, SI
DRIVEWAYS
SEE GENER

ALAMEDA COUNTY PUBLIC WORKS AGENCY
Permit Center
399 Elmhurst Street, Hayward, CA 94544
(415) 670-5569

RECEIPT NO B 1,269

RECEIVED 4/ 5/1991

PERMIT NUMBER R90-910334
JOB SITE CASTRO VALLEY BLVD
WORK ORDER 82063

RECEIVED FROM THRIFTY OIL CO
10000 LAKEWOOD BLVD
DOWNEY, CA, 90240
213-923-9876

Permit Fee	20-509/2311	FEE	10,00
Inspection Fee	20-309/60810007	FEE	44,45
Computer Surcharge	20-509/79510007	FEE	0,55
			55,00

CHECK NUMBER 20475
BANK NUMBER 02-26/311

DIRECTOR OF PUBLIC WORKS

By _____

Note: A $10,00 fee will be charged for returned checks

ALAMEDA COUNTY PUBLIC WORKS AGENCY
Permit Center
399 Elmhurst Street, Hayward, CA 94544
(415) 670-5569

RECEIPT NO E 3,270

RECEIVED 4/ 5/1991

PERMIT NUMBER R00-910334
JOB SITE CASTRO VALLEY BLVD
WORK ORDER 82063

RECEIVED FROM THRIFTY OIL CO
10000 LAKEWOOD BLVD
DOWNEY, CA, 90240
213-923-9876

Non-Construction Bon 90-990/9600	BOND	3,000.00
		3,000.00

CHECK NUMBER 0987038
BANK NUMBER 16-49/1220

DIRECTOR OF PUBLIC WORKS

By _____

Note: A $10.00 fee will be charged for returned checks

ALAMEDA COUNTY PUBLIC WORKS AGENCY

MISCELLANEOUS

GENERAL AND SPECIAL PROVISIONS

These general and special provisions are attached to and made a part of Encroachment Permit No. _____, issued in accordance with Chapter 1 of Title 5 of the Alameda County Ordinance Code of the County of Alameda; failure to comply with the provisions noted shall void said permit.

GENERAL PROVISIONS

1. It is understood and agreed upon by the Permittee that the performance of any work authorized by this permit shall constitute acceptance of the terms, provisions and conditions of the permit.

2. This permit shall be readily available for inspection at the highway site and must be shown to any representative of the Public Works Agency or any Law Enforcement Officer upon demand.

3. All work authorized by the permit shall be performed in a workmanlike, diligent and expeditious manner and must be completed to the satisfaction of the Director of Public Works.

4. This permit is limited to work to be performed within, upon or adjacent to county roads and highways under the jurisdiction of the Board of Supervisors of the County of Alameda.

5. The Permittee shall be responsible for all liability imposed by law for personal injury or property damage which may arise out of the work permitted and done by Permittee under this permit, or which may arise out of the failure on the part of the Permittee to perform his obligations under said permit in respect to maintenance of the encroachment. The Permittee shall protect and indemnify the County of Alameda, its officers and employees, and save them harmless in every way from all action at law for damage or injury to persons or property that may arise out of or be occasioned in any way because of his operations as provided in this permit.

6. Except as specifically provided herein, the requirements of the vehicle code and any other applicable laws must be complied with in all particulars.

7. The Permittee shall be fully responsible for taking proper precautions for the prevention of accidents to persons and/or damage to public or private property at the site of the work. The Permittee shall provide watchmen and flagmen and shall provide and maintain such fences, barriers, signs, guardrails, red lights and other safety devices adjacent to and on the site at or near all barriers as may be necessary to control traffic and prevent accidents to the public. He shall furnish, place and maintain such lights as may be necessary for illuminating the said signs and fences. Signs, flags, lights and other warning and safety devices shall conform to the requirements set forth in the latest edition of "Manual of Traffic Controls for Construction and Maintenance Work Zones", issued by the California State Department of Transportation.

8. The Permittee shall schedule and pursue his operations in such a manner that undesirable construction conditions will be minimized.

9. The Permittee agrees to exercise reasonable care in properly maintaining any authorized encroachment placed in the county right of way and to exercise reasonable care in inspecting for and immediately repairing and making good any injury to any portion of the county right of way which occurs as a result of the maintenance of the encroachment in the highway or as a result of the work done under this permit, including any and all injury to the roadway which would not have occurred had such work not been done or such encroachment not placed therein. A separate encroachment permit will be required for maintenance of these facilities.

10. The permittee shall begin work as authorized under this permit within 90 days from the date of issuance, unless a different date is stated in the permit. If the work is not begun within the 90 days or the time stated in the permit, the permit shall become void. The permit shall be valid for a term of one year from the date of issuance, unless discontinued by the use or removal of the encroachment for which the permit was issued (Section 5-3.10 Ordinance Code of the County of Alameda).

11. The County Inspector shall be notified at (415) ~~670-5481~~ 582-7781, 24 hours prior to commencing work.

12. The County Inspector shall be notified at (415) 670-5481, within 3 days after work is completed.

13. Permittee shall furnish all safeguards for pedestrians and post warning signs in advance of work area for vehicular traffic and shall clear the roadway at the end of each workday of any obstructions or debris. Failure to comply with this provision will result in the County's taking whatever measures are necessary to conform and billing the permittee for all expenses incurred.

14. No lane closures will be allowed between 6:00 a.m. and 9:00 a.m. or between 3:30 p.m. and 6:30 p.m. At other times at least one lane of traffic shall be kept open to the general public. No public road under the jurisdiction of the Board of Supervisors shall be closed to travel by the general public without special permission, in writing, of the Board.

15. Environmental Impact Review - No significant impact.

16. This permit is issued only for that portion of work to be performed within the County road right of way.

17. In the event any future improvement of the road right of way necessitates the relocation of the encroachment for which this permit is issued, the permittee will relocate same at his sole expense.

18. Permittee is hereby cautioned that unless otherwise noted, traffic signal detectors, wiring, etc., are not to be disturbed. Any damage to traffic signal detector loops, wiring, etc. shall be repaired within 48 hours.

SPECIAL PROVISIONS

A. Alameda County Survey Monuments destroyed or displaced during the progress of the work shall be replaced by the Permittee at no expense to the County of Alameda. The monument pin will be set by the County of Alameda.

B. Priority shall be given to operations performed under contract let by the County of Alameda for certain work at this location. Coordination shall be effected through said Contractor and the Project Representative for the County.

C. Permit is issued for a temporary installation only with the expressed condition that the encroachment permitted hereby shall be removed and the right of way restored to its original condition at no expense to Alameda County, at expiration date of this permit, or if in the judgement of the Director of Public Works that prior to that time public interest so requires.

D. Permittee is hereby notified that major construction is programmed for the widening and realignment of within the next _____ years. Any driveway approach conforming to the existing _____ is to be considered temporary. Before permanent improvements are constructed by the permittee, it is suggested that permittee be aware of the future road improvements insomuch as they affect his property.

E. Roots and stump shall be removed two feet below ground surface. Maintenance and repairs to the right of way made necessary by the presence of such trees therein shall be the responsibility of the property owner and such maintenance and repairs shall be made by the property owner upon ten (10) days notice by the Director of Public works at no expense to Alameda County.

F. Permittee agrees to maintain the planted area and to keep it weed-free. The plants shall be kept at a height not exceeding _____inches.

G. The tree(s) planted within the County road right of way shall be _____. The permittee agrees to maintain the tree(s) including trimming. The County will trim the trees only as necessary to provide safety to the users of the County road right of way.

H. All mailboxes must be placed in accordance and with the rules and regulations of the United States Postal Service, and no box shall be so placed within the road right of way as to endanger the life or safety of the traveling public.

I. (FOR PERMITS GRANTING PERMISSION FOR IMPROVING A DEDICATED BUT NOT ACCEPTED ROAD)

The issuance of this permit does not imply acceptance of _____ into the County Road System.

J. (FOR TEMPORARY ASPHALTIC CONCRETE DRIVEWAY AREA)

This permit is for a temporary installation only, to provide driveways to the adjacent property, and no construction under this authority will be replaced at County expense upon future widening and reconstruction of this road.

K. (FOR EXCAVATION)

Material excavated from within the County road right of way under this permit shall be removed from within the right of way and disposed of in a legal manner. Gutters, ditches, drop inlets, storm sewers, and other drainage facilities shall be cleaned of earth or other material deposited therein as a result of the work authorized herein and the right of way shall be left clean and orderly to the satisfaction of the Director of Public Works.

L. Line and grade shall be to the satisfaction of the Director of Public Works. All work shall conform to County specifications and requirements, and County Inspector shall be notified at _____, 24 hours prior to placing of surfacing.

a. Asphaltic concrete surfacing to be limited to driveway width within the County road right of way.
b. Existing drainage is not to be altered.
c. The grade at the property line shall be approximately the same as the grade at the crown of the road.

M. The position of each pole placement shall be approved by the County Inspector prior to installation. This is to insure proper clearance for all improvements.

N. The authority herein above contained does not include work to be done within the trackage limits of the _____ right of way.

O. This encroachment permit is issued recognizing that construction and/or installation was already completed at the time of application for permit, and, as such, appropriate inspection was not possible.

Under California Law (Government Code, Sections 4216-4217) it is not legal to excavate until a Regional Notification Center Inquiry identification number has been provided. This County permit is not valid unless this I.D. number has been obtained. Requirement of a Regional Notification number, along with a copy of the permit, must be available upon request by a City/County Inspector on all jobs within our right-of-way. Work found in progress (except emergency repairs) without a Regional Notification Center number will be stopped and our right-of-way cleared. The toll free number for your local Notification Center, U.S.A., is (800) 642-2444.

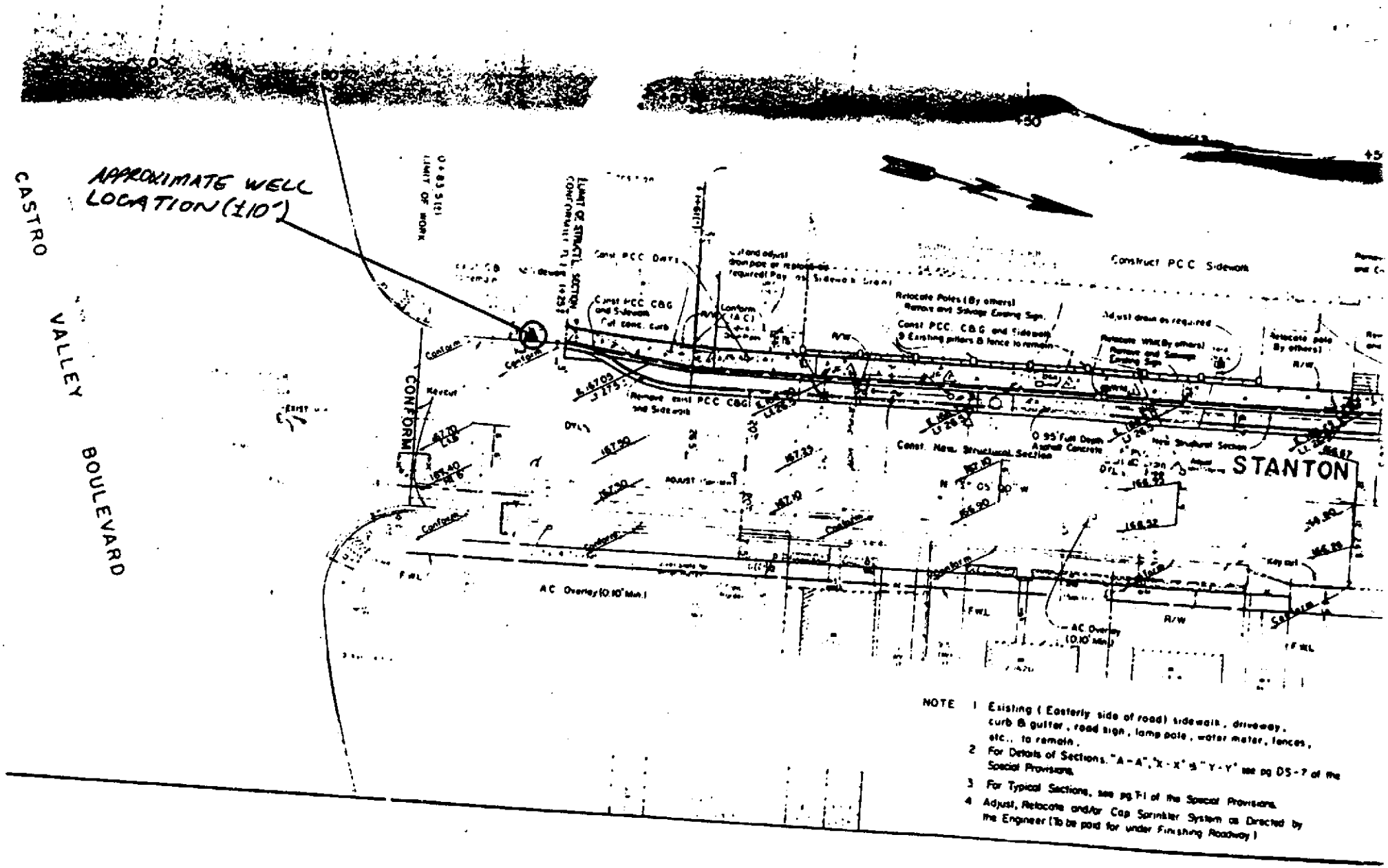
Q. Where pavement is to be removed, it shall be sawed along the edges of the excavation in order to leave a smooth contour of the pavement surface. Cutting with air tools or other devices leaving ragged edges will not be permitted.

R. Where concrete is to be removed, the edges shall be sawed. No concrete shall be poured until forms have been inspected and approved by County Inspector. County Inspector shall be notified at (415) 670-5421 24 hours prior to placement of concrete.

S. The cash bond placed for this work will be held for six (6) months after the final inspection. In the event the permittee does not give the County the notice required in Section 11, and the work is performed without inspection, the cash bond will be held for one year after the final inspection.

DONALD J. LABELLE
DIRECTOR OF PUBLIC WORKS

rev. 7/90



169

SCALE: 1"=10' or 1"=100'

399 ELMHURST STREET, HAYWARD, CALIFORNIA 94544
ROAD ENCROACHMENT PERMIT

In accordance with Chapter 1 of Title 5, Streets and Highways, Ordinance Code, County of Alameda, an ordinance providing for the protection of Public Highways and rights of way thereof regulating the use thereof; and the manner in which the same may be altered, excavated under, obstructed or encroached upon; and providing penalties for the violation of the provisions thereof;

Issued To: THRIFTY OIL CO
10000 LAKEWOOD BLVD
DOWNEY, CA, 90240
Phone: 213-923-9876

Permit Number: R00-910335
Issue Date: 4/ 5/1991
Expiration Date: 4/ 4/92
Permit Issue Receipt: 003271
Assessor Number: - - -
Work Order Number: 82064

Job Site: STANTON AVE
Township: CV

in compliance with and subject to all the terms, conditions and restrictions contained in Chapter 1 of Title 5 of said Ordinance Code and as stated below or printed as general or special provisions on any part of or attached to and made a part of this encroachment permit.

THE ABOVE APPLICANT HEREBY REQUESTS PERMISSION TO:
INSTALL ONE 2-INCH DIA. SCHEDULE 40 PVC GROUND WATER MONITERING WELL 25 FEET DEEP. THE WELL WILL BE COMPLEATED AT THE SURFACE WITH A CONCRETE VAULT.
THE WELL WILL BE LOCATED IN THE SIDEWALK ALONG THE WEST SIDE OF STANTON AVE.
SEE ATTACHED SKETCH.

Excavation Length: 1.00 FT. Width: 1.00 FT. Depth:25.00 FT.

Attention is directed to the general provisions printed on the attached sheets of this permit and to the special provisions attached hereto and made a part hereof.

ALL MISCELLANEOUS GENERAL PROVISIONS AND THE FOLLOWING SPECIAL PROVISIONS:

ALL FLUIDS MUST BE COLLECTED AND DISCHARGED TO A HAZARDOUS LANDFILL.
HOURS OF WORK SHALL BE 9:00 AM TO 3:30 PM.
THE COUNTY INSPECTOR SHALL BE NOTIFIED PRIOR TO SAMPLING OF THE WELL.
WELLS SHALL BE LOCATED OUTSIDE OF THE TRAVELED WAY.
WELLS LOCATED IN THE SIDEWALK SHALL HAVE A CONCRETE COVER.
WELLS LOCATED IN THE STREET SHALL HAVE A TRAFFIC RATED COVER.

CASH BOND WILL NOT BE RELEASED UNTIL ALL WELLS HAVE BEEN DESTROIED. SEPERATE PERMIT WILL BE REQUIRED.

This permit does not authorize, and it shall not be construed to authorize any infringement upon the property rights of owners of the fee title of the highway referred to herein. Notice of start of work and other required notices shall be given to the field office, 22341 Redwood Road, Castro Valley Phone (415) 582-7781.

Other Required Permits: ZONE 7 WELL PERMIT REQUIRED
Bond Information: $3,000. CASH BOND
Inspection Deposit: 44.45 CASH

By _____ Applicant Reviewed By: DJL
Work Completed: __/__/__
By _____ ALAMEDA COUNTY Inspector: _____

Where no maps or plats are furnished, a sketch of the proposed work, showing location, name of road and other information must be made on a separate sheet, in triplicate.

RECEIVED
APR 08 1991
ENVIRONMENTAL

[redacted] PUBLIC WORKS AGENCY
[redacted] Center
[redacted] 1st Street, Hayward, CA 94544
([redacted]) 670-5579

RECEIPT NO E 3,271

RECEIVED 4/ 5/1991

PERMIT NUMBER R00-910335
SUB SITE STANTON AVE
WORK ORDER 82064

RECEIVED FROM THRIFTY OIL CO
10000 LAKEWOOD BLVD
DOWNEY, CA. 90240
213-923-9876

Permit Fee	20-509/2311	FEE	10.00
Inspection Fee	20-509/60810007	FEE	44.45
Computer Surcharge	20-509/79510007	FEE	0.55
			55.00

CHECK NUMBER 20475
BANK NUMBER 62-26/311

DIRECTOR OF PUBLIC WORKS

By _____

Note: A $10.00 fee will be charged for returned checks

ALAMEDA COUNTY PUBLIC WORKS AGENCY
Permit Center
399 Elmhurst Street, Hayward, CA 94544
(415) 670-5569

RECEIPT NO E 3,272

RECEIVED 4/ 5/1991

PERMIT NUMBER R00-910335
JOB SITE STANTON AVE
WORK ORDER 82064

RECEIVED FROM THRIFTY OIL CO
10000 LAKEWOOD BLVD
DOWNEY, CA. 90240
213-923-9876

Non-Construction Bon 90-990/9600	BOND	3,000.00
		3,000.00

CHECK NUMBER 0987038
BANK NUMBER 16-49/1220

DIRECTOR OF PUBLIC WORKS

By _____

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S.A.V.E. SYSTEM PERFORMANCE DATA
for remediation of soil and groundwater
SUMMARY TABLE

PROJECT LOCATION: THRIFTY OIL COMPANY STATION #54

MONTH			APR 90	MAY 90	JUN 90	NOV 90	DEC 90	JAN 91
GROUNDWATER	SPRAY AERATOR WATER IN	GALLONS						297.9
		TPH-PPM*						
	SPRAY AERATOR WATER OUT	GALLONS						297.9
		TPH-PPM*						
VAPOR	RECOVERED VAPORS FROM WELLS	SCFM*	19.3	24.2	19.0	11.0	21.4	17.5
		TPH-PPM*	130.7	104.3			910.0	340.0
	TOTAL VAPORS TO ENGINE	SCF	179289.6	181660.8		204966.6	939020.4	344719.2
		TPH-PPM*	130.7	104.3			910.0	340.0
AIR	TO SPRAY AERATOR	SCFM	3.1	1.2		14.1	14.0	10.9
	TO ENGINE	SCFM	3.1	1.2		14.1	14.0	10.9
FREE PRODUCT	RECOVERED FROM WELLS	GALLONS						
ENGINE	EXHAUST	TPH-PPM*	30.0	ND	ND		ND	ND
		CO-PPM*	12.0	23.0	18.0			
	OPERATION	HOURS	133.4	119.2	29.7	136.1	442.1	202.3
	SPEED	RPM	1682.6	1644.0	2120.5	1857.9	2140.7	1889.2
TOTAL CONTAMINANT REMOVED	FROM THE PROJECT LOCATION	GALLONS	0.8	0.7			19.6	2.7

* DENOTES AVERAGE CONCENTRATIONS.

S.A.V.E. SYSTEM PERFORMANCE DATA
for remediation of soil and groundwater
SUMMARY TABLE

PROJECT LOCATION: THRIFTY OIL COMPANY STATION #54

MONTH			FEB 91	MAR 91	APR 91				TOTAL
GROUNDWATER	SPRAY AERATOR WATER IN	GALLONS	228.5	564.8	420.2				1511.4
		TPH-PPM*							
	SPRAY AERATOR WATER OUT	GALLONS	228.5	564.8	420.2				1511.4
		TPH-PPM*							
VAPOR	RECOVERED VAPORS FROM WELLS	SCFM*	20.0	20.6	9.9				
		TPH-PPM*	360.0	161.5	30.0				
	TOTAL VAPORS TO ENGINE	SCF	551178.0	1123013.4	322711.2				
		TPH-PPM*	360.0	161.5	30.0				
AIR	TO SPRAY AERATOR	SCFM	9.5	7.1	12.9				
	TO ENGINE	SCFM	9.5	7.1	12.9				
FREE PRODUCT	RECOVERED FROM WELLS	GALLONS							
ENGINE	EXHAUST	TPH-PPM*	42.0	55.0	96.0				
		CO-PPM*	0.0	0.0					
	OPERATION	HOURS	311.4	675.7	235.9				2285.8
	SPEED	RPM	2025.2	1904.9	1936.0				
TOTAL CONTAMINANT REMOVED	FROM THE PROJECT LOCATION	GALLONS	5.1	5.1	0.2				34.2

* DENOTES AVERAGE CONCENTRATIONS.