EMCON
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Consultants in Wastes
Management and
Environmental Control

GETTLER-RYAN INC.
GENERAL CONTRACTORS

July 26, 1985
Project 738-02.01

Gettler-Ryan, Incorporated
1992 National Avenue
Hayward, California 84545

Attention: Mr. Jeffrey M. Ryan

Re: Shell Service Station,
MacArthur and High
Streets, Oakland,
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 MacArthur and High Streets in Oakland, 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

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

Upon completion, Boring S-1 was converted to a ground-water monitoring well by the installation of 3-inch-diameter PVC casing. Well construction details accompany the attached exploratory boring logs. Borings S-A and S-B were backfilled with soil cuttings to a depth of 0.5 foot and cement to the ground surface.

SITE CONDITIONS

Soil Borings S-A and S-B were placed within the subsurface gasoline complex. Ground-water monitoring Well S-1 was placed downgradient of the subsurface tank complex. Subsurface conditions explored during drilling ranged in depth from 20 to 30 feet. Boring S-1 encountered clay to the total depth explored of 30 feet. Boring S-A encountered gravel, sand and clay fill materials to a depth of 6 feet, underlain by sandy clay to a depth of 20 feet, the total depth explored. Boring S-B encountered gravelly clay fill to a depth of 11 feet, underlain by clay to a depth of 20 feet. Ground water was encountered in all borings at a depth of approximately 20 feet.

Product odor was noted in soils; from Boring S-A to a depth of 10.5 feet, in Boring S-B to a depth of approximately 8 feet, and in Boring S-1 to a depth of 20 feet.

LABORATORY INVESTIGATIONS AND RESULTS

Selected soil samples from all three borings were analyzed for gasoline. Gasoline was detected in soil samples collected from Boring S-A only. Laboratory analysis of soils from Boring S-A revealed gasoline concentrations of 15,800 parts per million (ppm) at a depth of 4 to 5.5 feet and 2 ppm at a depth of 8.5 to 10 feet. No gasoline was detected in soil samples collected from all borings (S-1, S-A and S-B) between a depth of 10 to 15 feet.

Laboratory analysis of the ground-water sample collected from Well S-1 revealed dissolved gasoline concentrations of 840 micrograms per liter (ug/l) or 840 parts per billion.

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

Very truly yours,

EMCON Associates

Erin Garner

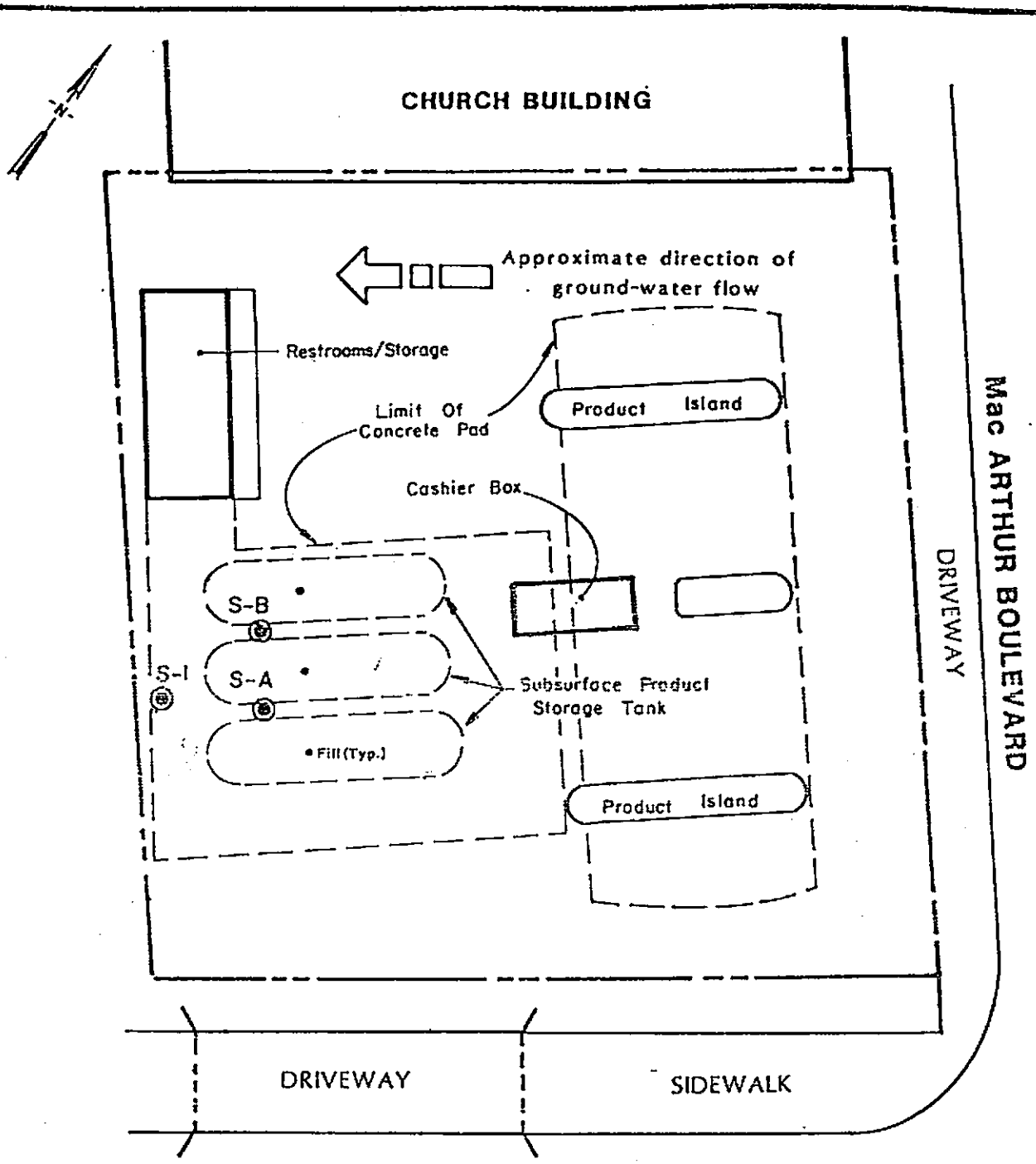
Erin Garner
Staff Geologist

Susan Willhite

Susan M. Willhite
Project Geologist

EG/SMW:mtg

Enclosures



Approximate Scale: 1" = 20'

LEGEND

◉ Monitoring well location

EMCON Associates
San Jose, California

GETTLER-RYAN, INC.
SUBSURFACE HYDROGEOLOGIC INVESTIGATION
SHELL STATION, MacARTHUR & HIGH STREET
OAKLAND, CALIFORNIA

MONITORING WELL LOCATION MAP

FIGURE 1

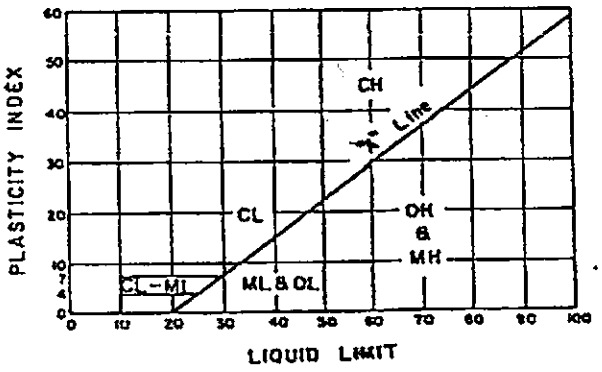
PROJECT NO. 738-02.01

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

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 738-02.01 BORING NO. S-A

PROJECT NAME Gettler-Ryan, Shell, High and MacArthur PAGE 1 OF 1

BY JB DATE 6/10/85 SURFACE ELEV.

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				0		GW FILL	CONCRETE GRAVEL; Fill; brown (10YR, 5/3); coarse gravel, 10-20% sand; strong product odor
				5	1	SW FILL	SAND; Fill; brown (10YR, 5/3); fine to coarse sand; loose; moist; strong product odor.
						CL FILL	CLAY; Fill; yellowish brown (10YR, 5/4); 30-40% fine to medium sand; moist; strong product odor.
	2.25	29		10	2		
	3.25	35			3	CL	CLAY; yellowish brown (10YR, 5/4); trace sand; very stiff; no product odor.
	2.5	63		15	4		@14': yellowish brown (10YR, 5/6); interbedded clay and sandy clay
	2.5	60	▽	20			@19': blue-green; 5-10% fine to coarse gravel; trace fine sand; hard; moist; no product odor HOLE TERMINATED at 20 feet SUFFICIENT INFORMATION OBTAINED.

REMARKS Drilled by 8-inch continuous flight hollow stem auger

Backfilled with soil cuttings to 0.5 feet, cement to 0 feet.

EMCON ASSOCIATES

PLATE A

LOG OF EXPLORATORY BORING

PROJECT NUMBER 738-02.01 BORING NO. S-B

PROJECT NAME Gettler-Ryan, Shell, High and MacArthur PAGE 1 OF 1

BY JB DATE 6/10/85 SURFACE ELEV.

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				0			CONCRETE
						CL FILL	CLAY; Fill; dark grayish brown (2.5Y, 4/2); 10-20% fine to coarse gravel; trace fine sand; strong product odor.
				5			
				10			@10': olive (5Y, 5/3); trace fine to medium sand; firm; moist; slight product odor.
						CL	CLAY; light olive brown (2.5Y, 5/4); 10-15% fine to medium sand; 15% fine gravel; silty; hard; moist; no product odor.
	5	43			1		
				15			
							@18.5': blue-green; very silty; 5-10% fine gravel; trace fine sand; hard; moist no product odor.
	2.5	56	▽	20	2		HOLE TERMINATED at 30 feet; SUFFICIENT INFORMATION OBTAINED

REMARKS

Drilled by 8-inch continuous flight hollow-stem auger.
Backfilled with soil cuttings to 0.5 feet, cement to 0 feet.

EMCON ASSOCIATES

LOG OF EXPLORATORY BORING

PROJECT NUMBER 738-02.01 BORING NO. S-1

PROJECT NAME Gettler-Ryan, Shell, High and MacArthur PAGE 1 OF 1

BY JB DATE 6/10/85 SURFACE ELEV.

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				0			ASPHALT CLAY; Fill; slight product odor
				5		CL	CLAY; yellowish brown (10YR, 5/4); 10-20% fine to coarse gravel; trace fine sand strong product odor.
				10			
	5	34		15	1		@15': 20-25% fine to coarse sand; silty; 10-20% fine to medium gravel; hard; moist; slight product odor.
	5	38	▽	20	2		@18.5-20': greenish blue to light olive brown (2.5Y, 5/6); 10-20% fine to coarse gravel; trace fine sand; hard; moist moderate product odor.
	3.75	32		25	3		@24': grayish brown (2.5Y, 5/2); 5-10% coarse gravel; trace fine sand; very stiff; no product odor.
	4.5	30		30	4		@29': yellowish brown (10YR, 5/4) silty; 10-15% fine to medium sand; very stiff; moist; no product odor.
				35			HOLE TERMINATED at 30 feet: SUFFICIENT INFORMATION OBTAINED.
				40			

REMARKS Drilled by 8-inch continuous flight hollow stem auger
Converted to 3-inch monitoring well, detailed on Plate D.

EMCON ASSOCIATES

PLATE C

WELL DETAILS

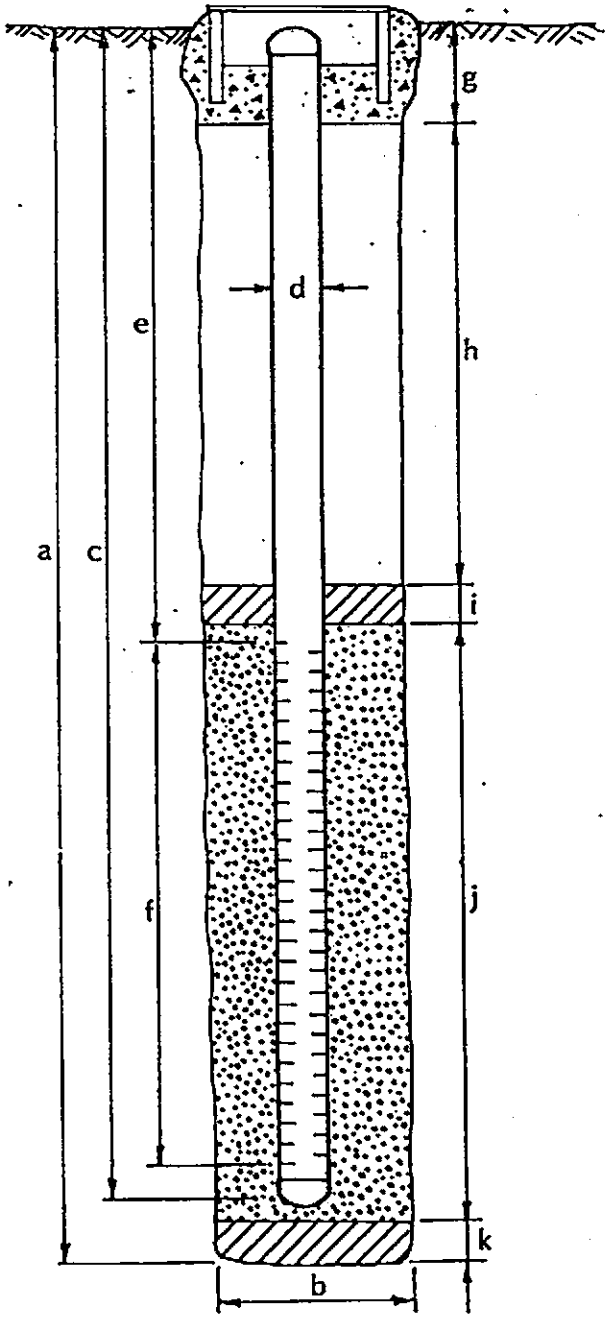
PROJECT NUMBER 738-02.01 BORING / WELL NO. S-1

PROJECT NAME Gettler-Ryan, Shell TOP OF CASING ELEV. ____

COUNTY Alameda GROUND SURFACE ELEV. ____

WELL PERMIT NO. ____ DATUM ____

G-5 vault box (Std.)



EXPLORATORY BORING

a. Total depth 30 ft.

b. Diameter 8 in.

Drilling method Hollow-Stem Auger

WELL CONSTRUCTION

c. Casing length 29 ft.

Material Schedule 40 PVC

d. Diameter 3 in.

e. Depth to top perforations 18 ft.

f. Perforated length 11 ft.

Perforated interval from 18 to 29 ft.

Perforation type Slotted Screen

Perforation size 0.020 inch

g. Surface seal 4.5 ft.

Seal material Cement

h. Backfill - ft.

Backfill material Included in g.

i. Seal 0.5 ft.

Seal material Bentonite

j. Gravel pack (5 to 29 ft.) 24 ft.

Pack material 6 x 12 Monterey Sand

k. Bottom seal 1 ft.

Seal material Compacted Clay

PLATE D

STONER
LABORATORIES

397 MATHEW STREET, SANTA CLARA, CALIFORNIA 95050-3158 (408) 727-4277

JUL 10 1985

July 5, 1985

Emcon Associates
90 Archer Street
San Jose, CA 95112

Reference: Shell Oil P.O. MOH056750

ATTN: Erin Garner

Following are the results of our analysis for the presence of volatile hydrocarbons due to gasoline in six of eight samples of soil received on June 20, 1985.

The samples were examined using the purge and trap technique. Final detection was by gas chromatography using a flame ionization detector and a Carbopack B/3% SP-1500 column. This method allows for the detection of aliphatic hydrocarbons from C_5 through C_{10} and aromatic hydrocarbons through substituted benzenes. Hydrocarbons C_5-C_7, benzene and toluene were calculated by comparing the sample chromatogram to a fresh gasoline standard. Hydrocarbons C_8-C_{10} ethyl benzene, xylenes and other substituted aromatics were calculated by comparing to a standard of gasoline which had been evaporated to 35% of its original weight. The results given below are the sum of hydrocarbons in these two ranges.

nd = none detected

Lab. #	Sample Identification	Results Parts per Million (dry soil basis) Volatile Hydrocarbons Due to Gasoline
	Job 738-02.01, 6/10/85 4255 MacArthur & High	
29536	S-1 @ 13.5 - 15'	nd
29537	S-1 @ 18.5 - 20'	nd
29538	S-A @ 4 - 5.5'	15,800.
29539	S-A @ 8.5 - 10'	2.
29540	S-A @ 10 - 11.5'	nd
29542	S-B @ 13.5 - 15'	nd
Detection Limit		2.

Patricia L. Murphy

Patricia L. Murphy

PLM/jd

cc: Stan Roller
Shell Oil Company

EMCON ASSOCIATES • CHEMICAL LABORATORIES

Analysis • Consultation • Research • Environmental Studies
State Approved Water Laboratory

CERTIFIED ANALYTICAL REPORT

Report to: Gettler-Ryan
1992 National Avenue
Hayward, CA 94545

Location: Shell

Date Received July 3, 1985

Laboratory Number E85-0515

Project Number 738-02.01

Date Sampled July 3, 1985

WATER

SAMPLE ID	S-1
SAMPLE DATE	7/3
PARAMETER	
Benzene ug/l	76.
Toluene ug/l	22.
Xylenes and Ethylbenzene ug/l	57.
Gasoline ug/l	840

Reported by: Philip Murphy Date: 7-24-85

STONER
LABORATORIES

397 MATHEW STREET, SANTA CLARA, CALIFORNIA 95050-3158 (408) 727-4277

July 5, 1985

Emcon Associates
90 Archer Street
San Jose, CA 95112

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29540	S-A @ 10 - 11.5'	nd
29542	S-B @ 13.5 - 15'	nd
Detection Limit		2.

Patricia L. Murphy

PLM/jd

cc: Stan Roller
Shell Oil Company

Trace Analysis Laboratory, Inc.
3 23 Investment Boulevard, #8 • Hayward, California 94545 (415) 783-6960

TAL

DATE: 12/2/85

TAL NO.: 3149-A

CUSTOMER: Gettler - Ryan

REQUESTER: Phil Wright

SAMPLES: Soils from #738-2.2, G.R. Shell, 11/27/85

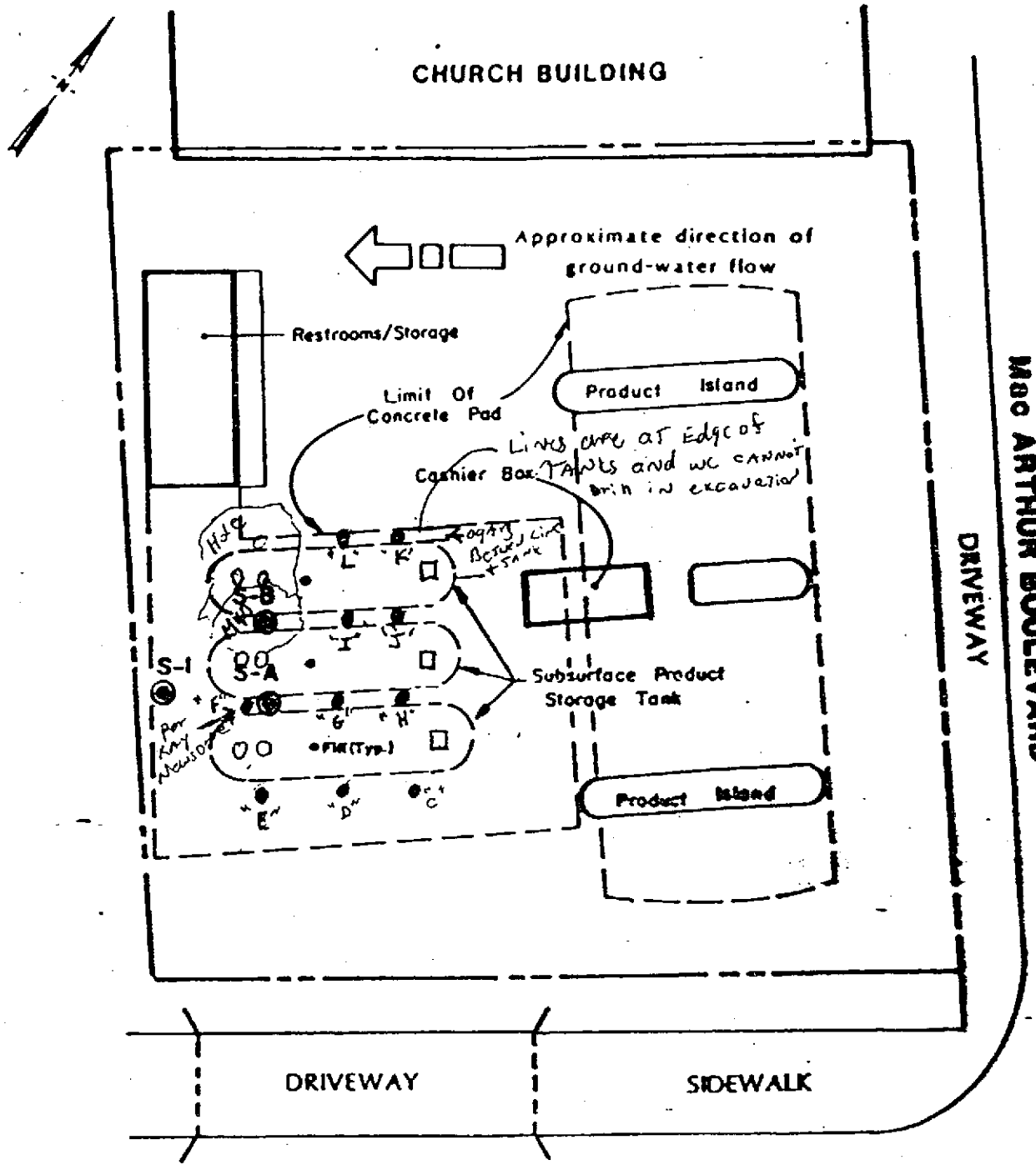
SHELL STATION
4255 MACARTHUR BLVD.
OAKLAND, CA.

Item	I.D.	Location feet	Total Volatile hydrocarbons mg/kg	Benzene mg/kg	Toluene mg/kg	Xylene total 3 isom mg/kg
1	SC-1	3.5-5	740	3.8	40	66
2	SC-2	7-8.5	2600	9.2	86	110
3	SC-3	11-12.5	63	1.6	2.4	1.8
4	SC-4	13.5-15	82	1.4	1.5	1.8
5	SD-1	3.5-5	11,000	290	770	2400
6	SD-2	7-8.5	9100	450	1500	4500
7	SD-3	11-12.5	67	1.3	1.3	1.0
8	SD-4	13.5-15	34	0.60	0.80	0.72
9	SE-1	3.5-5	22,000	500	1700	2700
10	SE-2	7-8.5	12,000	290	890	2700
11	SE-3	11-12.5	64	2.1	3.0	1.9
12	SF-1	3.5-5	13,000	320	940	2600
13	SF-2	7-8.5	670	17	29	57
14	SF-3	11-12.5	83	4.6	11	8.0
15	SF-4	13.5-15	23	0.50	0.37	0.35
16	SG-1	3.5-5	5300	390	1100	1500
17	SG-2	7-8.5	380	11	19	22
18	SG-3	11-12.5	62	2.5	5.9	7.5
19	SH-1	~~7.5-8~~ 3.5-5	17,000	370	1100	3200
20	SH-2	7.5-8	10,000	210	670	1800
21	SH-3	11-12.5	160	5.8	22	25
22	SI-1	3.5-5	2600	44	160	730

Item	I.D.	Location feet	Total Volatile hydrocarbons mg/kg	Benzene mg/kg	Toluene mg/kg	Xylene total 3 isom mg/kg
23	SI-2	7.5-8	95	11	32	46
24	SJ-1	3.5-5	3,000	46	210	560
25	SJ-2	7.5-8	200	25	160	360
26	SJ-3	11-12.5	67	3.0	3.0	2.1
27	SK-1	3.5-5	710	17	85	234
28	SK-2	7.5-8	19,000	340	2200	2800
29	SL-1	3.5-5	270	7.8	7.8	9.5

S. C. Furman, Ph.D.
Laboratory Director

SCF:ee



LEGEND

◉ Monitoring well location

Approximate Scale: 1" = 20'

EMCON Associates
San Jose, California

GETTLER-RYAN, INC.
SUBSURFACE HYDROGEOLOGIC INVESTIGATION
SHELL STATION, MacARTHUR & HIGH STREET
OAKLAND, CALIFORNIA

MONITORING WELL LOCATION MAP

FIGURE 1

PROJECT NO. 738-0201

11 0102

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545 (415) 783-6960

TAL

DATE: 12/02/85

TAL NO.: 3149-B

CUSTOMER: Gettler-Ryan

REQUESTER: Phil Wright

PROJECT I.D.: Soil for heavy metal analyses
SHELL STATION
4255 MACARTHUR
OAKLAND, CA.

Element	Soil # SC-1 mg/Kg	Soil # SC-2 mg/Kg	Soil # SC-3 mg/Kg	Soil # SC-4 mg/Kg	Soil # SD-1 mg/Kg	Soil # SD-2 mg/Kg	Soil # SD-3 mg/Kg
V	< 20	< 20	< 20	< 20	< 9	< 6	< 20
Cr	< 20	< 20	26	21	56	84	25
Co	< 20	< 10	< 20	< 20	< 7	< 7	< 20
Ni	< 10	< 3	< 3	< 3	< 6	< 4	< 3
Cu	19	29	23	22	880	1800	24
Zn	19	21	15	25	460	400	22
Hg	< 2	2.3	< 3	< 3	< 2	< 2	< 2
Pb	10.	12	6.6	17	230	250	4.3
Se	< 1	< 2	< 2	< 3	1.9	1.2	< 3
As	< 5	< 3	< 3	< 3	12	14	< 3
Ag	< 2	< 3	< 2	< 2	< 2	< 3	< 2
Cd	< 7	< 10	< 7	< 20	< 7	19	< 20
Sb	< 6	< 6	< 5	< 5	< 5	< 6	< 5
Mo	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Tl	< 0.6	< 0.5	< 0.6	< 0.6	< 0.4	< 0.4	< 0.7
Ba	< 300	< 300	< 300	< 300	< 300	< 300	< 300
Be	< 100	< 100	< 100	< 100	< 100	< 100	< 100

S. C. Furman Ph.D.
Laboratory Director

SCF:vs

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545 *(415) 783-6960*

TAL

DATE: 12/02/85

TAL NO.: 3149-B

CUSTOMER: Gettler-Ryan

REQUESTER: Phil Wright

PROJECT I.D.: Soil for heavy metal analyses

Element	Soil #-SD-4 mg/Kg	Soil # SE-1 mg/Kg	Soil # SE-2 mg/Kg	Soil # SE-3 mg/Kg	Soil # SF-1 mg/Kg	Soil # SF-2 mg/Kg	Soil # SF-3 mg/Kg
V	< 10	< 5	< 7	< 20	< 7	< 20	< 10
Cr	< 20	170	75	18	48	27	14
Co	14	< 10	< 7	< 20	< 6	< 20	< 10
Ni	< 3	< 6	< 2	17	< 2	< 4	< 2
Cu	20	2200	1600	19	880	60	300
Zn	11	820	520	22	590	28	82
Hg	< 2	< 3	< 2	< 2	< 1	< 2	< 3
Pb	< 4	620	360	11	170	8.8	41
Se	< 2	2.3	2.0	< 2	1.2	< 2	< 2
As	< 3	24	< 3	< 3	9.0	< 3	4.7
Ag	< 3	< 2	< 2	< 2	< 2	< 2	< 2
Cd	< 20	< 10	< 10	< 20	< 7	< 10	< 5
Sb	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Mo	< 2	< 2	< 2	< 2	< 0.6	< 2	< 2
Tl	< 0.8	< 0.7	< 0.6	< 0.7	< 0.6	< 0.7	< 0.7
Ba	< 300	< 300	< 300	< 300	< 300	< 300	< 300
Be	< 100	< 100	< 100	< 100	< 100	< 100	< 100

S. C. Furman Ph.D.
Laboratory Director

SCF:vs

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545 (415) 783-6960

TAL

DATE: 12/02/85

TAL NO.: 3149-B

CUSTOMER: Gettler-Ryan

REQUESTER: Phil Wright

PROJECT I.D.: Soil for heavy metal analyses

Element	Soil # SF-4 mg/Kg	Soil # SG-1 mg/Kg	Soil # SG-2 mg/Kg	Soil # SG-3 mg/Kg	Soil # SH-1 mg/Kg	Soil # SH-2 mg/Kg	Soil # SH-3 mg/Kg
V	<20	<20	<20	<20	<20	85	<20
Cr	<20	37	20	13	91	140	26
Co	<20	<20	<20	<20	<10	<10	<20
Ni	<3	<3	<4	<3	<3	<3	<3
Cu	110	1200	80	41	2400	2100	15
Zn	39	1400	81	41	820	890	21
Hg	<3	<2	<2	<2	<2	<3	<2
Pb	29	400	45	20	380	520	12
Se	<3	3.5	<2	<2	<2	<2	2.1
As	<3	26	<3	<3	9.7	27	<3
Ag	<2	<2	<2	<2	<2	<2	<2
Cd	<20	<10	<20	<10	4.4	<5	<10
Sb	<5	<5	<5	<5	<5	<5	<5
Mo	<2	<2	<2	<2	<2	<2	<2
Tl	<0.8	<0.8	<0.7	<0.7	<0.3	<0.7	<0.7
Ba	<300	<300	<300	<300	<300	<500	<300
Be	<100	<100	<100	<100	<100	<100	<100

S. C. Furman Ph.D.
Laboratory Director

SCF:vs

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545 *(415) 783-6960*

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REQUESTER: Phil Wright

PROJECT I.D.: Soil for heavy metal analyses

Element	Soil # SI-1 mg/Kg	Soil # SI-2 mg/Kg	Soil # SJ-1 mg/Kg	Soil # SJ-2 mg/Kg	Soil # SJ-3 mg/Kg	Soil # SK-1 mg/Kg	Soil # SK-2 mg/Kg
V	<20	<20	<20	<20	<20	<20	<10
Cr	35	<20	15	23	18	21	50
Co	<10	<20	<10	<20	<20	<20	<10
Ni	<4	<4	<3	<3	<3	<4	<3
Cu	220	30	22	21	20	18	1300
Zn	360	32	20	24	25	22	390
Hg	<2	<2	2.2	<2	<2	<2	<4
Pb	92	23	7.5	19	7.2	18	190
Se	<2	<2	2.4	<2	<2	<2	<2
As	<3	<3	<2	<3	<3	<3	<13
Ag	<2	<2	<2	<2	<2	<2	<2
Cd	<7	<9	<4	<9	<20	<10	<7
Sb	<5	<5	<5	<5	<5	<5	<5
Mo	<2	<2	<2	<2	<2	<2	<2
Tl	<0.6	<0.6	<0.8	<0.8	<0.8	<0.8	<0.8
Ba	<300	<300	<300	<300	<300	<300	<300
Be	<100	<100	<100	<100	<100	<100	<100

S. C. Furman Ph.D.
Laboratory Director

SCF:vs

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545 (415) 783-6960

DATE: 12/02/85

TAL NO.: 3149-B

CUSTOMER: Gettler-Ryan

REQUESTER: Phil Wright

PROJECT I.D.: Soil for heavy metal analyses

Element	Soil # SL-1 mg/Kg
V	< 8
Cr	32
Co	< 8
Ni	< 2
Cu	380
Zn	160
Hg	< 3
Pb	110
Se	< 2
As	4.9
Ag	< 2
Cd	< 7
Sb	< 5
Mo	< 2
Tl	< 0.7
Ba	< 300
Be	< 100

S. C. Furman Ph.D.
Laboratory Director

SCF:vs

gettler - ryan inc.
general contractors

December 20, 1985

Mr. Ray Newsome
Shell Oil Company
Post Office Box 7004
Lafayette, California 94549

Reference: Shell Service Station
4255 MacArthur Boulevard
Oakland, California

Gentlemen:

Enclosed is a copy of the Soil Analysis Report from Blaine Tech Services for the referenced location.

Please do not hesitate to call should you have any questions or comments.

Bill D. Knutson

BDK/jh

Enclosure

1992 national avenue • hayward, california 94545 • 783-7500

BLAINE
TECH SERVICES

P.O. BOX 5
SAN JOSE, CA 9
(408) 723-3

December 11, 1985

Gettler Ryan
1992 National Ave.
Hayward, CA 94545

Attention: Bill Knutesen

Re: Sampling of stockpiled soil that had been returned to the pit at

Shell Station
4255 McArthur Blvd.
Oakland, CA
on
November 21, 1985

SAMPLING REPORT

Sampling was performed in accordance with approved methodology at the location shown on the accompanying site diagram. The lab number assigned to the sample is given on the site diagram. The sample was collected in the appropriate container, which was sealed, chilled and transported to the laboratory for analysis. Analytical services were provided by McIntosh Laboratories and the Radiation Detection Company with a separate report referencing their lab numbers.

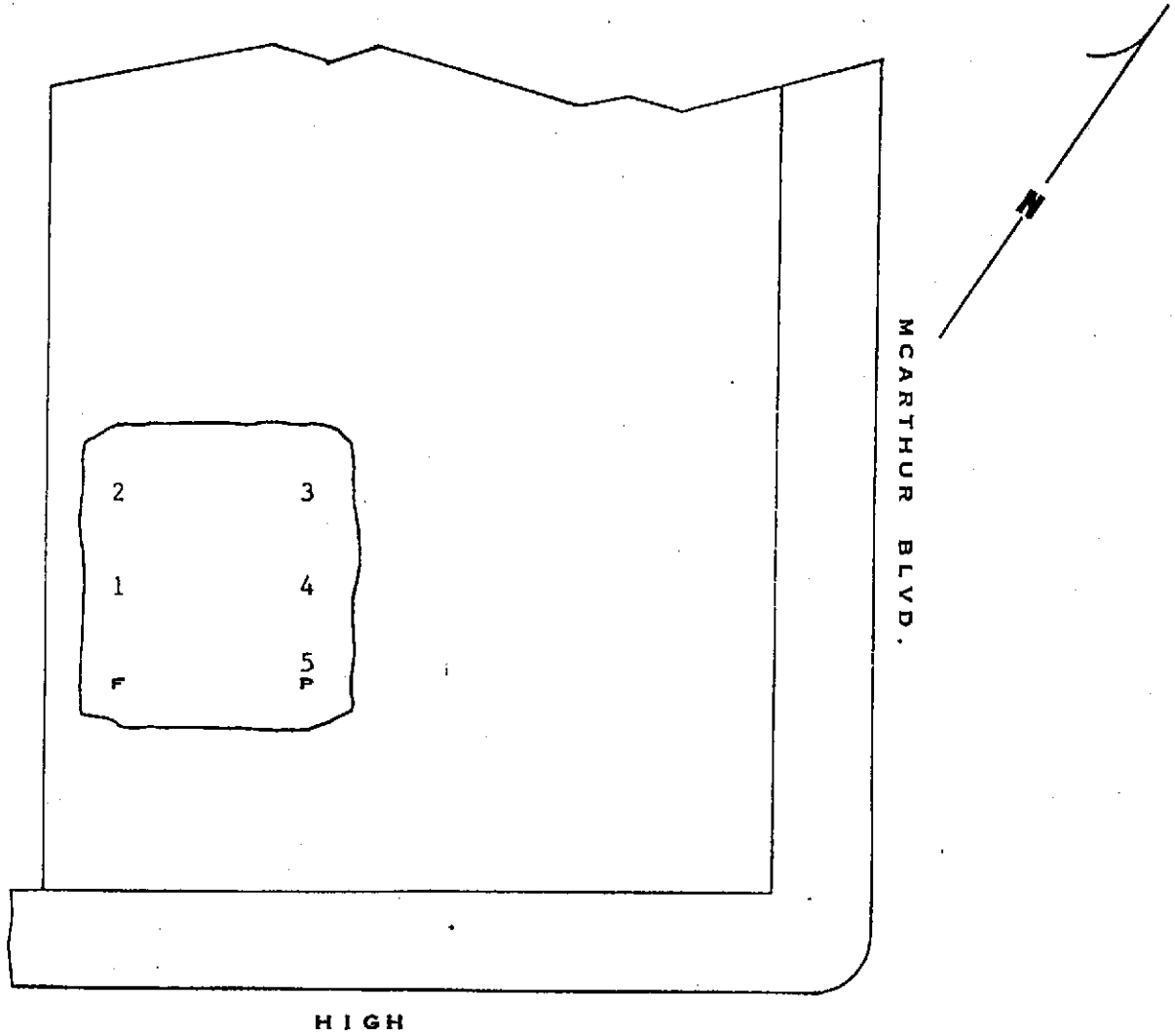
The sample was tested for radioactivity (gross beta & gross alpha), chrosivity (pH), flammability (flash point), and toxicity (arsenic, barium, cadmium, total chromium, lead, mercury, selenium and silver).

Reportage

Submission to the Regional Water Quality Control Board and the Fire Department should include copies of both the sampling report and the McIntosh Laboratories report. The property owner should attach a cover letter and submit all documents together in a package.

BLAINE
TECH SERVICES

SAMPLING REPORT 85325B 11/25/85 GETTLER RYAN, SHELL STATION, MCARTHUR BLVD., OAKLAND, CA



LEGEND: F = FILL PIPE
P = DISPENSER PUMP

#1 COMPOSITE OF SOIL FROM SAMPLE POINTS 1-5 AT 12 THROUGH 18"

1 = 100% LOWER EXPLOSION LIMIT
2 = 700 PPM-V
3 = 100% LEL
4 = 100% LEL
5 = 100% LEL

Sigrid Blaine
for RICHARD C. BLAINE

The following addresses have been listed here for your convenience:

Water Quality Control Board
San Francisco Bay Region
1111 Jackson Street
Room 6040
Oakland, CA 94607
ATTN: Dale Bowyer

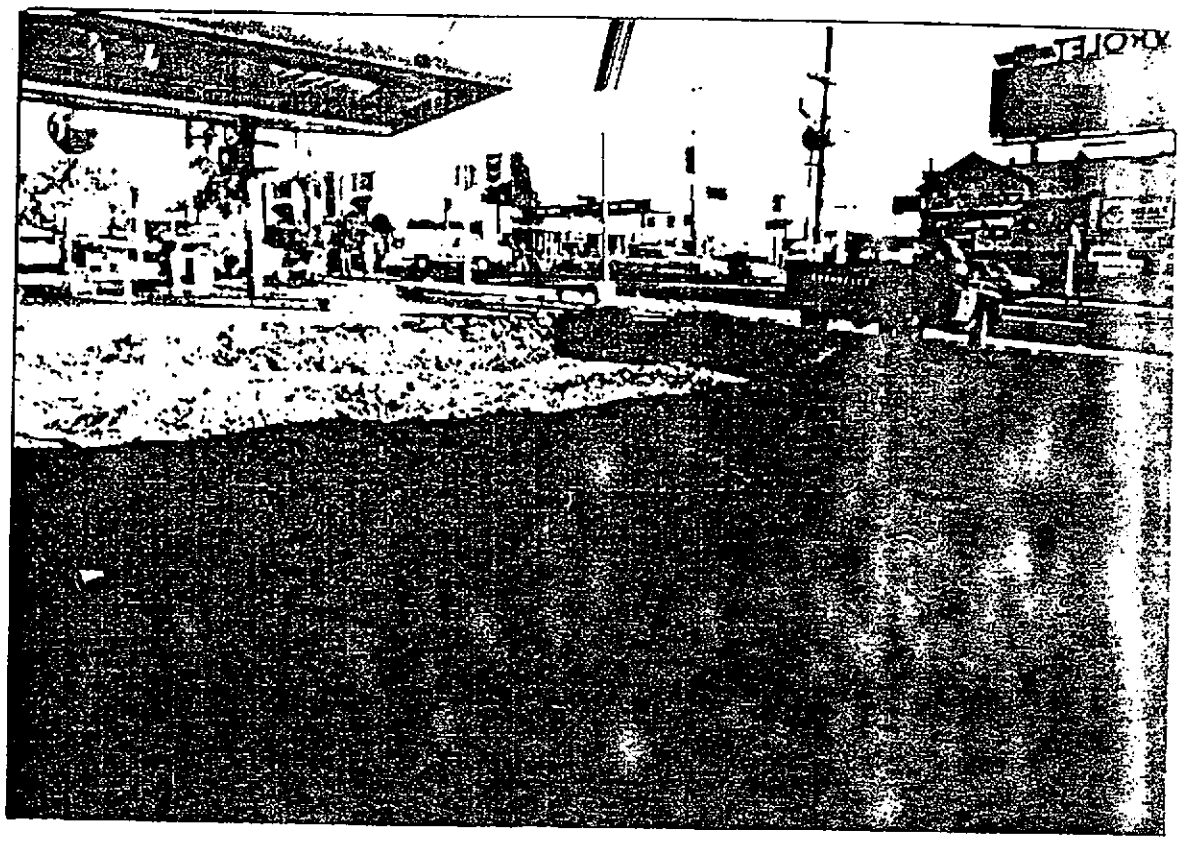
Alameda County Health
Hazardous Materials Management
Oakland, Ca 94612
Attn: Edgar Howell

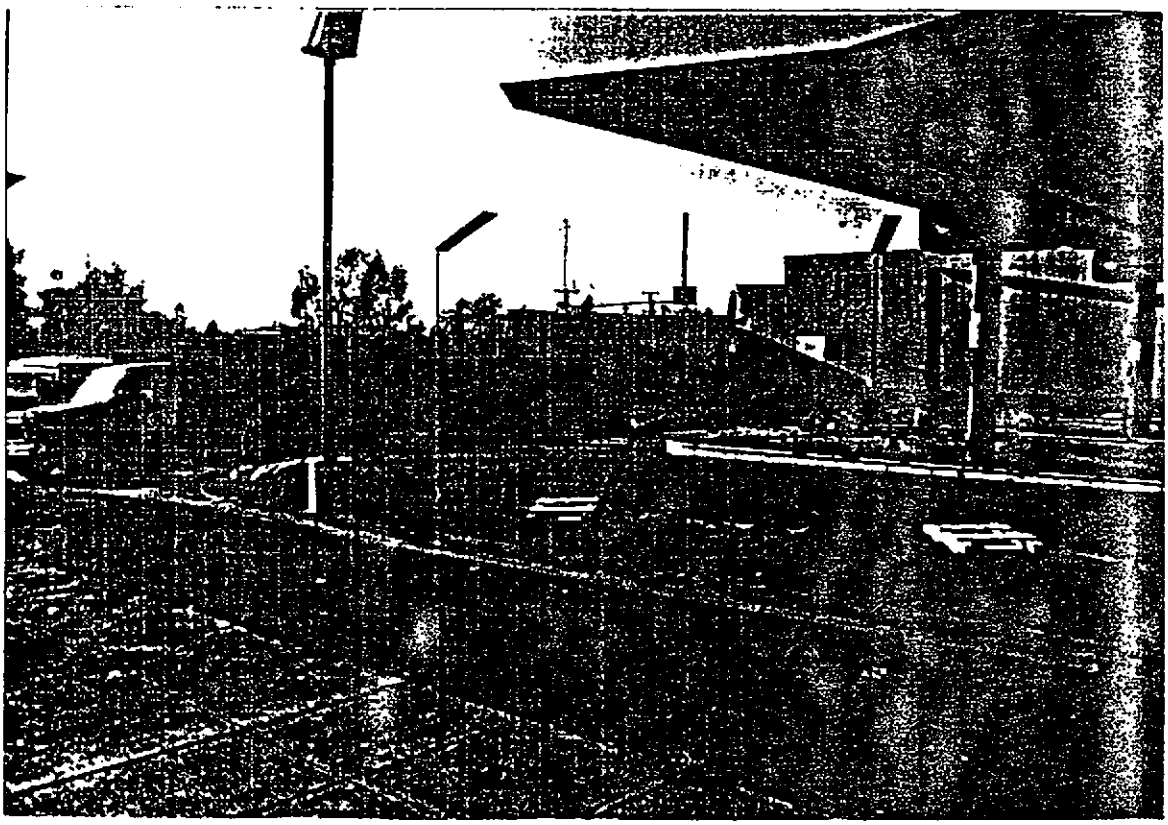
If I can be of any further assistance, please call.

Sincerely,

Ingrid Blaine
for Richard C. Blaine

RCB/tls





McIntosh

BLAINE TECH SERVICES

P.O. BOX 5
SAN JOSE, CA 95
(408) 723-3

85325 B

Shell
McArthur
Oakland

Include ALL of this project designation in lab reportage

Field sampling completed 15:25 hrs. 11/21/85 performed by [signature]

RELEASED BY		ACCEPTED BY	
22:30 hrs. 11/21/85	[signature]	TO McINTOSH FRIDG. : hrs. / /85	
3:11 hrs. 11/25/85	Chris [signature]	3:11 (1511) hrs. 11/25/85	[signature]
15:32 hrs. 11/25/85	[signature]	15:33 hrs. 11/25/85	Steph Hammet
: hrs. / /85		: hrs. / /85	

	TYPE	ANALYSIS	LAB #	PRELIMS	FINAL
#1	COMPOSITE SOIL FOR	Toxicity - EP TOXICITY TEST			
#2		Federal Guidelines (METALS)		State	
#3		PH - Corrosivity			
#4		Flamability, Flashpt at 30° centi			
#5					
#6	#85325B FOR RUSH	GROSS ALPHA - AND GROSS BETA		< 2 pico curies per gram; < 20 pico curies per gram	
#7				Below minimum Detection limit	
#8					
#9					
#10					

TURN AROUND RUSH

REPORT TO: → BLAINE TECH SERVICES
~~[crossed out address] 1982 ... Blvd Hayward CA 94545~~
Attn ~~Bill Robertson~~
Phone ~~(415) 782-2500~~

BILLING INVOICE TO: Blaine Tech Services
Attn
Verbal/Ref PO From:

cc BLAINE TECH SERVICES (always)
cc OTHER:

SPECIAL INSTRUCTIONS

( ) Phone results to BTS
( ) Phone results to client direct

McINTOSH LABORATORIES

409 MATHEW STREET SANTA CLARA, CALIFORNIA 95050 (408) 727-613

Blaine Tech Services
P. O. Box 5745
San Jose, Calif. 95150

Attn: Rich Blaine

Report Date: 12/5/85
Date Received: 11/21/85
Date Sampled:
By Whom: Client

Lab Number **Sample Identification**

27508 Soil #85325B - Shell Station
McArthur Boulevard
Oakland, Calif.

All Units in mg/l Unless Otherwise Noted.

DETERMINATION	LAB NO.	LAB NO. 27508	LAB NO.	DETERMINATION	LAB NO.	LAB NO. 27508	LAB NO.
001 Acidity Total ($CaCO_3$)				133 Nickel (Ni)			
003 Alkalinity Total ($CaCO_3$)				201 Nitrate ( )			
005 Alkalinity Phth ($CaCO_3$)				203 Nitrite ( )			
100 Aluminum (Al)				205 Nitrogen, Kjeldahl (N)			
200 Ammonia ( )				207 Nitrogen, Organic (N)			
103 Arsenic (As)		<0.01		027 Odor (TON)			
105 Barium (Ba)		0.1		401 Oil & Grease			
107 Beryllium (Be)				029 pH (Std Units)		8.4	
007 Bicarbonate (HCO_3)				403 Phenolics			
300 Bio Oxygen Demand (O_2)				290 Phosphate, Ortho ( )			
009 Boron (B)				211 Phosphorus, Total ( )			
011 Bromide (Br)				137 Potassium (K)			
109 Cadmium (Cd)		<0.01		139 Selenium (Se)		<0.01	
111 Calcium (Ca)				031 Silica (SiO_2)			
301 Carbon, Ttl Organic (C)				141 Silver (Ag)		<0.01	
012 Carbonate (CO_3)				143 Sodium (Na)			
303 Chem. Oxygen Demand (O_2)				033 Solids, Dissolved (TDS)			
013 Chloride (Cl)				035 Solids, Settleable (ml/l/h)			
015 Chlorine, Residual (Cl_2)				037 Solids, Suspended			
305 Chlorophyll ( )				039 Solids, Total			
113 Chromium (Cr^{+6})				041 Solids, Volatile			
115 Chromium, Total (Cr)		<0.01		043 Sulfate (SO_4)			
117 Cobalt (Co)				045 Sulfide (S)			
017 Color (APHA)				047 Sulfite (SO_3)			
019 Conductivity Specific (umhos/cm)				405 Surfactants (MBAS)			
				051 Turbidity (FTU)			
119 Copper (Cu)				145 Zinc (Zn)			
120 Cyanide, Total (CN)				307 Total Coliform (MPN/100 ml)			
023 Fluoride (F)							
025 Hardness ($CaCO_3$)				309 Fecal Coliform (MPN 100 ml)			
121 Iron (Fe)							
123 Lead (Pb)		0.17		311 96 Hour Bioassay TL^{50}			
125 Magnesium (Mg)				% Survival			
127 Manganese (Mn)				Flash Point		30°C	
129 Mercury (Hg)		0.001					
131 Molybdenum (Mo)							

Comments:

By Raymond McIntosh

Report No. 1

The following samples* were submitted to Radiation Detection Company for analysis.
All data are reported at the 90% confidence level.

Client Number	Type of Sample	Gross Alpha (pCi/Gram)	Gross Beta-Gamma (pCi/Gram)	RDC Number
85325B	Soil	< 2	< 20	93932

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* These samples were collected on November 21, 1985 and reported on November 27, 1985.

** Minimum detectable activities due to statistical counting errors, self-absorption, analyzed sample weight and counter geometry corrections are:

	Alpha	Beta
Soil	< 2 pCi/gram	< 20 pCi/gram

Alpha detector efficiency based on Pu-239.
Beta-gamma detector efficiency based on average of Co-60 and Sr-90