62-6218 (REV. 12/85)

PG and E

FOR INTRA—COMPANY USES

From Region or Department: ENGINEERING RESEARCH
GENERAL CONSTRUCTION
To Region or Department: 402.331(6739/1328)
FILE NO.
RE: LETTER OF SUBJECT: Oakland General Construction Gas Yard
Underground Tank Investigation

May 4, 1987

MARK OKAMURA:

Attached is DER Draft Report 402.331-87.12. This report documents the results of an underground tank investigation performed at your request, at the Oakland General Construction Yard. The site is located at 4930 Coliseum Way Oakland, California. Within the property, the focus of this study was a 550 gallon underground waste oil tank and a 1000 gallon underground diesel tank. Work done during the course of this investigation included the drilling of three test borings, soil and water sampling, and the chemical analysis of selected soil and water samples for total hydrocarbons, BTEX and PCBs.

Field observations and analytical results indicate that oil, BTEX, and trace amounts of gasoline and PCBs are present in the soil and water samples tested from the borings adjacent the waste oil tank. This suggests that leakage from the waste oil tank has occurred. Analytical results from soil and water samples tested from the boring adjacent the diesel tank were nondetectable for for all of the hydrocarbon constituents. This suggests that leakage from this tank has not occurred.

If you have any questions or comments concerning the this report, please contact me or Larry A. Flora (551-5441) of my staff.

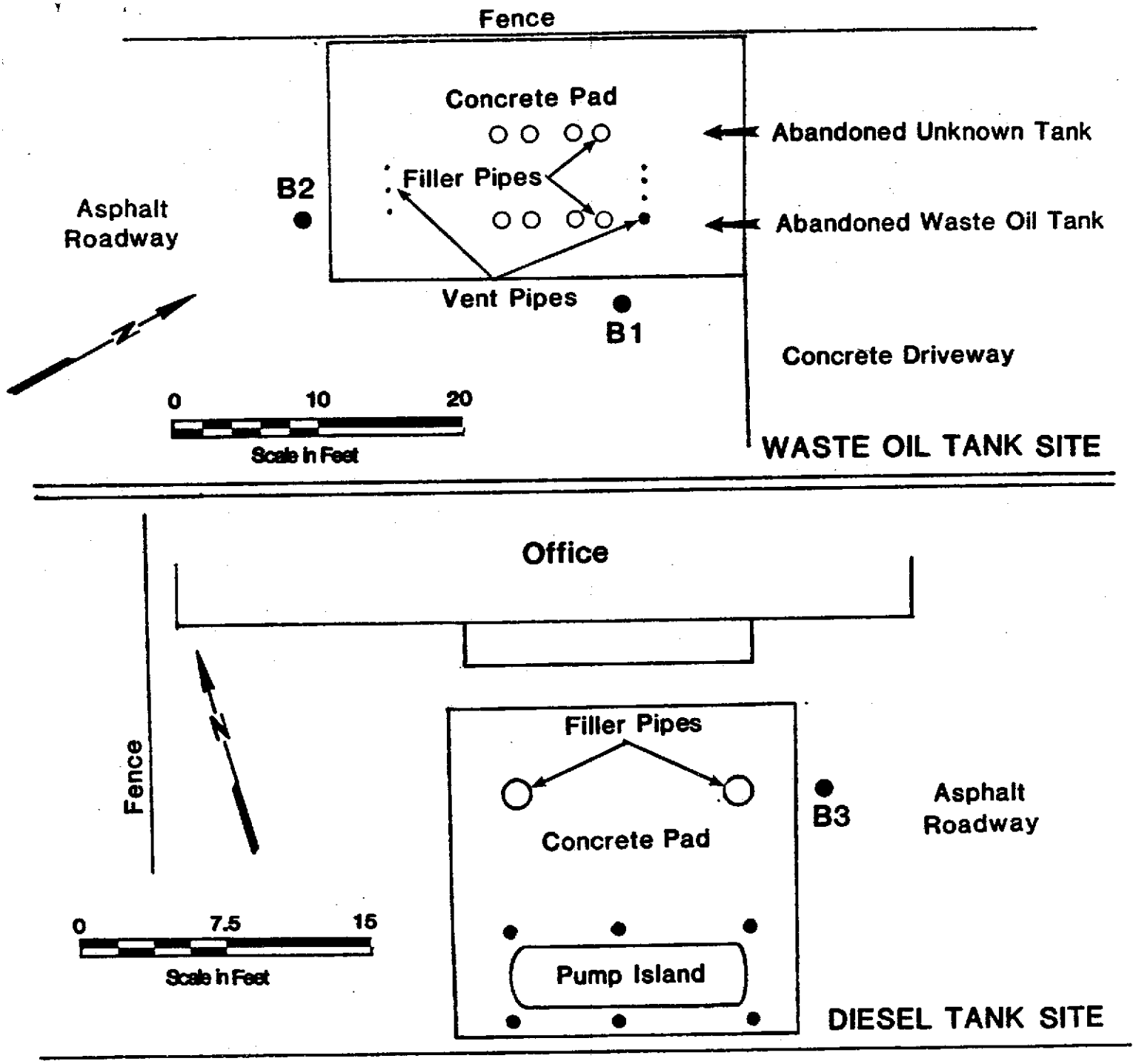
TERRANCE M. TURNER

LF(551-5441):lf
0976A/sp23(slw)

cc: SChaewsky
MRLafferty
LEMcMillan
CBScott
DNicolaisen
SGSharp/RAMcCurdy
LMSwanson

Attachment

cc: JWBusterud
JTWells/BFWaters



SITE PLAN

Oakland General Construction Gas Yard (212) Parking

Underground Tank Investigation

Figure 2

asphalt surface and base rock. Below the base rock to a depth of 7.5 feet the boring encountered a gray, hard, low plasticity silty clay. This silty clay grades sharply at 7.5 feet to a silty sand, similar in appearance to that encountered in borings B1 and B2.

Boring B3 was terminated in the silty sand at a depth of 9.5 feet. No product odor was detected in the soil samples taken. Ground water was encountered at 5.5 feet below ground surface. No evidence of floating product or product odors were noted in the water samples retieved.

Drilling and sampling was completed on February 13, 1987. Borehole logs with the sampling intervals are included in Appendix A.

Analytical Results

A total of 5 soil samples (two samples from borings B1 and B2 and one from boring B3) and three water samples (one from each boring) were submitted to Clayton Environmental Consultants, Inc. for chemical analysis. The soil samples obtained from borings B1 and B2 were analyzed for total petroleum hydrocarbons (TPH) as gasoline, kerosene, diesel and oil (EPA Test Methods 8015 and 8100), polychlorinated biphenyls (PCBs), and purgeable aromatics as benezene, ethylbenzene, toluene and xylenes (BTEX). The soil sample from boring B3 was analyzed for TPH only. The water samples from all three borings were analyzed for purgeable aromatics (BTEX). The analytical results of these soil and water samples are summarized in Table 1.

Analytical results from soil samples submitted from borings B1 and B2 (adjacent the waste oil tank) showed nondetectable levels of TPH as kerosene and diesel. A trace amount (0.73 ppm) of gasoline was detected at 4.5 feet in boring B2. Oil was detected in all of the soil samples submitted for analysis. The lowest concentration of oil was found in boring B1 (180 ppm) at 2.5 feet. The highest concentration of oil was detected in boring B2 (3500 ppm) at 4.5 feet. PCBs (compound 1260) were detected in concentrations ranging from nondetectable to 0.06 ppm in both borings.

The analytical results from the water samples obtained from borings B1 and B2 showed detectable concentrations of BTEX. The highest concentrations of BTEX are found in the water sample from boring B2 and consists of: benzene 12 ppm, ethylbenzene 3.5 ppm, toluene 1.6 ppm, and xylenes 24 ppm.

Analytical results from boring B3 (adjacent the diesel tank) showed nondetectable levels of TPH in the soil sample and nondetectable concentrations of BTEX in the water sample.

A copy of the laboratory test results and detection limits for the soil and water samples analyzed are included in Appendix B. Soil samples selected for chemical analysis are identified at the appropriate depths on the boring logs (see borehole logs, Appendix A.

TABLE 1.

Summary of Soil and Water Sample Data
Oakland General Construstion Gas Yard

ANALYTICAL RESULTS

Soil		EPA Test Methods 8100/8105				EPA Test Method 8020				
Sample No.	Depth (Feet)	Gasoline (ppm)	Kerosene (ppm)	Diesel (ppm)	Oil (ppm)	Benzene (ppm)	EB (ppm)	Toluene (ppm)	XY Lenes (ppm)	PCB 1260 (ppm)
B1-1-1	3	ND	ND	ND	2000	ND	ND	ND	ND	0.02
B1-2-1	5.5	ND	ND	ND	180	ND	0.056	ND	0.15	ND
B2-1-1	5	0.73	ND	ND	3500	ND	1.2	ND	1.9	0.06
B2-2-1	8.5	ND	ND	ND	1200	ND	0.12	ND	0.09	0.03
B3-1-1	5.5	ND	ND	ND	ND	--	--	--	--	--
Water						(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
B1	--	--	--	--	--	0.84	1.7	ND	3.7	--
B2	--	--	--	--	--	12	3.5	1.6	24	--
B3	--	--	--	--	--	ND	ND	ND	ND	--

ppm - parts per million
ppb - parts per billion
EB - Ethylbenzene

All samples taken on February 13, 1987

Summary and Conclusions

1. The presence of petroleum hydrocarbons in the soil (oil) and water (BTEX) samples taken from borings B1 and B2 (as noted in the field and verified by chemical analyses) suggest that the underground waste oil tank at the Oakland General Construction Gas Yard has leaked.

2. The absence of petroleum hydrocarbons in the soil and water sample taken from boring B3 suggests that the underground diesel tank has not leaked.

3. PCB Compound 1260 was detected at very low concentrations in most of the soil samples tested from borings B1 and B2. A trace amount of gasoline was also noted in one soil sample taken from boring B2.

4. Ground water was encountered at depths ranging from 5 to 5.5 feet below ground surface. Floating product was not present on the surface of the ground water at the time of the field investigation.

References

Calif. Div. Mines and Geology, 1961, Geologic Map of California - San Francisco Sheet Scale 1:250,000

Goldman, H.B., 1969, Geologic and engineering aspects of San Francisco Bay fill. CDMG Special Report 97.

APPENDIX A
Borehole Logs

FIELD SOIL BORING LOG

Project	Job No.	Boring No.	Sheet
Oakland G.C. Gas Yard		B1	1 of 1

Ground Elev.	Type & Diameter of Boring	Location
	8" Hollow Stem Augers	Oakland

Bottom of Hole Elev	Depth	Groundwater Elev.	Date	Date Started	Finished
	9.5'			2/12/87	2/13/87

Name of Driller	Name of Inspector	Boring Contractor
R. Hawkeen	L. Flora	PG&E

Drill rate min/ft	DESCRIPTION	SAMPLE SYMBOL	DEPTH (FT.)	SOIL SYMBOL	SAMPLE TYPE AND NUMBER	RECOVERY (INCHES)	BLOWS/6 IN.	NOTES ON GROUNDWATER LEVELS, WATER RETURN, CHARACTER OF DRILLING.
	Surface – Asphalt Roadway			SP				
	Clayey Silt w/ sand + gravel – Dk Gray, wet, M. plasticity, stiff, STIFF, Fill – Strong Petr. Oil odor –		5	ML	MC 1-1	6	12	Rapid Advance Lost 1' of sample ▽ 5'
	Clayey Silt w/ sand & gravel – (As above, – No Product Odor –)				MC 2-1,2	14		Pushed Sampler
	Silt Sand w/ gravel – Rd Brn, wet, F-M gr sand matrix, subrnd gravel to 1½" V. Dense – No Product Odor –		10	SM	MC 3-1	6	50/5"	50/5"
			15					BOH 9.5'

FIELD SOIL BORING LOG

Project	Job No.	Boring No.	Sheet
Oakland G.C. Gas Yard		B2	1 of 1

Ground Elev.	Type & Diameter of Boring	Location
		Oakland

Bottom of Hole Elev	Depth	Groundwater Elev.	Date	Date Started	Finished
	8.5'			2/13/87	2/13/87

Name of Driller	Name of Inspector	Boring Contractor
R. Henderson	L. Flora	PG&E

DESCRIPTION	SAMPLE SYMBOL	DEPTH (FT.)	SOIL SYMBOL	SAMPLE TYPE AND NUMBER	RECOVERY (INCHES)	BLOWS/6 IN.	NOTES ON GROUNDWATER LEVELS, WATER RETURN, CHARACTER OF DRILLING.
Asphalt Roadway							Rapid Advance
Clayey Silt w/ gravel - Dk Gray, wet, M. Plasticity, Med. Stiff, Fill? - Strong oil odor -		5	ML	M-1-2	12	16 36	▽ 5' ±
Silty Sand w/ gravel - Rd Brn, wet, F-M gr. w/ some gravels to 1½" - Mod. Product odor -		10	SM	MC-1	18	24 57	Note: oil on Auger plug
							Bott 8.5'

Notes:

FIELD SOIL BORING LOG

Project: Oakland GC Gas Yard	Job No.	Boring No.: B3	Sheet: 1 of 1
Ground Elev.	Type & Diameter of Boring: 8" Hollow Stem Augers	Location: Oakland	
Bottom of Hole Elev.	Depth: 9.5' / Groundwater Elev. / Date	Date Started: 2/13/87	Finished: 2/13/87
Name of Driller: R. Hendren	Name of Inspector: L. Flora	Boring Contractor: PG&E	

Drill rate min/ft	DESCRIPTION	SAMPLE SYMBOL	DEPTH (FT.)	SOIL SYMBOL	SAMPLE TYPE AND NUMBER	RECOVERY (INCHES)	BLOWS/6 IN.	NOTES ON GROUNDWATER LEVELS, WATER RETURN, CHARACTER OF DRILLING.
	Surface – Asphalt							
	Silty Clay w/ Sand – Dk Gray, Moist – Heavy Product Odor –			CL	MC 1-1,2	8	44	Rapid & Steady Advance ▽ 5.5'
	Silty Clay – Gray Brn, Hard, Moist, Low plasticity w/ Sparsely scattered gravels To ¼" + blebs of black organics – No Product Odor –		5					
	Silty Sand w/ gravel – Rd Brn, wet, F-Mgr; some subang gravels To 1" – No Product Odor			SM	MC 2-1	10"		
			10					BOH 9.5

Notes:

APPENDIX B
Analytical Results

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

PACIFIC GAS & ELECTRIC 0167

EPA METHOD 8100 - TOTAL EXTRACTABLE HYDROCARBONS
EPA METHOD 8015 - TOTAL VOLATILE HYDROCARBONS

SAMPLE I.D. B1-1-1 Oakland GC Gas LAB # 870280-16
SAMPLES RECEIVED: 02-20-1987
SAMPLES ANALYZED: 3-05-1987

MATRIX - SOIL

TOTAL HYDROCARBONS AS	CONCENTRATION Milligram/Kg (ppm)	DETECTION LIMITS
Gasoline (8015)	ND	0.1
Kerosene (8100)	ND	10
Diesel (8100)	ND	20
Oil (8100)	2000	100

ND = Not Detected

CERTIFICATION OF REPRESENTATIVE SAMPLE OR SAMPLE INTEGRITY IS NOT MADE BY CLAYTON ENVIRONMENTAL CONSULTANTS FOR SAMPLES NOT TAKEN BY CEC.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

PACIFIC GAS & ELECTRIC 0167

EPA METHOD 8100 - TOTAL EXTRACTABLE HYDROCARBONS
EPA METHOD 8015 - TOTAL VOLATILE HYDROCARBONS

SAMPLE I.D. B1-2-1 Oakland GC Gas LAB # 870280-17
SAMPLES RECEIVED: 02-20-1987
SAMPLES ANALYZED: 3-05-1987

MATRIX - SOIL

TOTAL HYDROCARBONS AS	CONCENTRATION Milligram/Kg (ppm)	DETECTION LIMITS
Gasoline (8015)	ND	0.1
Kerosene (8100)	ND	10
Diesel (8100)	ND	20
Oil (8100)	180	100

ND = Not Detected

CERTIFICATION OF REPRESENTATIVE SAMPLE OR SAMPLE INTEGRITY IS NOT MADE BY CLAYTON ENVIRONMENTAL CONSULTANTS FOR SAMPLES NOT TAKEN BY CEC.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

PACIFIC GAS & ELECTRIC 0167

EPA METHOD 8100 - TOTAL EXTRACTABLE HYDROCARBONS
EPA METHOD 8015 - TOTAL VOLATILE HYDROCARBONS

SAMPLE I.D. B2-1-1 Oakland GC Gas LAB # 870280-18
SAMPLES RECEIVED: 02-20-1987
SAMPLES ANALYZED: 3-05-1987

MATRIX - SOIL

TOTAL HYDROCARBONS AS	CONCENTRATION Milligram/Kg (ppm)	DETECTION LIMITS
Gasoline (8015)	0.73	0.1
Kerosene (8100)	ND	10
Diesel (8100)	ND	20
Oil (8100)	3500	100

ND = Not Detected

CERTIFICATION OF REPRESENTATIVE SAMPLE OR SAMPLE INTEGRITY IS NOT MADE BY CLAYTON ENVIRONMENTAL CONSULTANTS FOR SAMPLES NOT TAKEN BY CEC.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

PACIFIC GAS & ELECTRIC

0167

EPA METHOD 8100 - TOTAL EXTRACTABLE HYDROCARBONS
EPA METHOD 8015 - TOTAL VOLATILE HYDROCARBONS

SAMPLE I.D. B2-2-1 Oakland GC Gas LAB # 870280-19
SAMPLES RECEIVED: 02-20-1987
SAMPLES ANALYZED: 3-05-1987

MATRIX - SOIL

TOTAL HYDROCARBONS AS	CONCENTRATION Milligram/Kg (ppm)	DETECTION LIMITS
Gasoline (8015)	ND	0.1
Kerosene (8100)	ND	10
Diesel (8100)	ND	20
Oil (8100)	1200	100

ND = Not Detected

CERTIFICATION OF REPRESENTATIVE SAMPLE OR SAMPLE INTEGRITY IS NOT MADE BY CLAYTON ENVIRONMENTAL CONSULTANTS FOR SAMPLES NOT TAKEN BY CEC.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

PACIFIC GAS & ELECTRIC 0167

EPA METHOD 8100 - TOTAL EXTRACTABLE HYDROCARBONS
EPA METHOD 8015 - TOTAL VOLATILE HYDROCARBONS

SAMPLE I.D. B3-1-1 Oakland GC Gas LAB # 870280-20
SAMPLES RECEIVED: 02-20-1987
SAMPLES ANALYZED: 3-05-1987

MATRIX - SOIL

TOTAL HYDROCARBONS AS	CONCENTRATION Milligram/Kg (ppm)	DETECTION LIMITS
Gasoline (8015)	ND	0.1
Kerosene (8100)	ND	10
Diesel (8100)	ND	20
Oil (8100)	ND	100

ND = Not Detected

CERTIFICATION OF REPRESENTATIVE SAMPLE OR SAMPLE INTEGRITY IS NOT MADE BY CLAYTON ENVIRONMENTAL CONSULTANTS FOR SAMPLES NOT TAKEN BY CEC.

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

ANALYTICAL RESULTS

POLYCHLORINATED BIPHENYLS

Date Sampled: 2-12-1987

Date Received: 2-20-1987

Date Analyzed: 3-26-1987

Sample Matrix: SOIL

Lab No.:	870280-16	-17	-18	-19	
Sample I.D.:	B1-1-1,Oak.	B1-2-1	B2-1-1	B2-2-1	
Compound	**Concentration in mg/kg**				**Detection Limits**
PCB 1016	ND	ND	ND	ND	0.01
PCB 1221	ND	ND	ND	ND	0.01
PCB 1232	ND	ND	ND	ND	0.01
PCB 1242	ND	ND	ND	ND	0.01
PCB 1248	ND	ND	ND	ND	0.01
PCB 1254	ND	ND	ND	ND	0.01
PCB 1260	0.02	ND	0.06	0.03	0.01

ND = Not Detected

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

EPA METHOD 8020
PURGEABLE AROMATICS

Sample I.D.: B1-1-1 Lab No. 870280-16

Samples Received: 2-20-1987

Samples Analyzed: 2-25-1987

Sample Matrix: SOIL Detection Limit Factor = 1

Compound	Concentration mg/kg (ppm)
Benzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND

ND = Not Detected

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

EPA METHOD 8020
PURGEABLE AROMATICS

Sample I.D.: B1-2-1 Lab No. 870280-17

Samples Received: 2-20-1987

Samples Analyzed: 2-25-1987

Sample Matrix: SOIL Detection Limit Factor = 1

Compound	Concentration mg/kg (ppm)
Benzene	ND
Ethylbenzene	0.056
Toluene	ND
Xylenes	0.15

ND = Not Detected

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

EPA METHOD 8020
PURGEABLE AROMATICS

Sample I.D.: B2-1-1 Lab No. 870280-18

Samples Received: 2-20-1987

Samples Analyzed: 2-25-1987

Sample Matrix: SOIL Detection Limit Factor = 1

Compound	Concentration mg/kg (ppm)
Benzene	ND
Ethylbenzene	1.2
Toluene	ND
Xylenes	1.9

ND = Not Detected

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

EPA METHOD 8020
PURGEABLE AROMATICS

Sample I.D.: B2-2-1 Lab No. 870280-19

Samples Received: 2-20-1987

Samples Analyzed: 2-25-1987

Sample Matrix: SOIL Detection Limit Factor = 1

Compound	Concentration mg/kg (ppm)
Benzene	ND
Ethylbenzene	0.12
Toluene	ND
Xylenes	0.09

ND = Not Detected

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

EPA METHOD 8020
PURGEABLE AROMATICS

DETECTION LIMITS

DETECTION LIMITS = Detection Limit Factor X Concentration

Sample Preparation: 10 g sample dispersed into 10 mL methanol

Sample Analysis: 50 uL methanol extract purged in 5 mL water

Compound	Concentration mg/kg (ppm)
Benzene	0.039
Ethylbenzene	0.028
Toluene	0.020
Xylenes	0.039

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

EPA METHOD 602
PURGEABLE AROMATICS

Sample I.D.: Oak GC Gas B3 Lab No. 870280-04

Samples Received: 2-20-1987

Samples Analyzed: 2-25-1987

Sample Matrix: Water Detection Limit Factor = 1

Compound	Concentration µg/L (ppb)
Benzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND

ND = Not Detected

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

EPA METHOD 602
PURGEABLE AROMATICS

Sample I.D.: Oak GC Gas B2 Lab No. 870280-03

Samples Received: 2-20-1987

Samples Analyzed: 2-25-1987

Sample Matrix: Water Detection Limit Factor = 1

Compound	Concentration µg/L (ppb)
Benzene	12
Ethylbenzene	3.5
Toluene	1.6
Xylenes	24

ND = Not Detected

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

EPA METHOD 602
PURGEABLE AROMATICS

Sample I.D.: Oak GC Gas Bl Lab No. 870280-02

Samples Received: 2-20-1987

Samples Analyzed: 2-25-1987

Sample Matrix: Water Detection Limit Factor = 1

Compound	Concentration µg/L (ppb)
Benzene	0.84
Ethylbenzene	1.7
Toluene	ND
Xylenes	3.7

ND = Not Detected

CONTRACTORS STATE LICENSE BOARD

Building Quality

No. 344219

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Pursuant to the provisions of Chapter 9 of Division 3 of the Business and Professions Code and the Rules and Regulations of the Contractors State License Board, the Registrar of Contractors does hereby issue this license to:

MOORE EARL

to engage in the business or act in the capacity of a contractor in the following classification(s):

A GENERAL ENGINEERING CONTRACTOR
B GENERAL BUILDING CONTRACTOR

WITNESS *my hand and sealed this* 25TH *day of* NOVEMBER 1965.

Registrar of Contractors

Earl V. Moore
Signature of Licensee

Signature of person who qualified on behalf of the licensee

STATE AND CONSUMER SERVICES AGENCY
DEPARTMENT OF CONSUMER AFFAIRS