9499

D20 (REV.)

Shell

1/8 file
UG TANKS

To ALAMEDA COUNTY
ENVIRON HEALTH

From R.G. Newsome (LOCATION)

Date OCT. 24, 1985

Subject TANK REMOVAL @ 3201 LAKESHORE OAKLAND, CA.
Shell Station

TED GEROW

Enclosed find copy of soils & boring report for demolition and tank removal at the above site.

TANKS WILL BE REMOVED OCT. 26, 1985.

IF YOU HAVE ANY QUESTIONS PLEASE CALL ME 415) 283-4200.

R.G. Newsome

Carbon Copy to

Page No.

EMCON
ASSOCIATES
Consultants in Wastes
Management and
Environmental Control

October 11, 1985
Project 738-45.01

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

Attention: Mr. Jeffrey M. Ryan

Re: Shell Service Station,
3201 Rand Avenue at
Lakeshore Avenue,
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 3201 Rand Avenue and Lakeshore Avenue 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 selected by Gettler-Ryan and shown on the attached 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 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 placed 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 and S-B were backfilled with soil cuttings to a depth of 1/2 foot and cement to the ground surface. Boring S-1 was converted to a ground-water monitoring well by the installation of 2-inch-diameter PVC casing. Well construction details accompany the attached Exploratory Boring Logs.

SITE CONDITIONS

Borings S-A and S-B were placed within the subsurface gasoline storage tank complex. Ground-water Monitoring Well S-1 was placed downgradient (southwest) of the subsurface gasoline storage tank complex. Borings S-A and S-B encountered gravel fill to a depth of approximately 12 feet, underlain by clay or clayey sand to the total depth explored of 15 feet. Boring S-1 encountered sand fill to a depth of 7 feet, underlain by clay to a depth of 13 feet and clayey sand to the total depth explored of 15 feet. Ground water was encountered in all borings at a depth of approximately 2 feet.

Strong gasoline odor was noted in the gravel fill material from Borings S-A and S-B to depths of approximately 12 feet and in soil from Well S-1 to a depth of approximately 2 feet.

LABORATORY INVESTIGATIONS AND RESULTS

Attempts were made to obtain samples of the tank backfill material in Borings S-A and S-B; however, due to the looseness of the gravels an insufficient sample was recovered for chemical analysis. Soil samples collected from Borings S-A and S-B at the base of the tank complex were analyzed for the presence of gasoline. Gasoline was not detected in soil collected from depth intervals of 13-1/2 to 15 feet from either boring.

Well S-1 was field-checked for the presence of free-floating petroleum product with a clear acrylic bailer upon completion. Approximately 1/16-inch of free-floating product was present.

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

Very truly yours,

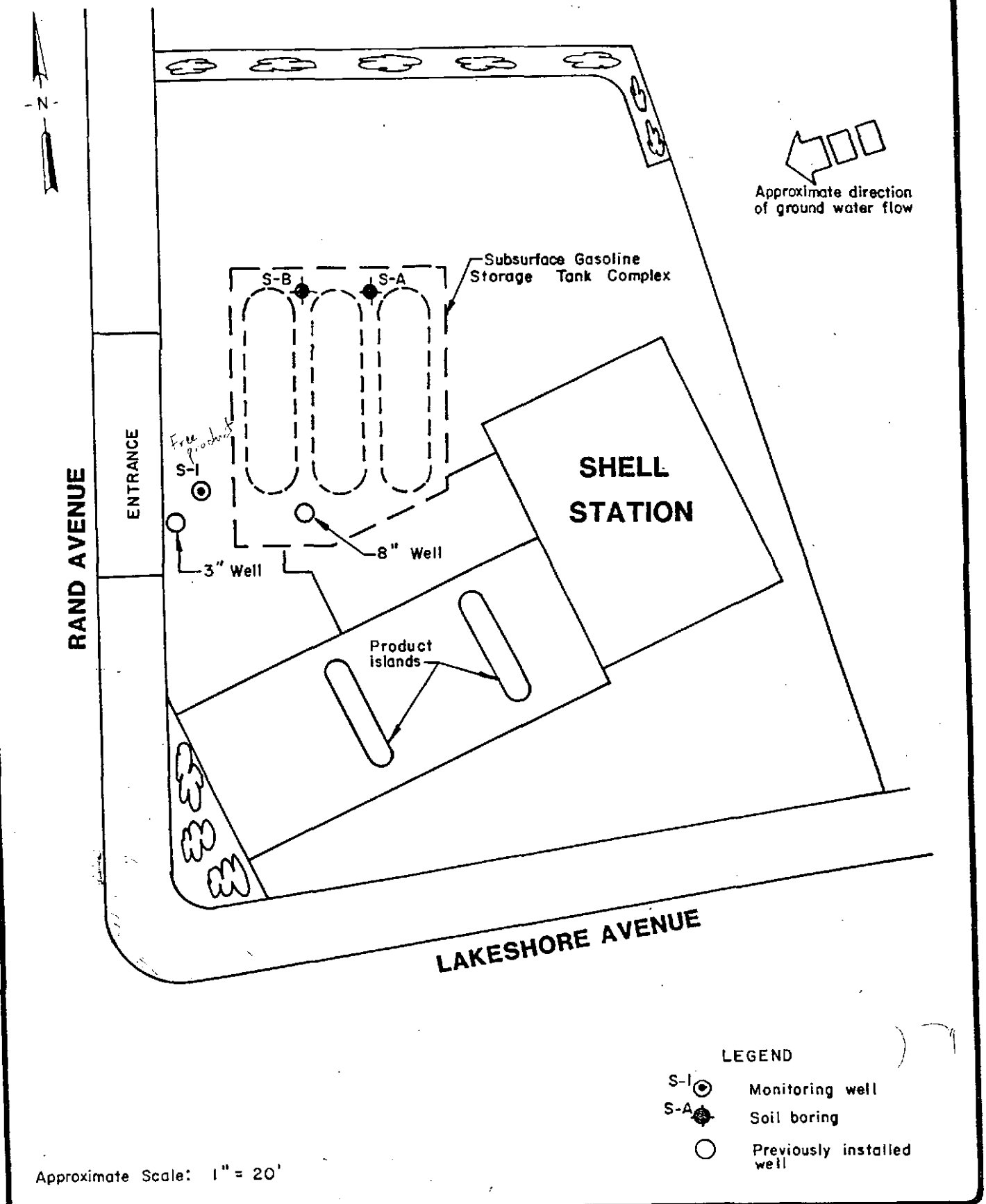
EMCON Associates

Michael G. Burns
Staff Geologist

Susan M. Willhite
Project Geologist

MGB/SMW:mtg

Enclosures



EMCON Associates
San Jose, California

GETTLER – RYAN, INC.
SUBSURFACE HYDROGEOLOGIC INVESTIGATIONS
SHELL STATION, 3201 RAND AVE AT LAKESHORE AVE
OAKLAND, CALIFORNIA

SOIL BORING AND MONITORING WELL LOCATION MAP

FIGURE 1

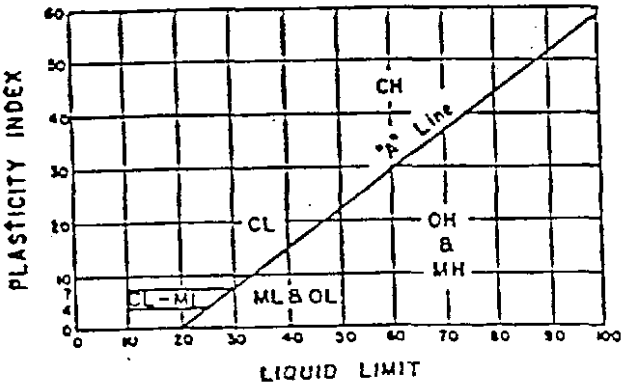
PROJECT NO. 738-45.01

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.
NR	Denotes no sample recovery

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 738-45.01 — BORING NO. S-A

PROJECT NAME Gettler-Ryan, Shell, Oakland — PAGE 1 OF 1

BY MGB DATE 8/7/85 — SURFACE ELEV. 15'±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
			▽	0			CONCRETE
					GP		GRAVEL-Fill; gray (5Y, 5/1); fine grained; very loose; wet; strong product odor.
				5	NR		
					NR		
				10			
	0	3			1	CL	CLAY; very dark gray (5Y, 3/2); very silty; 10% fine sand; very soft; wet; no product odor.
				15			BOTTOM OF BORING AT 15 FEET.
				20			

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 0.5 feet, concrete to surface.

EMCON ASSOCIATES

PLATE A

LOG OF EXPLORATORY BORING

PROJECT NUMBER 738-45.01

PROJECT NAME Gettler-Ryan, Shell, Oakland

BY MGB DATE 8/7/85

BORING NO. S-B

PAGE 1 OF 1

SURFACE ELEV. 15±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				0			CONCRETE
			▽		GP		GRAVEL-Fill; gray (5Y, 5/1); fine grained; very loose; wet; strong product odor.
				5	NR		
					NR		
				10			
					SC		CLAYEY SAND; very dark gray (5Y, 3/2); fine grained; very clayey; very loose; wet; no product odor.
	0	2			1		
				15			BOTTOM OF BORING AT 15 FEET
				20			

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 0.5 feet, concrete to surface.

EMCON ASSOCIATES

PLATE B

LOG OF EXPLORATORY BORING

PROJECT NUMBER 738-45.01 — BORING NO. S-1

PROJECT NAME Gettler-Ryan, Shell, Oakland — PAGE 1 OF 1

BY MGB DATE 8/7/85 — SURFACE ELEV. 15±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
			▼	0			ASPHALT
					SP		SANDY GRAVEL -Fill ; black (5Y, 2.5/2); faint product odor
							SAND-Fill; black (5Y, 2.5/2); fine grained; trace medium sand; loose; wet; strong product odor.
		10			1		@3': no product odor.
				5			
					CL		CLAY; light gray (5Y, 6/1); trace fine sand; soft; wet; no product odor.
	0.25	4			2		
				10			
					SC		CLAYEY SAND; very dark gray (5Y, 3/2); fine grained; trace medium to coarse sand; very clayey; very loose; wet; no product odor.
		4			3		
				15			BOTTOM OF BORING AT 15 FEET
				20			

REMARKS Drilled by 8-inch continuous flight, hollow-stem auger. samples collected with 2-inch California Modified Split-Spoon Sampler; Borehole converted to 2-inch monitoring well as detailed on Plate D.

EMCON ASSOCIATES

PLATE C

WELL DETAILS

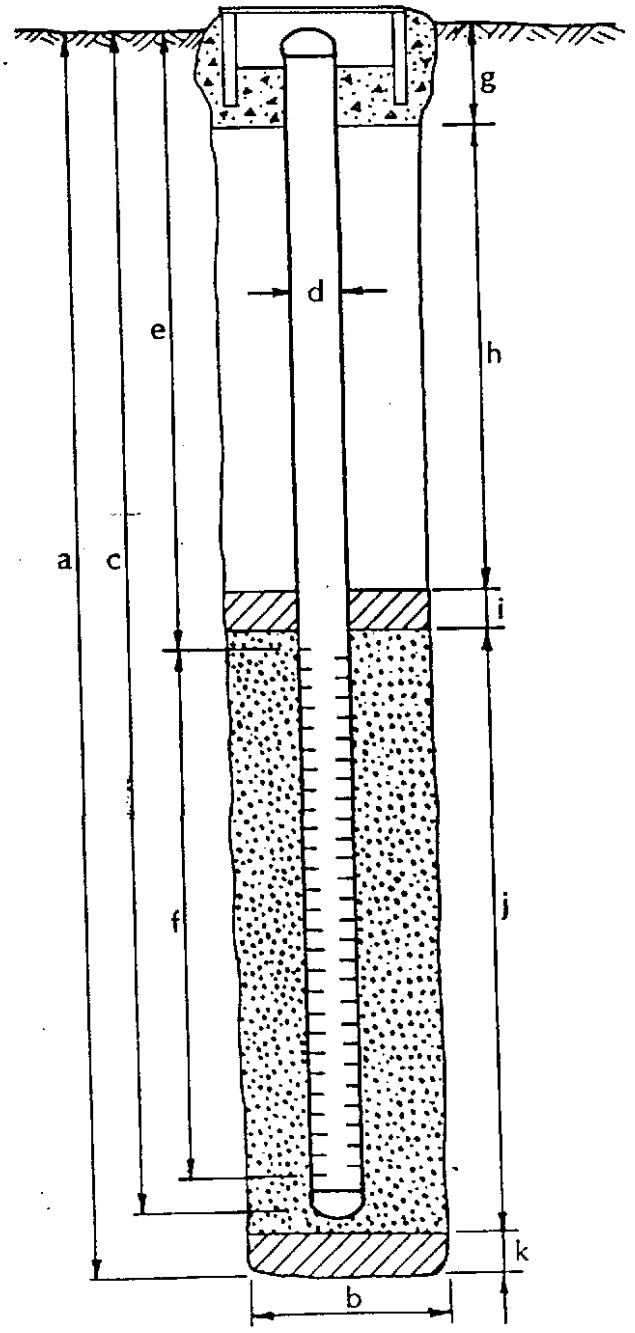
PROJECT NUMBER 738-45.01 BORING / WELL NO. S-1

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

COUNTY Alameda GROUND SURFACE ELEV. 15'±

WELL PERMIT NO. ____ DATUM MSL

G-5 vault box (Std.)



EXPLORATORY BORING

a. Total depth 15 ft.

b. Diameter 8 in.

Drilling method Hollow-Stem Auger

WELL CONSTRUCTION

c. Casing length 13 ft.

Material Schedule 40 PVC

d. Diameter 2 in.

e. Depth to top perforations 2 ft.

f. Perforated length 11 ft.

Perforated interval from 2 to 13 ft.

Perforation type Machined Slot

Perforation size 0.020 inch

g. Surface seal 1 ft.

Seal material Concrete

h. Backfill - ft.

Backfill material -

i. Seal ½ ft.

Seal material Bentonite

j. Gravel pack (1.5' to 6') 4½ ft.

Pack material 6 x 12 Monterey Sand

k. Bottom seal - ft.

Seal material --

Note: Sluff up augers to 13 feet; Borehole then caved to 6 feet upon removal of augers.

PLATE D

Emcon Associates
90 Archer Street
San Jose, CA 95112

September 12, 1985

ATTN: Erin Garner

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

Lab Numbers: 31189-31190
Number of Samples: 2
Sample Type: soils
Date Received: 8/8/85
Analyses Requested: 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.

Patricia L. Murphy

Patricia L. Murphy

PLM/cjl

2 Pages Following - Tables of Results

IT/Santa Clara to Emcon

September 12, 1985

Lab Number: 31189
Sample Identification: P.O. #5439, Job #738-45.01, 8-7-85, S-A, 13.5 - 15

Compound	Results (Parts per Million, dry soil basis) Detected	Detection Limit
Volatile Fuel Hydrocarbons (calculated as gasoline & includes benzene, toluene, xylenes and ethyl benzene)	None	2.
Benzene	None	0.1
Toluene	None	0.1
Xylenes and ethyl benzene	None	0.4

IT/Santa Clara to Emcon

Lab Number: 31190
Sample Identification: P.O. #5439, Job #738-45.01, 8-7-85, S-B, 13.5 - 15

Results

Parts per Million (dry soil basis)

Compound	Detected	Detection Limit
Volatile Fuel Hydrocarbons (calculated as gasoline & includes benzene, toluene, xylenes and ethyl benzene)	None	2.
Benzene	None	0.1
Toluene	None	0.1
Xylenes and ethyl benzene	None	0.4

CROSBY AND OVERTON
Environmental Management Inc.
11791 Monarch Street • Garden Grove, California 92641
(714) 893-2468

October 30, 1986

Mr. Dale Boyce
Regional Water Quality Control Board
1111 Jackson Street, 6th Floor
Oakland, CA 94607

RE: Tank Removal, Lakeshore Avenue and Rand Street
Oakland, CA Shell Oil Co.

Dear Mr. Boyce:

On October 10, 1986 Crosby & Overton Environmental Management, Inc. (C&O EMI) completed an underground storage tank removal project for Shell Oil Company, at the intersection of Lakeshore Avenue and Rand Street. Four (4) tanks were involved, as depicted on the attached drawing BA-398-2. A moderate amount of contamination was encountered, removed and transported to a Class I landfill. The attached chemical analysis reports No. 9211-B, 9219, 9381 and 9381-B establish the contamination levels prior to and subsequent to soil removal. The removed tanks were inerted, cleaned and disposed of. The excavation was backfilled with selected material and compacted to the satisfaction of the City of Oakland Inspector.

Should you have any questions, please contact Mr. Russell Roberts, General Manager, C&O EMI, 8430 Amelia Street, Oakland, CA 94621 (415) 633-0336.

Sincerely,

CROSBY & OVERTON ENVIRONMENTAL MANAGEMENT, INC.

Charles W. Roberts, P.E.
Senior Project Engineer

CWR:lah

cc: T.M. Gerow, Public Health Engineer
Public Health Service
Division of Environmental Health
470 27th Street, Room 324
Oakland, CA 94612 (w/attachment)

Russell Roberts
General Manager
C&O EMI
8430 Amelia Street
Oakland, CA 94621 (w/attachment)

TMA
Thermo Analytical Inc.

TMA/ERG
1400 West 53rd Street
Suite 460
Emeryville, CA 94608-2946
(415) 652-2300

RECEIVED
SEP 15 1986
Ans'd.....

Crosby and Overton
8490 Amelia Avenue
Oakland, CA 94621

September 9, 1986
Report #9211-B
P.O. #2754
BA#398

Attention: Gerry Thompkins

Subject: Lead Content of One "Shell Oil" Soil Sample Received on August 25, 1986 (Analysis Requested September 5, 1986)

Dear Mr. Thompkins:

This report serves as confirmation of results provided to your office on September 9, 1986. The sample referenced above was analyzed to measure the lead content on an ASAP priority basis.

Portions of the sample were digested with mineral acid and subsequently analyzed for content of lead using flame atomic absorption spectrophotometry.

The results are as follows:

TMA Lab No.	Customer ID	Lead, mg/Kg (wet weight)
9211B-1	#1	31

If you have any questions regarding this work, please contact us.

Sincerely:

Stephen F. Nackord
Technical Director

TMA
Thermo Analytical Inc.

TMA/ERG
1100 West 53rd Street
Suite 460
Emeryville, CA 94608 2946
(415) 652-2300

RECEIVED
SEP 0 8 1986
Ans'd.....

Crosby & Overton
8490 Amelia Ave.
Oakland, CA 94621

September 2, 1986
Report #9219
P.O. #2738

Attention: CJ

RE: One (1) soil sample submitted on August 26, 1986 for rush PCB screen analysis and waste oil analysis; also one (1) water sample for oil and grease analysis.

Procedure: The sample is analyzed for PCB's by following a modified EPA Method 600/4-81-045 procedure. The sample is extracted directly with hexane and then contacted with concentrated sulfuric acid. An aliquot of the sample is cleaned up on a Florisil column prior to injection into a gas chromatograph fitted with a Ni63 electron capture detector. Quantitation is performed against a solution made from known concentration of PCB's. The limit of detection for this method of analysis is 0.3 parts per million mg/kg).

The sample is analyzed for waste oil by following a modified EPA Method 3510 procedure. The sample is extracted three times with hexane. The solvent is removed and carbon disulfide is added to the residue. The solution is injected into a gas chromatograph fitted with a flame ionization detector. Quantitation is performed, as total hydrocarbon response, against a solution made from a known concentation of light machine oil.

The sample is analyzed for oil and grease by extracting continuously with freon in a soxhlet apparatus for at least four hours. The solvent is removed. The amount of oil and grease present is calculated (gravimetrically) by taking the weight of the residue divided by the sample weight.

The results of the analyses are shown below:

			Concentration (mg/kg or mg/L)	
TMA #	CLIENT ID	WASTE OIL	PCB	OIL & GREASE
A392 - 9219-1	#1A, A C Transit	--	---	17
A398 - 9219-2	Lakeshore & Rand for Shell Oil	78000	ND(0.3)	--

ND = None detected. The limit of detection is in ( ).

Submitted by:

Robert B. Flay

Robert B. Flay
Manager, Organics Department

TMA
Thermo Analytical Inc.

TMA/ERG
1400 West 53rd Street
Suite 460
Emeryville, CA 94608-2946
(415) 652-2300

OCT 3 1986 CWR

Crosby and Overton
8490 Amelia Avenue
Oakland, CA 94621

October 1, 1986
Report #9381-B
C&O Job #BA-398

Attention: Gerry Thompkins

Subject: "Lakeshore and Rand" Shell Oil Project Samples; Two Soils for Lead Content and Two Waters for Oil and Grease Content

Dear Mr. Thompkins:

Analytical tests are complete for the samples referenced above. The soil samples were analyzed for content of total recoverable lead. The water samples were analyzed for "oil and grease."

The soil samples were digested with mineral acids and the digests analyzed for lead content using heated graphite atomic absorption spectrophotometry. The water samples were thrice extracted with freon at a low pH, and the freon gently evaporated off in a tared vessel. The residue in the vessel was weighed. The procedures are base on U.S. Environmental Protection Agency methods.

The results are as follows:

TMA Lab No.	Customer ID	Lead, mg/Kg (wet weight)	Oil and Grease (mg/L)
9381-1	East End; Water E-1	--	4.0
9381-2	East End; Soil At 2 feet E-2	3.1	--
9381-4	West End; Water W4	--	33
9381-5	West End; Soil At 2 feet W-5	3.0	--

If you have any questions regarding this work, please contact us.

Sincerely:

Stephen F. Nackord
Technical Director

TMA
Thermo Analytical Inc.

TMA/ERG
1400 West 53rd Street
Suite 460
Emeryville, CA 94608-2946
(415) 652-2300

OCT 3 1986 CWR

September 30, 1986

Crosby & Overton
8490 Amelia Ave.
Oakland, CA 94621

Attention: Gerry Thompkins

Report #9381

RE: Four (4) samples submitted on September 25, 1986, two (2) water and two (2) soil for rush gasoline, waste oil and BTEX analysis.

Procedure: The samples are analyzed for gasoline by following a method described in Attachment 2, Analytical Procedures for Fuel Leak Investigations. The samples are concentrated on a Tekmar LSC-2 automatic sample concentrator prior to injection into a gas chromatograph fitted with a flame ionization detector. Quantitation is performed, as total hydrocarbon response, against known concentrations of gasoline. The limit of detection for this method of analysis is one part per million (mg/kg).

The samples are analyzed for waste oil by following a modified EPA Method 3510 extraction procedure. The samples are extracted three times with hexane. The solvent is removed from the combined extracts and carbon disulfide is added. The solution is injected into a gas chromatograph fitted with a flame ionization detector. Quantitation is performed, as total hydrocarbon response, against a solution made from a known concentration of light machine oil. The limit of detection for this method of analysis is twenty parts per million (mg/kg) for water and 31 parts per million for soil.

The aromatic levels are determined by following a modified EPA Method 602 procedure. The volatile components of the samples are concentrated with a Tekmar LSC-2 automatic sample concentrator prior to injection into a gas chromatograph fitted with a photoionization detector. Quantitation is performed against solutions made from known concentrations of aromatic compounds. The limit of detection for this method of analysis is 0.8 parts per billion (ug/kg).

The results are shown in the attached tables.

Submitted by:

Julie A Hubbard

Julie Hubbard
Project Manager

Reviewed by:

Hugh R. McLean

Hugh McLean
Technical Director

JH:HM:sml

TABLE 1

TMA/ERG #	CLIENT ID	Concentration (mg/kg) GASOLINE	WASTE OIL
9381-1	water @ east end E-1	3.7	ND(20)
9381-2	soil @ 2' east end E-2	ND(1)	ND(31)
9381-4	water @ west end W-4	13	ND(20)
9341-5	soil @ west end W-5	ND(1)	ND(31)

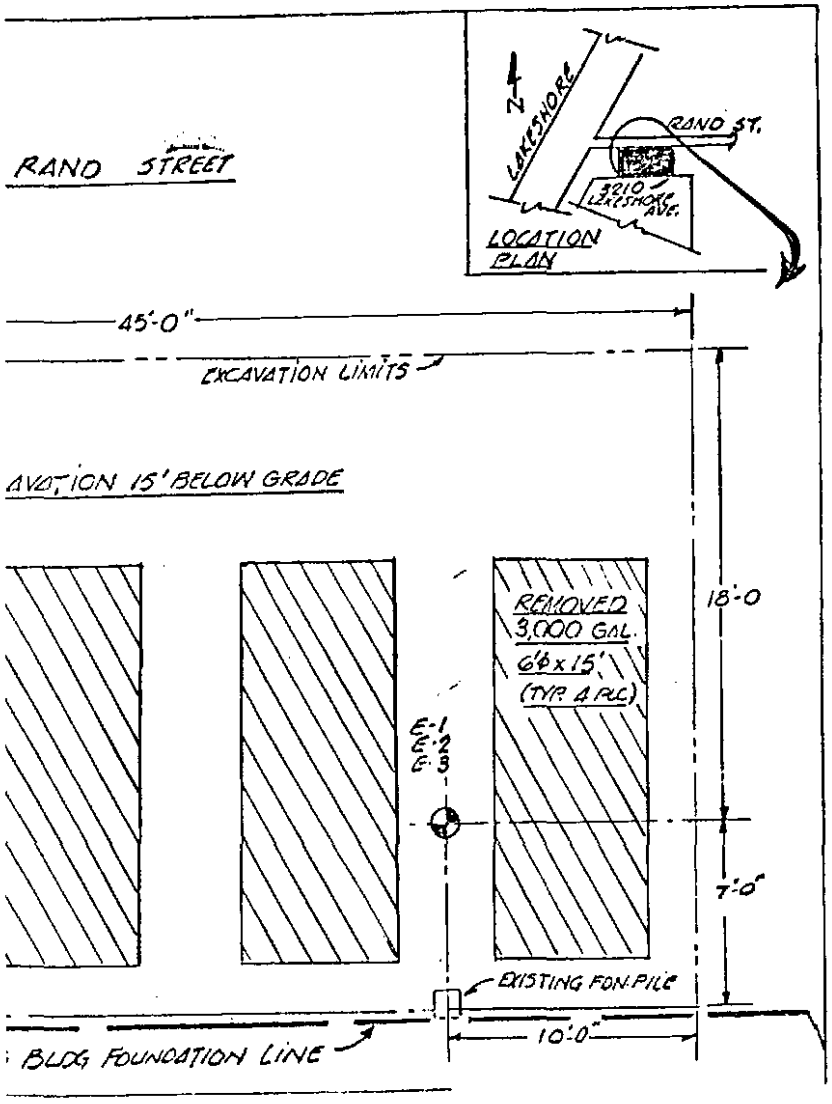
ND = None detected. The limits of detection are in ( ).

TABLE 2

Concentration (ug/kg)

TMA/ERG #	CLIENT ID	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES
9381-1	water @ east end E-1	160	120	ND(0.8)	1000
9381-2	soil @ 2' east end E-2	94	9.9	31	68
9381-4	water @ west end W-4	360	610	410	3200
9381-5	soil @ west end W-5	ND(0.8)	2.8	5.8	12

ND = None detected. The limits of detection are in ( ).



NOTES:

1. EXCAVATION BACKFILLED WITH SELECT MATERIAL & COMPACTED.
2. P.G.&E. HAS INSTALLED AN UNDERGROUND TRANSFORMER VAULT IN A PORTION OF THE EXCAVATED AREA.
3. REFER TO T.M.A ANALYSIS REPORT Nº 9381-B, OCT. 1, 1986 FOR BORING DATA.

CROSBY AND OVERTON
Environmental Management Inc.
11791 Monarch Street • Garden Grove, California
(714) 893-2468

TANK EXCAVATION & REMOVAL PLA

AS-BUILT

DATE: OCT. 1, 1
BY: CWR

SITE: LAKESHORE AVE. & RAND ST. OAKLAND, CA.
CLIENT: SHELL OIL CO.

BA-398