Shell Oil Company

P.O. Box 7004
3468 Mt. Diablo Blvd.
Suite B103
Lafayette, CA 94549

Telephone: (415) 283-4200

January 8, 1986

Mr. Dale Boyer
California Water Quality Control Board
1111 Jackson Street, Room 6040
Oakland, CA 94607

Dear Mr. Boyer:

Subject: Underground Tank Replacement at
Shell Station
4226 First Avenue
Pleasanton, CA

Enclosed are soil and groundwater investigation results at the above site at which we propose to replace the existing underground gasoline tanks and waste oil tanks with double walled fiberglass tanks. This is part of Shell's planned program to replace unprotected steel tanks with fiberglass.

We propose to install our three new fiberglass tanks in a location which is southeast of the existing tanks (see attached sketch).

Due to results of the soil analysis and existing site conditions, we request approval to remove the existing tanks and allow the moderately contaminated soil to remain in the existing excavation. We further propose to install an additional monitoring well in the existing tank hole excavation after compaction. Well S-1 and the new additional monitoring well will be monitored every six months.

We will appreciate your review and approval of this proposal. Please contact me at (415) 283-4200 should you have any questions.

Very truly yours,

S. J. Roller
Project Engineer

SJR:jm

Enclosure

EMCON
ASSOCIATES
Consultants in Wastes
Management and
Environmental Control

November 12, 1985
Project 738-60.01

Gettler-Ryan, Incorporated
1992 National Avenue
Hayward, California 94545

Attention: Mr. Jeffrey M. Ryan

Re: Shell Service Station,
4226 First Street and
Vineyard Avenue,
Pleasanton, California

Gentlemen:

This letter presents the results of a soil and ground-water investigation conducted by EMCON Associates at the Shell service station located at 4226 First Street in Pleasanton, California. The purpose of this investigation was to examine soil and ground-water conditions adjacent to the subsurface product storage tanks located at the site.

FIELD INVESTIGATION PROCEDURES

Five exploratory borings (S-A through S-D, and S-1) were drilled at the locations shown on Figure 1. The borings were drilled using continuous-flight hollow-stem or solid-stem auger drilling equipment and were logged by an EMCON geologist. Soil samples for logging were obtained from auger-return materials and by advancing a modified California split-spoon sampler into undisturbed soil beyond the tip of the auger. Soil samples for chemical analysis were sealed in glass containers, packed on ice, and delivered directly to an independent laboratory as authorized by Gettler-Ryan. Laboratory results accompany this report.

Upon completion, Borings S-A through S-D were backfilled with concrete and/or soil cuttings to a depth of 1/2-foot and cement to the ground surface. Due to difficulty in penetrating stiff clay and gravels at depth, water had to be introduced inside the augers as a lubricant during drilling of Borings S-A through S-D. Upon completion, standing water which may have been a result of this lubrication was measured in Boring S-B at a depth of 23 feet. However, because standing water was noted in Boring S-B, Boring S-1 was drilled downgradient of the tank complex and converted to a ground-water monitoring well by the installation of 3-inch-diameter PVC casing. Boring abandonment and well construction details accompany the attached Exploratory Boring Logs.

SITE CONDITIONS

Boring S-A was placed adjacent to the subsurface waste oil tank. Borings S-B, S-C, and S-D were placed within the subsurface gasoline storage tank complex. Ground-water monitoring Well S-1 was placed downgradient of the subsurface gasoline storage tank complex. Subsurface conditions explored during drilling ranged in depth from 20 to 30-1/2 feet. Boring S-A encountered gravelly silt fill to a depth of 2 feet, underlain by clay to the total depth explored of 20 feet. Borings S-B, S-C, and S-D encountered sand fill to a depth of 10-1/2 feet, underlain by primarily clay and clayey gravel to the total depth explored. Ground-water monitoring Well S-1 encountered clayey sand to a depth of 13 feet, underlain by clay and clayey gravel to the total depth explored. Ground water has not been noted in Monitoring Well S-1 since completion.

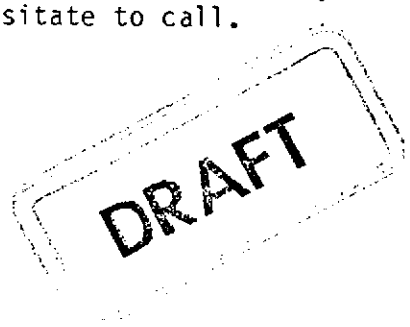
No product odor was noted in soils collected from Boring S-A. Gasoline odor was noted in soil to depths of 24-1/2 feet in Boring S-B, 28 feet in Boring S-C, and 22-1/2 feet in Borings S-D and S-1.

LABORATORY INVESTIGATIONS AND RESULTS

Soil collected from the depth interval of 7 to 8-1/2 feet in Boring S-A was analyzed for the presence of waste oil. No waste oil was detected.

Selected soil samples from Borings S-B, S-C, and S-D were analyzed for the presence of gasoline. Soil collected from Boring S-B contained gasoline concentrations of 2 parts per million (ppm) at the depth interval of 3-1/2 to 5 feet, 460 ppm at the depth interval of 7 to 8-1/2 feet, 610 ppm at the depth interval of 10-1/2 to 12 feet, 1,300 ppm at the depth interval of 14 to 15-1/2 feet, and none detected at the depth interval of 19 to 20-1/2 feet. Gasoline was not detected in soils collected from the depth interval of 10-1/2 to 12 feet in Borings S-C and S-D.

If you have any questions regarding the contents of this letter, please do not hesitate to call.



Very truly yours,

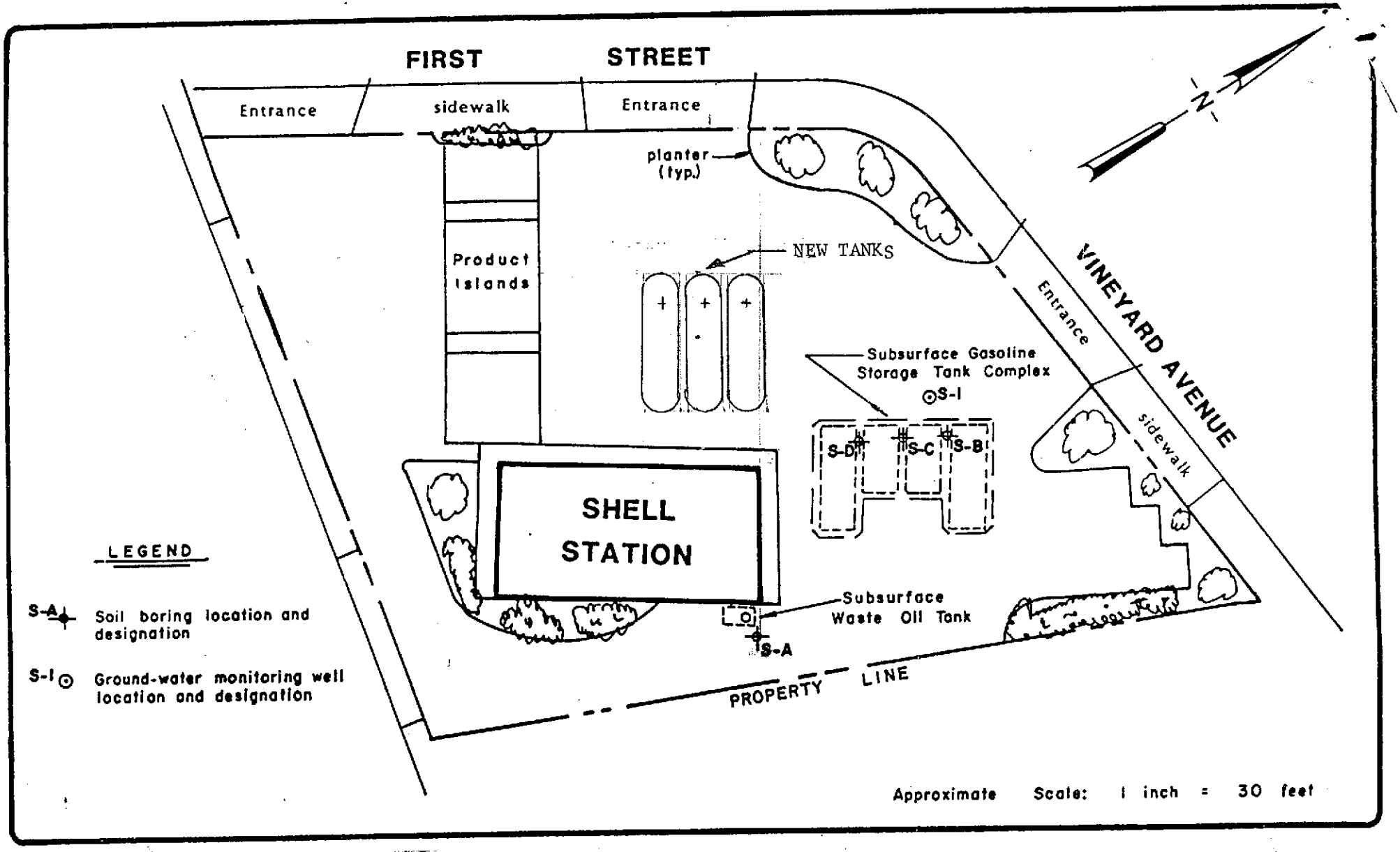
EMCON Associates

Michael G. Burns
Staff Geologist

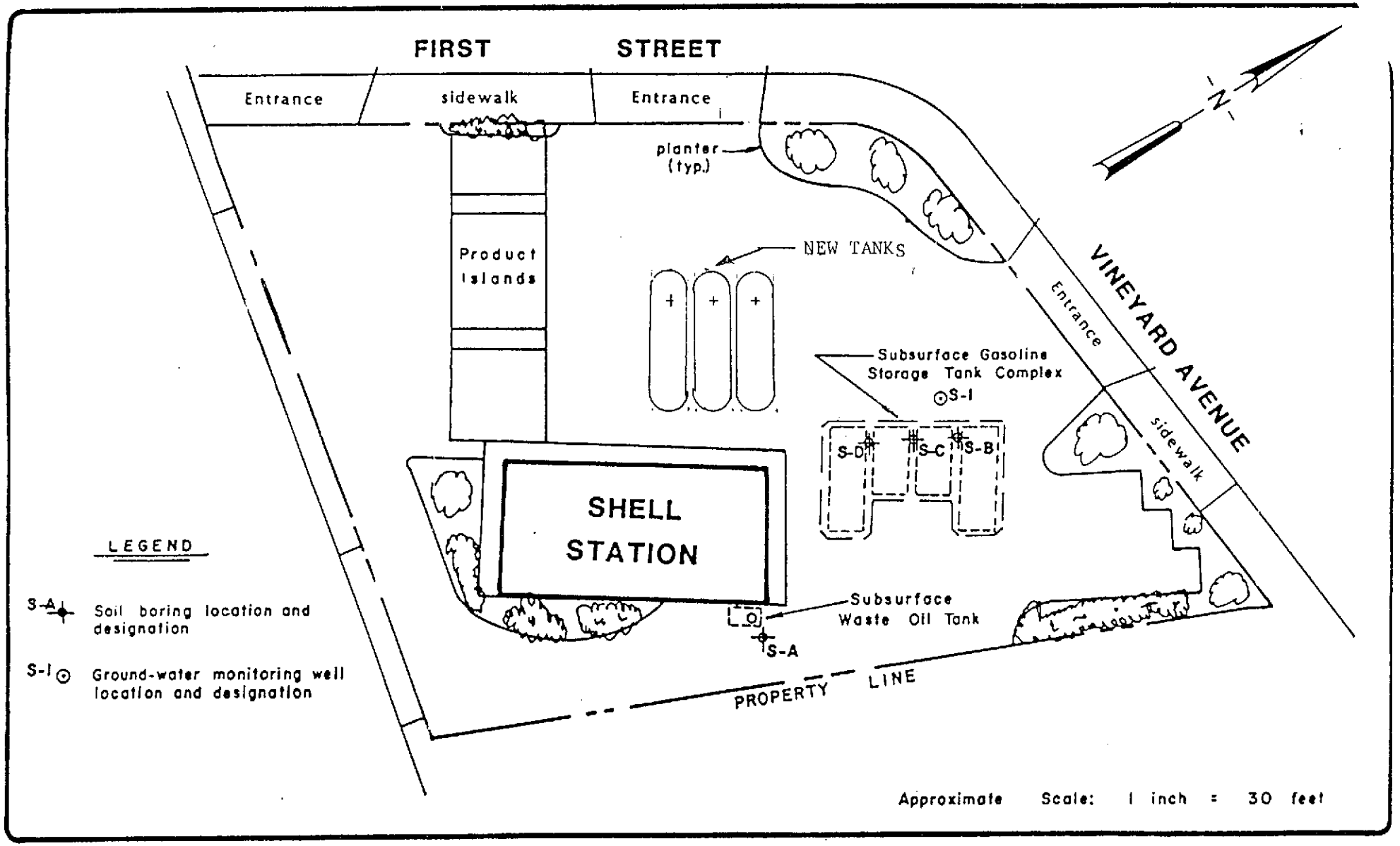
MGB:SMW/lms

Susan M. Willhite
Project Geologist

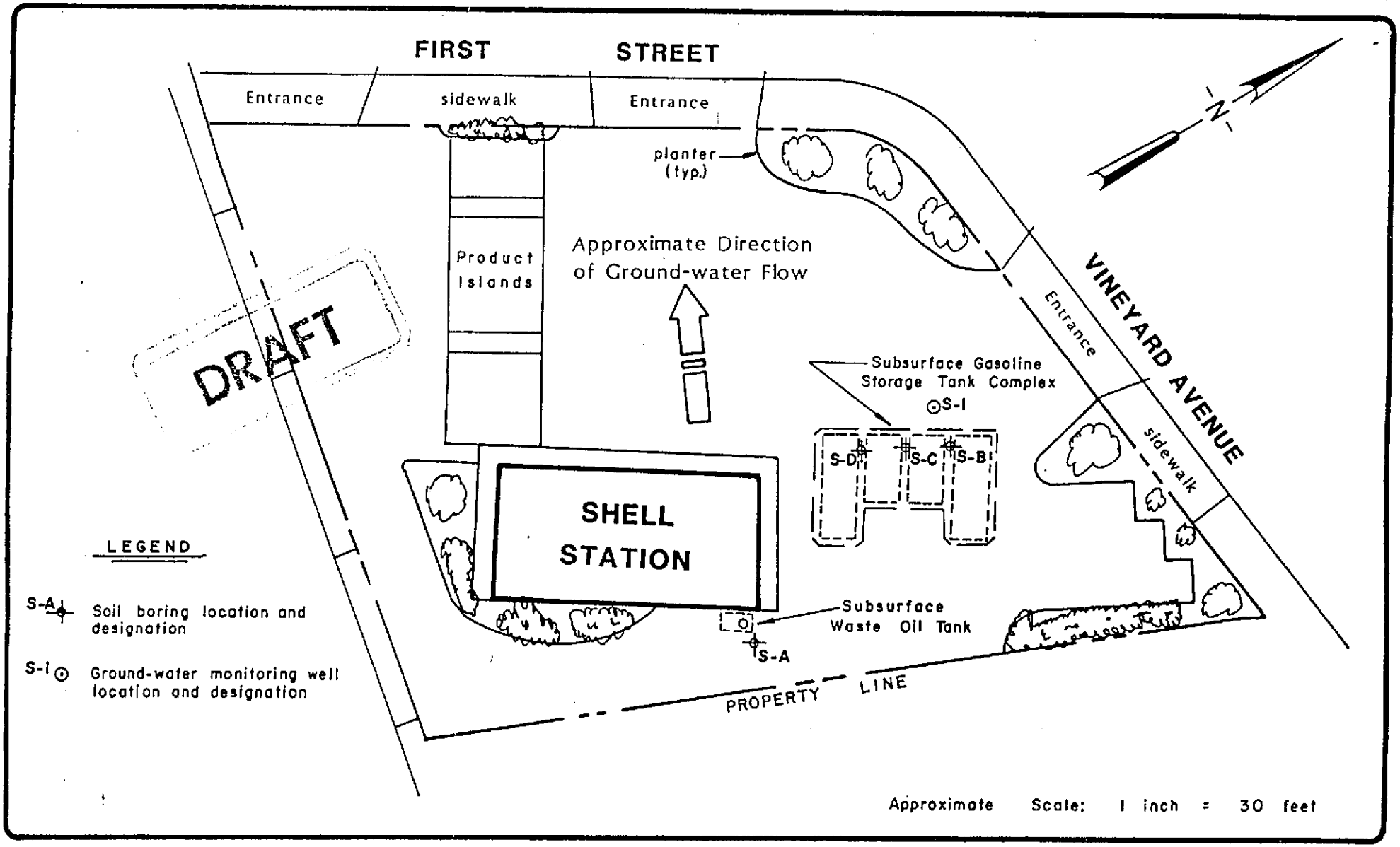
Enclosures



SHELL STATION
4226 FIRST ST.
PLEASANTON, CA



SHELL STATION
4226 FIRST ST.
PLEASANTON, CA



EMCON Associates
San Jose, California

GETTLER-RYAN, INC.
SUBSURFACE HYDROGEOLOGIC INVESTIGATION
SHELL STATION, FIRST STREET AND VINEYARD AVENUE
PLEASANTON, CALIFORNIA

SOIL BORING AND MONITORING WELL LOCATION MAP

FIGURE 1

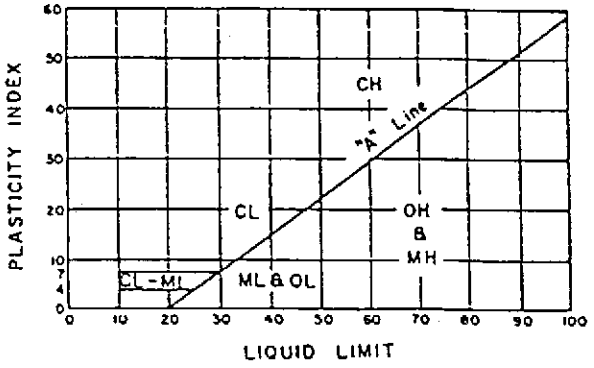
PROJECT NO. 738-60.01

MAJOR DIVISIONS		SYMBOLS	TYPICAL SOIL DESCRIPTIONS
COARSE GRAINED SOILS (More than 1/2 of soil > no. 200 sieve size)	GRAVELS (More than 1/2 of coarse fraction > no. 4 sieve size)	GW	Well graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 1/2 of coarse fraction < no. 4 sieve size)	SW	Well graded sands or gravelly sands, little or no fines
		SP	Poorly graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (More than 1/2 of soil < no. 200 sieve size)	SILTS & CLAYS LL < 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, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL > 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 silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

CLASSIFICATION CHART
(Unified Soil Classification System)

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.074
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

GRAIN SIZE CHART



PLASTICITY CHART

METHOD OF SOIL CLASSIFICATION

emcor ASSOCIATES

NOTES: Logs of Exploratory Borings

2.5 YR 6/2 — Denotes color as field checked to Munsell Soil Color Charts (1975 Edition)

 Denotes undisturbed sample taken in 2-inch split-spoon sampler.

 Denotes disturbed sample (bag sample).

 Denotes first observation of ground water.

 Denotes static ground-water level.

Penetration — Sample drive hammer weight - 140 pounds, drop - 30 inches. Blows required to drive sampler 1 foot are indicated on the logs.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 738-60.01 BORING NO. S-A

PROJECT NAME Gettler-Ryan, Shell, 4226 First St., Pleasanton PAGE 1 OF 1

BY MGB DATE 9/27/85 SURFACE ELEV. 375'±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				0			ASPHALT and SAND - Fill
						ML CL	GRAVELLY SILT - Fill; black (5Y, 2.5/2); 20% fine to coarse sand; 10% fine gravel; damp; no product odor.
				5			CLAY; light olive brown (2.5Y, 5/6); silty; 10% fine to medium sand; stiff; damp; no product odor.
	4.4	88			1		@7': no sand; hard; no product odor.
				10			@10': 20% fine gravel; no product odor.
	1.5	21		15	2		@14': 15-20% fine to medium sand; trace fine gravel; stiff; moist; no product odor.
	5	61		20	3		@18½': brownish yellow (10YR, 6/8); silty; hard; moist; no product odor.
							BOTTOM OF BORING AT 20 FEET.
				25			
				30			
				35			
				40			

DRAFT

REMARKS Drilled by 5-inch continuous flight auger; samples collected with 2-inch California modified split-spoon sampler; borehole backfilled with soil cuttings to ½ foot; concrete to surface.

EMCON ASSOCIATES

PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 738-60.01

PROJECT NAME Gettler-Ryan, Shell, 4226 First St. , Pleasanton

BY MGB DATE 9/27/85

BORING NO. S-B

PAGE 1 OF 1

SURFACE ELEV. 373'±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
		Push		5	1	SW	CONCRETE. SAND - Fill; very dark gray (5Y, 3/1); fine to coarse grained; trace fine gravel; trace fines; loose; damp; strong gasoline odor.
		2		10	2		@7': strong gasoline odor.
		64			3	GC	CLAYEY GRAVEL; olive gray (5Y, 5/2); to olive (5Y, 4/3); fine to coarse grained; 30% fines; 15% fine to coarse sand; very dense; damp; moderate gasoline odor.
	3.6	39		15	4	CL	CLAY; light olive brown (2.5Y, 5/6) to dark grayish brown (2.5Y, 4/2); 15% fine sand; trace coarse sand; very stiff; damp; no gasoline odor.
	2.3	41		20	5		@19': olive gray (5Y, 4/2) to olive (5Y, 5/6); 20% fine to medium sand; no coarse sand; no gasoline odor.
			▽				@24': olive (5Y, 4/4); 25% fine to coarse sand; very plastic; soft; faint gasoline odor.
	0.4	50for 6"		25	6		BOTTOM OF BORING AT 24½ FEET.
				30			
				35			
				40			

REMARKS Drilled by 8-inch continuous flight, hollow stem auger; samples collected with 2-inch California modified split-spoon sampler; borehole backfilled with soil cuttings to ½ foot; concrete to surface.

EMCON ASSOCIATES

PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 738-60.01 BORING NO. S-C

PROJECT NAME Gettler-Ryan, Shell, 4226 First St., Pleasanton PAGE 1 OF 1

BY MGB DATE 9/27/85 SURFACE ELEV. 373'±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				0		SW	CONCRETE.
		Push		5	1		**SAND** - Fill; very dark gray (5Y, 3/1); fine to coarse grained; trace fine gravel; trace fines; damp; strong gasoline odor.
		2			2		@7': loose; strong gasoline odor.
				10			
	4.3	30			3	CL	**CLAY**; olive (5Y, 5/6, 5/3); 20% fine to coarse sand; silty; hard; damp; no gasoline odor.
		50for 6"		15	4	GC	**CLAYEY GRAVEL**; olive (5Y, 5/6, 5/4); fine grained; 35% fine to coarse sand; 15% fines; very dense; damp; no gasoline odor.
	0.4	19		20	5	CL	**CLAY**; yellowish brown (10YR, 5/6, 5/8); 35% fine to coarse sand; silty; soft; moist; no gasoline odor.
		72		25	6	SW	**SAND**: olive (5Y, 4/3); fine to coarse grained; 10% fines; medium dense; moist; no gasoline odor.
		48			7	ML	**SANDY SILT**; light olive brown (2.5Y, 5/6) 40% fine sand; very stiff; moist; no gasoline odor.
				30		SC	**CLAYEY SAND**; olive brown (2.5Y, 4/4); fine to coarse grained; 40% clay; dense; moist; faint gasoline odor.
				35			BOTTOM OF BORING AT 28 FEET
				40			

REMARKS Drilled by 8-inch continuous flight, hollow-stem auger; samples collected with 2-inch California modified split-spoon sampler; borehole backfilled with concrete from 28 to 15 feet, soil cuttings to ½ foot ; concrete to surface.

EMCON ASSOCIATES

PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 738-60.01 BORING NO. S-D

PROJECT NAME Gettler-Ryan, Shell, 4226 First St., Pleasanton PAGE 1 OF 1

BY MGB DATE 9/27/85 SURFACE ELEV. 374'±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				0		SW	CONCRETE.
		Push		5	1		**SAND** - Fill; very dark gray (5Y, 3/1); fine to coarse grained; 15% fine gravel; trace fines; loose; damp; strong gasoline odor.
		2			2		@7': strong gasoline odor.
	4.25	37		10	3	CL	**CLAY**; olive yellow (5Y, 6/8) to olive (5Y, 4/3); 20% fine to coarse sand; silty; hard; damp; faint gasoline odor.
	5	44		15	4		@14': olive (5Y, 4/3); 35% fine to coarse sand; 10% fine gravel; faint gasoline odor.
	2.2	22		20	5		@19': olive (5Y, 4/3); to gray (5Y, 5/1); 20% fine to medium sand; slightly silty; very stiff; damp; faint gasoline odor.
	1.25	31			6	ML	**SANDY SILT**; olive (5Y, 4/4); 40% fine sand; slightly clayey; stiff; damp; faint gasoline odor.
				25			BOTTOM OF BORING AT 22½ FEET.
				30			
				35			
				40			

DRAFT

REMARKS Drilled by 8-inch continuous flight, hollow-stem auger; samples collected with 2-inch California modified split-spoon sampler; borehole backfilled with concrete from 22½ to 11½ feet, soil cuttings to ½ foot ; concrete to surface.

EMCON ASSOCIATES

PLATE D

LOG OF EXPLORATORY BORING

PROJECT NUMBER 738-60.01 BORING NO. S-1

PROJECT NAME Gettler-Ryan, Shell, 4226 First St., Pleasanton PAGE 1 OF 1

BY MGB DATE 9/27/85 SURFACE ELEV. 373'±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				0		SW SC	ASPHALT and GRAVEL - Fill **SAND** - Fill; very dark gray (5Y, 3/1); fine to coarse grained; 10% fine gravel; trace fines; damp; moderate gasoline odor.
				5			**CLAYEY SAND**; very dark gray (5Y, 3/1); fine to coarse grained; damp; moderate gasoline odor.
				10			
	4.25	34		15	1	CL	@12½': 10% fine gravel. **CLAY**; light olive brown (2.5Y, 5/6); 5% fine to coarse sand; silty; hard; damp; faint gasoline odor.
	3.6	28		20	2		@19': 20% fine to coarse sand; silty; very stiff; faint gasoline odor.
		57		25	3	GC	**CLAYEY GRAVEL**; olive (5Y, 5/4); fine grained; 35% fine to coarse sand; clayey; very dense; damp; no gasoline odor.
		60		30	4		@29': no gasoline odor.
				35			BOTTOM OF BORING AT 30½ FEET.
				40			

DRAFT

REMARKS Drilled by 8-inch continuous flight, hollow-stem auger; samples collected with 2-inch California modified split-spoon sampler; borehole converted to 3-inch monitoring well as detailed on Plate F.

EMCON ASSOCIATES

PLATE F

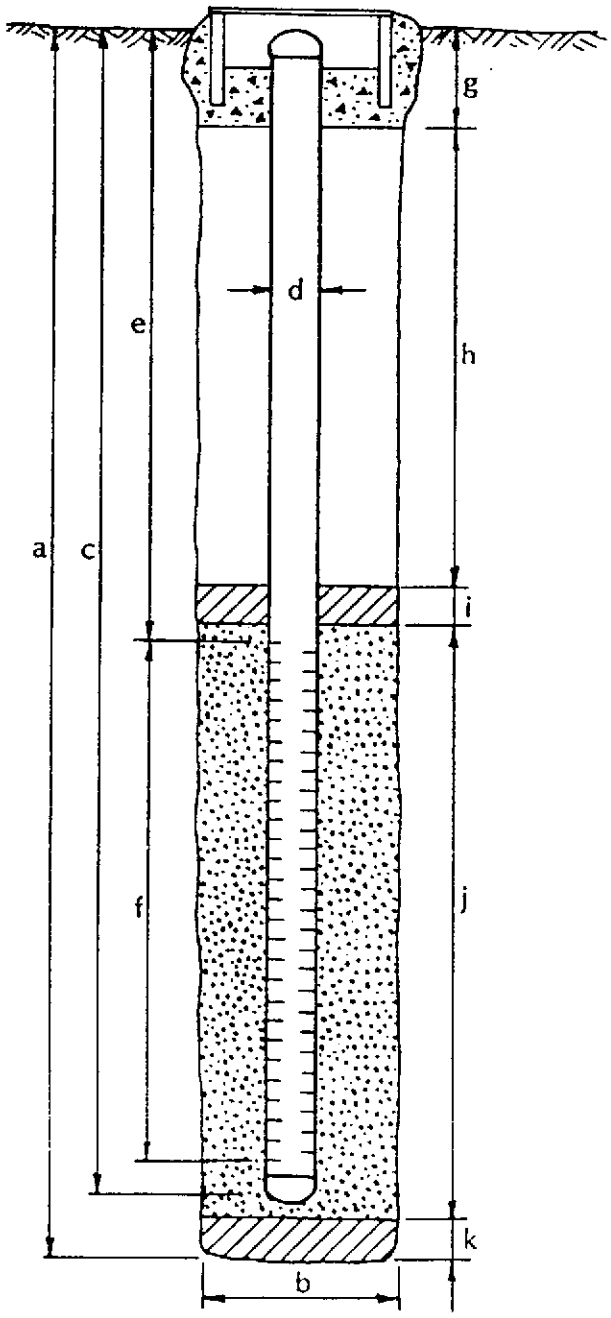
WELL DETAILS

EMKON ASSOCIATES

PROJECT NUMBER 738-60.01
PROJECT NAME Gettler-Ryan, Shell
COUNTY Alameda
WELL PERMIT NO.

BORING / WELL NO. S-1
TOP OF CASING ELEV.
GROUND SURFACE ELEV. 373'±
DATUM MSL

G-5 vault box (Std.)



EXPLORATORY BORING

a. Total depth 30½ ft.
b. Diameter 8 in.
Drilling method Hollow-Stem Auger

WELL CONSTRUCTION

c. Casing length 28½ ft.
Material Schedule 40 PVC
d. Diameter 3 in.
e. Depth to top perforations 14 ft.
f. Perforated length 14½ ft.
Perforated interval from 14 to 28½ ft.
Perforation type Machined Slot
Perforation size 0.020 inch
g. Surface seal 1 ft.
Seal material Concrete
h. Backfill 10 ft.
Backfill material Concrete
i. Seal 1 ft.
Seal material Bentonite
j. Gravel pack (12'-28½') 16½ ft.
Pack material Coarse Aquarium Sand
k. Bottom seal ___ ft.
Seal material DRAFT

NOTE: Caved to 28½ feet.

PLATE F

Emcon Associates
1921 Ringwood Ave
San Jose, CA 95131

October 23, 1985

ATTN: Erin Garner

Following are the results of analyses on the samples described below.

Project Number: 738-60.01

Lab Numbers: 32810, 32813-32818,32821
Number of Samples: 8
Sample Type: soils
Date Received: 10-1-85
Analyses Requested: volatile, semi-volatile and non-volatile fuel hydrocarbons

The method of analysis for volatile fuel hydrocarbons is taken from E.P.A. Methods 8015 and 5030. The samples are examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector.

The method of analysis for semi-volatile and non-volatile fuel hydrocarbons in soil involves extracting the samples with acetone. The mixture is partitioned with hexane and the resulting extracts are examined by gas chromatography using a flame ionization detector.

		Results
		Parts per Million- dry soil basis
Lab Number	Sample Identification	Semi- and Non-volatile Fuel Hydrocarbons (calculated as oil)
32810	GR Shell 9-27-85 S-A 1 @ 7-8.5	none detected
Detection Limit		20.

DRAFT

Patricia L. Murphy

PLM/mdf

IT/Santa Clara to Emcon
ATTN: Erin Garner

October 23, 1985

Lab Number: 32813
Sample Identification: GR Shell 9-27-85
S-B 1 @ 3.5-5

nd = none detected

Compound	Results (Parts per Million, dry soil basis) Detected	Detection Limit
Volatile Fuel Hydrocarbons (calculated as gasoline & includes benzene, toluene, xylenes and ethyl benzene)	2.	--
Benzene	nd	Ø.1
Toluene	nd	Ø.1
Xylenes and ethyl benzene	nd	Ø.4

IT/Santa Clara to Emcon
ATTN: Erin Garner

October 23, 1985

Lab Number: 32814
Sample Identification: GR Shell 9-27-85
S-B 2 @ 7-8.5

nd = none detected

Compound	Results: Parts per Million (dry soil basis) Detected	Detection Limit
Volatile Fuel Hydrocarbons (calculated as gasoline & includes benzene, toluene, xylenes and ethyl benzene)	400.	--
Benzene	nd	2.
Toluene	2.	--
Xylenes and ethyl benzene	32.	--

IT/Santa Clara to Emcon
ATTN: Erin Garner

October 23, 1985

Lab Number: 32815
Sample Identification: GR Shell 9-27-85
S-B 3 @ 10.5-12

nd = none detected

Compound	Results (Parts per Million, dry soil basis) Detected	Detection Limit
Volatile Fuel Hydrocarbons (calculated as gasoline & includes benzene, toluene, xylenes and ethyl benzene)	610.	--
Benzene	nd	2.
Toluene	3.5	--
Xylenes and ethyl benzene	63.	--

IT/Santa Clara to Emcon
ATTN: Erin Garner

October 23, 1985

Lab Number: 32816
Sample Identification: GR Shell 9-27-85
S-B 4 @ 14-15.5

nd = none detected

Compound	Results: Parts per Million (dry soil basis) Detected	Detection Limit
Volatile Fuel Hydrocarbons (calculated as gasoline & includes benzene, toluene, xylenes and ethyl benzene)	1,300.	—
Benzene	nd	2.5
Toluene	9.6	—
Xylenes and ethyl benzene	260.	—

IT/Santa Clara to Emcon
ATTN: Erin Garner

October 23, 1985

Lab Number: 32817
Sample Identification: GR Shell 9-27-85
S-B 5 @ 19-20.5

nd = none detected

Compound	Results (Parts per Million, dry soil basis) Detected	Detection Limit
Volatile Fuel Hydrocarbons (calculated as gasoline & includes benzene, toluene, xylenes and ethyl benzene)	nd	2.
Benzene	nd	0.1
Toluene	nd	0.1
Xylenes and ethyl benzene	nd	0.4

IT/Santa Clara to Emcon
ATTN: Erin Garner

October 23, 1985

Lab Number: 32818
Sample Identification: GR Shell 9-27-85
S-C 3 @ 10.5-12

nd = none detected

Compound	Results (Parts per Million, dry soil basis) Detected	Detection Limit
Volatile Fuel Hydrocarbons (calculated as gasoline & includes benzene, toluene, xylenes and ethyl benzene)	nd	2.
Benzene	nd	0.1
Toluene	nd	0.1
Xylenes and ethyl benzene	nd	0.4

IT/Santa Clara to Emcon
ATTN: Erin Garner

October 23, 1985

Lab Number: 32821
Sample Identification: GR Shell 9-27-85
S-D 3 @ 10.5-12

nd = none detected

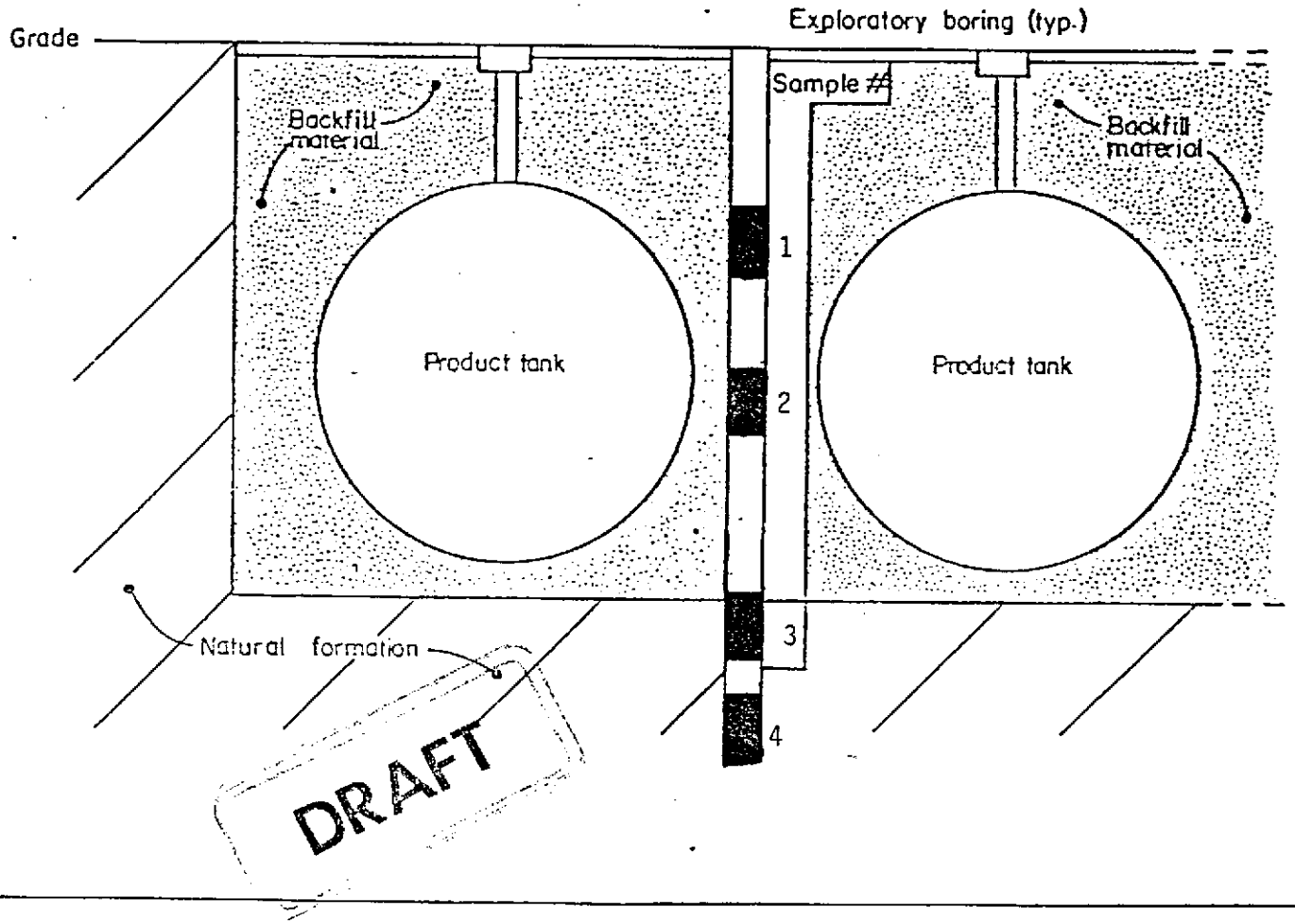
Compound	Results (Parts per Million, dry soil basis) Detected	Detection Limit
Volatile Fuel Hydrocarbons (calculated as gasoline & includes benzene, toluene, xylenes and ethyl benzene)	nd	2.
Benzene	nd	0.1
Toluene	nd	0.1
Xylenes and ethyl benzene	nd	0.4

EMCON ASSOCIATES

GETTLER-RYAN, INC.

GENERALIZED PROFILE OF SUBSURFACE TANK COMPLEX AND GASOLINE CONCENTRATIONS WITHIN BACKFILL MATERIAL

PROJECT NUMBER 738-60.01
PROJECT NAME Shell, 1st and Vineyard, Pleas.
NUMBER OF TANKS IN COMPLEX 4
MAPVIEW DIMENSIONS 40' x 25'
APPROXIMATE DEPTH 10 ½'



SAMPLE #	BORING	DEPTH INTERVAL	GASOLINE CONCENTRATION (parts per million)
1	S-B	3 ½' - 5'	2
2	S-B	7' - 8 ½'	460
3	S-B	10 ½' - 12'	610
4	S-B	14' - 15½'	1,300
		Detection Limit	2