

geo - logic

geotechnical and environmental consulting services

1140 - 5th Avenue, Crockett, CA 94525

(510) 787-6867 - Fax (510) 787-1457

209 6558

GL-97-110.R6

Paradiso Job No. 1095

October 30, 1998

Berkeley Farms  
25500 Clawiter Road  
Hayward, California

Attention: Mr. Norm Alberts

RE: Report of Additional Groundwater Investigation  
Former Berkeley Farms Truck Repair Shop and Yard  
4575 San Pablo Avenue  
Emeryville, California 94608

Dear Mr. Alberts:

This report presents the results of the recent completion of six exploratory borings in the downgradient vicinity of the subject site. The purpose of this work was to attempt to determine the extent of petroleum impacts to ground water. This work was proposed in Geo-Logic's workplan/proposal (GL-97-110.P4) dated August 6, 1998. The workplan was prepared in response to a request from the Alameda County Department of Environmental Health (ACDEH), in their letter to Berkeley Farms dated July 16, 1998.

The scope of the work performed by Geo-Logic for this investigation consisted of the following:

Coordination with regulatory agencies

Geologic logging of six borings

Soil and ground water sampling

Delivery of soil and ground water samples (including properly executed Chain of Custody documentation) to a California-certified analytical laboratory for laboratory analyses

Data analysis, interpretation, and preparation of this report

This work was performed in compliance with the State of California Water Resources Control Board's *Leaking Underground Fuel Tanks (LUFT) Manual* and *California Underground Storage Tank Regulations, 1994*, the California Regional Water Quality Control Board (CRWQCB)

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*Tri-Regional Board Staff Recommendations for Preliminary Investigation and Evaluation of Underground Tank Sites, and ACDEH guidelines.*

#### SITE DESCRIPTION AND BACKGROUND

The subject site is located at the northwestern corner of San Pablo Avenue and 47th Street in Emeryville, California, and formerly contained a service station facility. The site previously operated as a truck repair shop and yard for Berkeley Farms. A Site Plan (Figure 1) is attached to this report.

Geo-Logic's previous work at the site began during the period November 1997 through January 1998, when a former waste oil tank pit was overexcavated and groundwater purging was conducted. This work, including the associated soil and water sample analytical results, are summarized in Geo-Logic's reports (GL-97-110.R1 and R2) dated February 10, 1998.

In February 1998, three monitoring wells were installed at the site. This work is summarized in Geo-Logic's report (GL-97-110.R3) dated March 7, 1998. During April and May, 1998, a former fuel storage tank pit at the southern portion of the property was overexcavated and groundwater purging was conducted. This work, and the results of the second quarter of monitoring and sampling of the three wells, is summarized in Geo-Logic's report (GL-97-110.R4) dated June 9, 1998. The results of the most recent monitoring and sampling of the three wells (third quarter) is summarized in Geo-Logic's report (GL-97-110.R5) dated August 25, 1998.

#### RECENT FIELD ACTIVITIES

Prior to drilling, an offsite access agreement was obtained from the Alameda-Contra Costa Transit District (A.C. Transit) and the planned work was reviewed with A.C. Transit personnel during an onsite visit. The boring locations were marked with white paint and Underground Service Alert was notified. In addition, the concrete pavement was cored and the uppermost 5 feet of each boring was hand dug to further insure that there were no conflicts with underground utilities. A drilling permit (No. 98WR409) was obtained from the Alameda County Public Works Agency prior to starting work. In addition, a site-specific Health and Safety Plan was prepared.

On October 8, 1998, the six exploratory borings, designated as B-1 through B-6 on the attached Figure 1, were completed in the downgradient vicinity of the site using a BK-81 hollow-stem auger

drill rig equipped with 8-inch diameter augers. The borings were completed to depths ranging from 14 to 20 feet below grade. Ground water was encountered at depths ranging between 10.5 to 18.8 feet below grade during drilling. Prior to drilling, ground water was measured at 9.6 feet below the top of the well casing in onsite well MW2 at the northern end of the property.

Soil samples were collected for laboratory analysis and for lithologic logging purposes at a maximum spacing of 5 foot intervals, at significant changes in lithology, at obvious areas of contamination, and at or within the soil/ground water interface, beginning at a depth of approximately 5 feet below grade and continuing until ground water was encountered.

The undisturbed soil samples were collected by driving a California-modified split-spoon sampler (lined with brass liners) ahead of the drilling augers. The two-inch diameter brass liners holding the samples selected for laboratory analyses were sealed with Teflon-lined plastic caps, labeled, and placed in individually sealed plastic bags, which were then stored in a cooler, on ice, until delivery to a state-certified laboratory.

The soil samples were screened in the field for the presence of volatile organic compounds using a photo-ionization detector (PID). Soil representative of each sampled interval was removed from the sample liners and immediately placed in a sealed plastic bag. The PID probe was inserted into the head-space inside the plastic bag and the maximum reading was recorded on the boring log. The only measurable volatile organic vapors were from the two soil samples obtained from boring B-5, consistent with the results of the water analyses at this location.

The first attempted water sampling was done in boring B-2 using a "Power-punch" hydropunch-type groundwater sampling tool. The hydropunch was driven ahead of the drilling augers from approximately 10.5 to 12 feet below grade and the outer portion of the sampling tool was carefully retracted to expose the screen. No water had collected in the hydropunch after 45 minutes. The remaining water samples were collected from the open boreholes after completely or partially retracting the augers.

Prior to each use, the hollow-stem augers were cleaned using a hot water pressure washer. The soil sampler and all drill rods used in sampling were also hot water pressure washed prior to each use.

Water samples were collected from the boreholes using disposal clean Teflon bailers. The samples were decanted into clean VOA

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vials and/or one-liter amber bottles, as appropriate, which were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory.

Ms. Susan Hugo of the ACDEH visited the site during drilling and sampling activities.

Following sample collection, the borings were backfilled with bentonite within the saturated zone, followed by neat cement grout. Quick setting concrete was used to finish sealing of the borehole at grade.

Drill cuttings generated from the borings were placed in DOT-approved 55-gallon steel drums, which were labeled and stored onsite pending proper disposal at a landfill facility.

#### ANALYTICAL RESULTS

Water and selected soil samples from borings B-1 through B-6 were analyzed at Calcoast Analytical, Inc., in Emeryville, California. All samples analyzed were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline by EPA method 5030/modified 8015, and benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8020. In addition, the soil and water samples collected from borings B-1 through B-3, located downgradient of a former waste oil tank, were analyzed for TPH as motor oil by EPA Method 8015 (modified).

No detectable concentrations of TPH as gasoline, BTEX, MTBE, TPH as diesel, or TPH as motor oil were detected in any of the soil or ground water samples collected from the exploratory borings, except for 66 micrograms per liter (mcg/l) of TPH as diesel detected in the water sample collected from boring B-5. Laboratory analytical results for the water samples collected from the exploratory borings are shown on the attached Figure 2. The results of the soil analyses are summarized in Table 1, and the results of the water analyses are summarized in Table 2. Copies of the laboratory analyses and the Chain of Custody documentation are attached to this report.

#### HYDROLOGY AND GEOLOGY

On October 8, 1998, the measured depth to ground water in monitoring well MW2 was 9.6 feet below the top of the well casing. The ground water flow direction historically has been to the west, at a hydraulic gradient of between 0.13 and 0.28, based on the

three quarters of monitoring data from the onsite wells.

The groundwater conditions encountered during this investigation are consistent with previous investigations which indicate that the first water (first aquifer) occurs in a semi-confined or confined condition. Groundwater entered the boreholes only upon extending the borings well below the static water level. In Boring B-2, the first boring attempted and the shallowest boring (completed to 15 feet below grade), adequate groundwater for sampling took approximately 4.5 hours to accumulate in the borehole. The remaining borings were completed to depths of between 15 and 20 feet below grade and groundwater entered the boreholes relatively quickly, except for in boring B-4.

#### DISCUSSION AND RECOMMENDATIONS

The exploratory borings completed for this investigation were sited downgradient from petroleum-impacted groundwater area at the northern portion of the former Berkeley Farms site, where a former waste oil tank was located (vicinity of MW2) and downgradient from a second petroleum-impacted groundwater area at the southern portion of the site, where a former fuel tank pit was located (vicinity of MW1). The borings were placed at a distance downgradient that was estimated would yield nondetectable results and therefore provide downgradient delineation for the groundwater plumes for these two areas.

As reported above, no detectable concentrations of TPH as gasoline, BTEX, MTBE, TPH as diesel, or TPH as motor oil were detected in any of the soil or ground water samples collected from the exploratory borings, except for 66 mcg/l of TPH as diesel detected in the water sample collected from boring B-5.

Therefore, it appears that the downgradient extent of the petroleum-impacted groundwater areas at the former Berkeley Farms site are largely delineated.

Oxygen Releasing Compound (ORC), a product that is designed to enhance the biodegradation of petroleum hydrocarbons, was added to the three onsite monitoring wells on September 5, 1998. Baseline measurements of dissolved oxygen in groundwater were collected prior to addition of the ORC. The addition of the ORC to the monitoring wells will be evaluated in the next quarterly monitoring report.

Based on the analytical results of the soil and ground water samples collected at the subject site and vicinity to date, Geo-

Based on the analytical results of the soil and ground water samples collected at the subject site and vicinity to date, Geo-Logic recommends the continuation of the current monitoring and sampling program. The wells are currently monitored and sampled on a quarterly basis. The groundwater samples collected from the three wells will be analyzed for TPH as gasoline, TPH as diesel, and BTEX. In addition, the groundwater sample collected from well MW2, located downgradient of the former waste oil tank location, will be analyzed for TPH as motor oil. The results of the monitoring program will be documented and evaluated after each monitoring and sampling event. Additional recommendations will be made, as warranted.

#### DISTRIBUTION

A copy of this report should be sent to Ms. Susan Hugo of the ACDEH, and to Ms. Suzanne Patton of the Alameda-Contra Costa Transit District.

#### LIMITATIONS

Soil deposits and rock formations may vary in thickness, lithology, saturation, strength and other properties across any site. In addition, environmental changes, either naturally-occurring or artificially-induced, may cause changes in the extent and concentration of any contaminants. Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

The results of this study are based on the data obtained from the field and laboratory analyses obtained from a state certified laboratory. We have analyzed this data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either expressed or implied, regarding the above, including laboratory analyses, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

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(510) 787-6867 - Fax (510) 787-1457

October 30, 1998

Ms. Susan Hugo  
Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway, 2nd Floor  
Alameda, California 94502

RE: Report - Additional Groundwater Investigation  
Former Berkeley Farms Truck Repair Shop and Yard  
4575 San Pablo Avenue  
Emeryville, California 94608

Dear Ms. Hugo:

Attached please find a report documenting the recent groundwater investigation work downgradient of the subject site. Should you have any questions regarding this, please feel free to call me at (510) 787-6867.

Sincerely,

Geo-Logic



Joel G. Greger, C.E.G.  
Certified Engineering Geologist

License No. EG 1633  
Exp. Date 8/31/2000

Attachments: Report

ENVIRONMENTAL  
PROTECTION  
98 NOV -4 PM 12:18

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Should you have any questions regarding this report, please feel free to call me at (510) 787-6867.

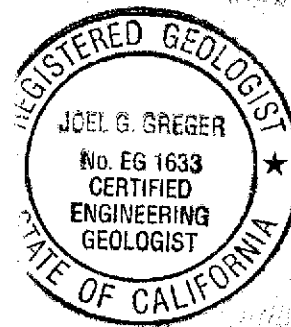
Sincerely,

Geo-Logic



Joel G. Greger, C.E.G.  
Certified Engineering Geologist

License No. EG 1633  
Exp. Date 8/31/2000



Attachments: Tables 1 and 2  
Figures 1 and 2  
Boring Logs  
Laboratory Analyses and  
Chain of Custody documentation



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TABLE 1  
SUMMARY OF LABORATORY ANALYSES  
SOIL

(Samples collected on October 8, 1998)

<u>Sample No./Depth</u>	<u>TPH as Diesel</u>	<u>TPH Gas</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>	<u>MTBE</u>	<u>TPH as Motor Oil</u>
B1 (5.5')	<0.1	<0.1	<0.005	<0.005	<0.005	<0.005	<0.1	<0.1
B2 (9')	<0.1	<0.1	<0.005	<0.005	<0.005	<0.005	<0.1	<0.1
B3 (10.5')	<0.1	<0.1	<0.005	<0.005	<0.005	<0.005	<0.1	<0.1
B4 (10.5')	<0.1	<0.1	<0.005	<0.005	<0.005	<0.005	<0.1	--
B5 (5.5')	<0.1	<0.1	<0.005	<0.005	<0.005	<0.005	<0.1	--
B5 (10.5')	<0.1	<0.1	<0.005	<0.005	<0.005	<0.005	<0.1	--
B6 (10.5')	<0.1	<0.1	<0.005	<0.005	<0.005	<0.005	<0.1	--
Det. Limit/ Method Blank	<0.1	<0.1	<0.005	<0.005	<0.005	<0.005	<0.1	<0.1

-- analyses not performed.

Results are in milligrams per kilogram (mg/kg), unless otherwise indicated.

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October 30, 1998

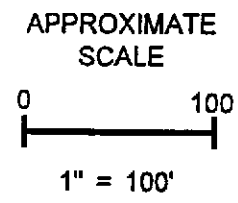
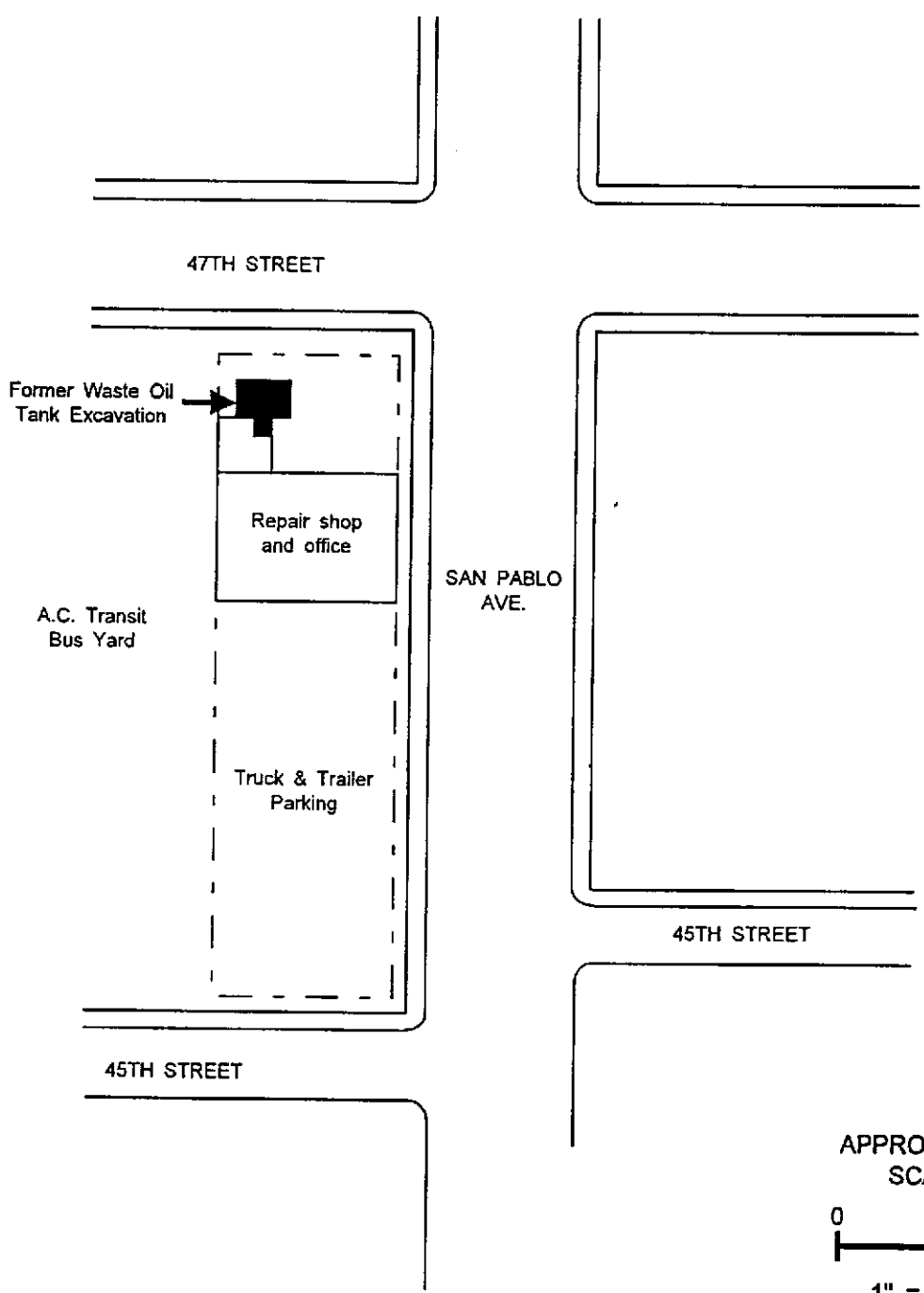
TABLE 2  
SUMMARY OF LABORATORY ANALYSES  
WATER

(Samples collected on October 8, 1998)

<u>Sample No./Depth</u>	<u>TPH as Diesel</u>	<u>TPH Gas</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>	<u>MTBE</u>	<u>TPH as Motor Oil</u>
B1 (10.5')	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
B2 (14.4')	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
B3 (10.8')	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
B4 (18.8')	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	--
B5 (11.1')	66	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	--
B6 (10.7')	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	--
Det. Limit/ Method Blank	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

-- analyses not performed

Results are in micrograms per liter (mcg/L), unless otherwise indicated.



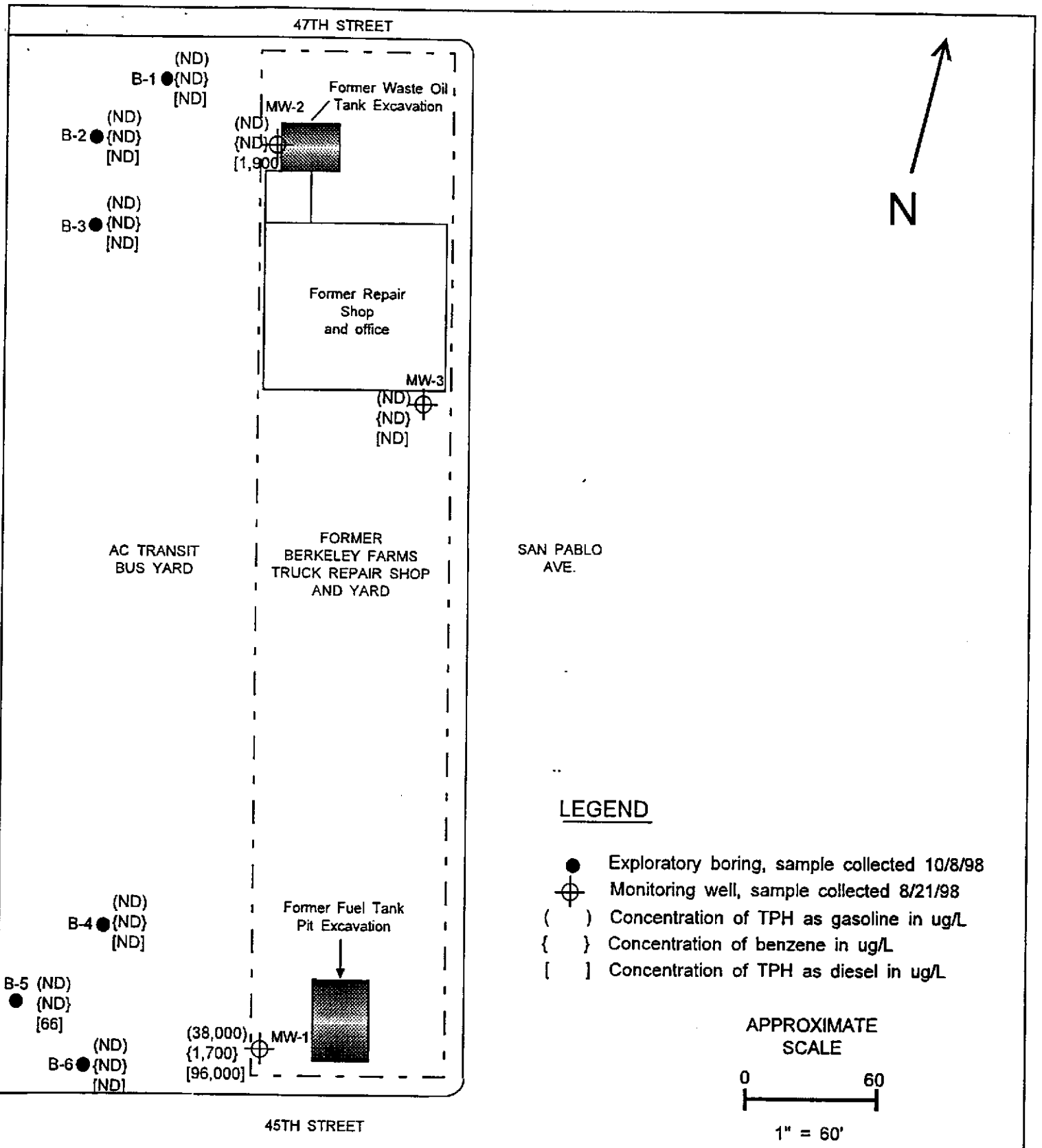
Berkeley Farms Truck Repair Shop & Yard  
4575 San Pablo Avenue  
Emeryville, California

Figure No:  
1

Date: October 30, 1998

Drawn By: JG/GEO-LOGIC

# SITE PLAN



Former Berkeley Farms  
Truck Repair Shop & Yard  
4575 San Pablo Avenue  
Emeryville, California

Figure No:

2


Date: October 30, 1998

Drawn By: JG/GEO-LOGIC

# Petroleum Hydrocarbons in Groundwater

## BORING LOG

Project No. GL-97-110.R6	Boring diameter: 8"	Logged By: Joel Greger
Project: Berkeley Farms Truck Shop & Yard	Drilling Company: Woodward Drilling	Date drilled: 10/8/98
Boring No. B1	Drilling Method: Hollow Stem Auger	Date backfilled: 10/8/98

Penetration Blows/6" (Mod. Cal)	PID reading	Sample Depth (ft)	Soil Class (USCS)	G.W. level	Description
		0			9" of concrete over sand, silt, and gravel base (fill).
4/7/11	PID-0	5	ML		CLAYEY SILT (ML), GRAY (5Y 5/1), slightly moist to moist, stiff, mottled bluish gray.
8/9/13	PID-0	10			CLAYEY SILT (ML) as above except wet to saturated along fissures, mottled with iron oxide staining.
		15			
		20			Total Depth: 16 feet Ground water rose to 7.35' after retracting augers. Backfilled with bentonite and neat cement grout.
		25			
		30			

Berkeley Farms Truck Shop & Yard 4575 San Pablo Avenue Emeryville, California	<b>B-1</b>	Date: October 27, 1998  Drawn By: JG/Geo-Logic
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### Boring Log

## BORING LOG

Project No. GL-97-110.R6	Boring diameter: 8"	Logged By: Joel Greger
Project: Berkeley Farms Truck Shop & Yard	Drilling Company: Woodward Drilling	Date drilled: 10/8/98
Boring No. B-2	Drilling Method: Hollow Stem Auger	Date backfilled: 10/8/98


Penetration Blows/6" (Mod. Cal)	PID reading	Sample Depth (ft)	Soil Class (USCS)	G.W. level	Description
		0			9" of concrete over sand, silt, and gravel base (fill).
5/12/14	PID-0	5	ML	hydro-punch attemp	CLAYEY SILT (ML), brown (10YR 5/3), slightly moist, very stiff, mottled iron oxide staining.
10/12/20	PID-0	10			CLAYEY SILT (ML) as above except wet to locally saturated along fissures, mottled with iron oxide staining. (Drilled to 10.5', attempted hydropunch sampling, no water. Drilled to 15 feet and retracted augers.
		15		▽	Total Depth: 15 feet Ground water measured at 14.5' after 4.5 hours. Backfilled with bentonite and neat cement grout.
		20			
		25			
		30			

Berkeley Farms Truck Shop & Yard 4575 San Pablo Avenue Emeryville, California	B-2	Date: October 27, 1998
		Drawn By: JG/Geo-Logic

### Boring Log

## BORING LOG

Project No. GL-97-110.R6	Boring diameter. 8"	Logged By: Joel Greger
Project: Berkeley Farms Truck Shop & Yard	Drilling Company: Woodward Drilling	Date drilled: 10/8/98
Boring No. B-3	Drilling Method: Hollow Stem Auger	Date backfilled: 10/8/98


Penetration Blows/6" (Mod. Cal)	PID reading	Sample Depth (ft)	Soil Class (USCS)	G.W. level	Description
		0			9" of concrete over sand, silt, and gravel base (fill).
5/10/11	PID-0	5	ML		CLAYEY SILT (ML), brown (10YR 5/3), slightly moist to moist, stiff, mottled iron oxide and bluish-gray staining, trace angular gravels to 1/8" in diameter.
5/10/11	PID-0	10			CLAYEY SILT (ML) as above except wet to saturated along fissures.
		15			Total Depth: 15 feet Ground water rose to 10.6' after retracting augers. Backfilled with bentonite and neat cement grout.
		20			
		25			
		30			

Berkeley Farms Truck Shop & Yard 4575 San Pablo Avenue Emeryville, California	<b>B-3</b>	Date: October 27, 1998 <hr/> Drawn By: JG/Geo-Logic
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### Boring Log

## BORING LOG

Project No. GL-97-110.R6	Boring diameter: 8"	Logged By: Joel Greger
Project: Berkeley Farms Truck Shop & Yard	Drilling Company: Woodward Drilling	Date drilled: 10/8/98
Boring No. B-4	Drilling Method: Hollow Stem Auger	Date backfilled: 10/8/98

Penetration Blows/6" (Mod. Cal)	PID reading	Sample Depth (ft)	Soil Class (USCS)	G.W. level	Description
		0			9" of concrete over sand, silt, and gravel base (fill).
6/12/18	PID-0	5	ML		CLAYEY SILT (ML), dark reddish brown (5YR 2.5/2), slightly moist to moist, stiff, mottled iron oxide staining.
6/8/11	PID-0	10	ML		CLAYEY SILT (ML), gray (5Y 5/1), wet to saturated along fissures, stiff, trace angular gravels to 1/4" in diameter.
		15			(Drilled to 15 feet and partially retracted augers, no water. Drilled to 18 feet, no water. Drilled to 20 feet, water very slow to come in.)
		20			
		25			Total Depth: 20 feet Ground water measured at 18.8'. Backfilled with bentonite and neat cement grout.
		30			


Berkeley Farms Truck Shop & Yard 4575 San Pablo Avenue Emeryville, California	<h1 style="font-size: 2em;">B-4</h1>	Date: October 27, 1998  Drawn By: JG/Geo-Logic
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## Boring Log



## BORING LOG

Project No. GL-97-110.R6	Boring diameter: 8"	Logged By: Joel Greger
Project: Berkeley Farms Truck Shop & Yard	Drilling Company: Woodward Drilling	Date drilled: 10/8/98
Boring No. B-5	Drilling Method: Hollow Stem Auger	Date backfilled: 10/8/98


Penetration Blows/6" (Mod. Cal)	PID reading	Sample Depth (ft)	Soil Class (USCS)	G.W. level	Description
		0			9" of concrete over sand, silt, and gravel base (fill).
7/9/14	PID -19.1	5	ML		SANDY SILT (ML), very dark gray (stained?) ((10YR 3.1), slightly moist to moist, stiff, odor of hydrocarbons.
5/8/14	PID-13.3	10			CLAYEY SILT (ML), brown (10YR 5/3), v. moist, stiff, mottled bluish gray and iron oxidestaining, odor of hydrocarbons.
		15			(Drilled to 20 feet and retracted augers, ground water came in quickly).
		20			
		25			Total Depth: 20 feet Ground water measured at 11.1'. Backfilled with bentonite and neat cement grout.
		30			

Berkeley Farms Truck Shop & Yard 4575 San Pablo Avenue Emeryville, California	<b>B-5</b>	Date: October 27, 1998 <hr/> Drawn By: JG/Geo-Logic
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### Boring Log

## BORING LOG

Project No. GL-97-110.R6	Boring diameter: 8"	Logged By: Joel Greger
Project: Berkeley Farms Truck Shop & Yard	Drilling Company: Woodward Drilling	Date drilled: 10/8/98
Boring No. B-6	Drilling Method: Hollow Stem Auger	Date backfilled: 10/8/98

Penetration Blows/6" (Mod. Cal)	PID reading	Sample Depth (ft)	Soil Class (USCS)	G.W. level	Description
		0			9" of concrete over sand, silt, and gravel base (fill).
5/10/14	PID-0	5	ML		CLAYEY SILT (ML), brown (10YR 5/3), moist to very moist, stiff, mottled bluish gray and iron oxide staining.
6/11/12	PID-0	10			CLAYEY SILT (ML), light olive gray (5Y 6/2), v. moist, stiff, 2" zone of very weathered decomposed gravels at 11 feet.
		15			(Drilled to 20 feet and retracted augers, ground water came in quickly).
		20			
		25			Total Depth: 20 feet Ground water measured at 10.7'. Backfilled with bentonite and neat cement grout.
		30			

Berkeley Farms Truck Shop & Yard 4575 San Pablo Avenue Emeryville, California	<b>B-6</b>	Date: October 27, 1998  Drawn By: JG/Geo-Logic
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### Boring Log

# CALCOAST ANALYTICAL

## Materials Chemistry

Certified by  
*California Department of Health Services  
City of Los Angeles, Dept. of Building & Safety*

October 13, 1998

Geo-Logic  
1140 - 5<sup>th</sup> Avenue  
Concord, CA 94525

Attn: Mr. Joel Greger

Ref: Lab File No. 1008-5A/M-98

### 1. SAMPLE:

Seven (7) soil cores from Berkeley Farms, San Pablo Avenue; Job No.: 1095.

- A. B1 (5.5')
- B. B2 (9')
- C. B3 (10.5')
- D. B4 (10.5')
- E. B5 (5.5')
- F. B5 (10.5')
- G. B6 (10.5')

*Collected: October 8, 1998*

*Received: October 8, 1998*

### 2. ANALYSIS REQUIRED:

- A. Total Petroleum Hydrocarbons - diesel (TPH-d) by Gas Chromatography (GC).
- B. Total Petroleum Hydrocarbons - gasoline (TPH-g) by GC

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COATINGS • BUILDING MATERIALS • HAZARDOUS WASTE  
SPECTROSCOPY • CHROMATOGRAPHY • MICROSCOPY

---

TELEPHONE (510) 652-2979  
FAX (510) 652-3085

P.O. BOX 8702 • EMERYVILLE, CA 94662  
4072 WATTS STREET • EMERYVILLE, CA 94608

2. ANALYSIS REQUIRED - Continued:

- C. Benzene, Toluene, Ethylbenzene and Xylene (BTEX) by GC
- D. Total Petroleum Hydrocarbons - motor oil, on Samples A, B, and C only, by GC.
- E. Methy-tert-butyl ether (MTBE) by GC.

3. METHODS OF ANALYSIS:

- A. EPA Method 8015; SW-846
- B. EPA Method 8015; SW-846
- C. EPA Method 8020; SW-846
- D. EPA Method 8015 - modified; SW-846.
- E. EPA method 8020; SW - 846

4. RESULTS:

- A. TPH-diesel

Sample	TPH-diesel (mg/kg)
A. B1 (5.5')	<0.1 (ND)
B. B2 (9')	<0.1 (ND)
C. B3 (10.5')	<0.1 (ND)
D. B4 (10.5')	<0.1 (ND)
E. B5 (5.5')	<0.1 (ND)
F. B5 (10.5')	<0.1 (ND)
G. B6 (10.5')	<0.1 (ND)

*Method Blank/Detection Limit = <0.1 mg/kg (none detected)*  
*Mean Spike Recovery = 92%*

4. RESULTS - Continued:

B. TPH-gasoline

Sample	TPH-gasoline (mg/kg)
A. B1 (5.5')	< 0.1 (ND)
B. B2 (9')	< 0.1 (ND)
C. B3 (10.5')	< 0.1 (ND)
D. B4 (10.5')	< 0.1 (ND)
E. B5 (5.5')	< 0.1 (ND)
F. B5 (10.5')	< 0.1 (ND)
G. B6 (10.5')	< 0.1 (ND)

Method Blank/Detection Limit = < 0.1 mg/kg (none detected)  
 Mean Spike Recovery = 103%

C. BTEX

DESCRIPTION	CONCENTRATION (mg/kg)			
	BENZENE	TOLUENE	ETHYLBENZENE	XYLENE
A. B1 (5.5')	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)
B. B2 (9')	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)
C. B3 (10.5')	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)
D. B4 (10.5')	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)
E. B5 (5.5')	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)
F. B5 (10.5')	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)
G. B6 (10.5')	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)
Method Blank	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)	< 0.005 (ND)
Mean Spike Recovery	95%	107%	106%	102%

4. RESULTS - Continued:

D. TPH - motor oil

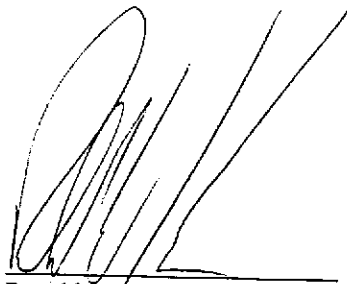
SAMPLE	TPH - MOTOR OIL (mg/kg)
A. B1 (5.5')	<0.1 (ND)
B. B2 (9')	<0.1 (ND)
C. B3 (10.5')	<0.1 (ND)

Method Blank/Detection Limit = 0.1 mg/kg (none detected)

E. MTBE

Sample	MTBE (mg/kg)
A. B1 (5.5')	<0.1 (ND)
B. B2 (9')	<0.1 (ND)
C. B3 (10.5')	<0.1 (ND)
D. B4 (10.5')	<0.1 (ND)
E. B5 (5.5')	<0.1 (ND)
F. B5 (10.5')	<0.1 (ND)
G. B6 (10.5')	<0.1 (ND)

Method Blank/Detection Limit = <0.1 mg/kg (none detected)



Ronald W/Shrewsbury  
Analytical Chemist  
RWS:dg(2)

ALL SAMPLES SUBMITTED FOR TESTING WILL BE HELD 30 DAYS FROM REPORT DATE AT WHICH TIME THEY WILL BE RETURNED TO CLIENT OR DESTROYED. CLIENT WILL BE RESPONSIBLE FOR ALL SHIPPING, HANDLING, AND DISPOSAL CHARGES. SAMPLES WILL BE STORED UPON WRITTEN INSTRUCTIONS AND FEE ARRANGEMENTS.

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# CALCOAST ANALYTICAL

## Materials Chemistry

Certified by  
*California Department of Health Services  
City of Los Angeles, Dept. of Building & Safety*

October 27, 1998

Geo-Logic  
1140 5<sup>th</sup> Avenue  
Crockett, CA 94525

Attn: Mr. Joel Greger

Ref: Lab File #1008-4A/F-98

1. **SAMPLE(S):**

Six (6) water samples, from Berkeley Farms, San Pablo Avenue; Job No. 1095

- A. B 1 (10.5')
- B. B 2 (14.4')
- C. B 3 (10.8')
- D. B 4 (18.8')
- E. B 5 (11.1')
- F. B 6 (10.7')

*Collected: October 8, 1998*

*Received: October 8, 1998*

2. **ANALYSIS REQUIRED:**

- A. Total Petroleum Hydrocarbons - gasoline (TPH-g) by Gas Chromatography (GC).
- B. Total Petroleum Hydrocarbons - diesel (TPH-d) by G.C.
- C. Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) by GC.
- D. Methyl-tert-butyl ether (MBTE) by GC.
- E. Total petroleum Hydrocarbons - motor oil, on Samples A, Band C only, by G.C.

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COATINGS • BUILDING MATERIALS • HAZARDOUS WASTE  
SPECTROSCOPY • CHROMATOGRAPHY • MICROSCOPY

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TELEPHONE (510) 652-2979

FAX (510) 652-3085

P.O. BOX 8702 • EMERYVILLE, CA 94662  
4072 WATTS STREET • EMERYVILLE, CA 94608

3. METHODS OF ANALYSIS:

- A. EPA Method 8015; SW-846
- B. EPA method 8015; SW - 846
- C. EPA Method 8020; SW-846
- D. EPA Method 8020; SW-846
- E. EPA method 8015 - modified; SW - 846

4. RESULTS:

A. TPH - gasoline

Sample	TPH - gasoline ( $\mu\text{g/l}$ )
A. B 1	< 5.0 (ND)
B. B 2	< 5.0 (ND)
C. B 3	< 5.0 (ND)
D. B 4	< 5.0 (ND)
E. B 5	< 5.0 (ND)
F. B 6	< 5.0 (ND)

Method Blank = < 5.0  $\mu\text{g/l}$  (none detected)  
Mean Spike Recovery = 108%

B. TPH - diesel

Sample	TPH - diesel ( $\mu\text{g/l}$ )
A. B 1	< 5.0 (ND)
B. B 2	< 5.0 (ND)
C. B 3	< 5.0 (ND)
D. B 4	< 5.0 (ND)
E. B 5	66
F. B 6	< 5.0 (ND)

Method Blank = < 5.0  $\mu\text{g/l}$  (none detected)  
Mean Spike Recovery = 107%



4. RESULTS - Continued:

C. BTEX

Sample	Concentration - ( $\mu\text{g/l}$ )			
	Benzene	Toluene	Ethylbenzene	Xylene
A. B 1	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)
B. B 2	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)
C. B 3	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)
D. B 4	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)
E. B 5	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)
F. B 6	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)
Method Blank	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)
Mean Spike Recovery	111%	104%	105%	109%

D. MTBE

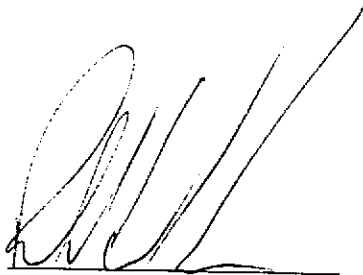
Sample	MTBE ( $\mu\text{g/l}$ )
A. B 1	<5.0 (ND)
B. B 2	<5.0 (ND)
C. B 3	<5.0 (ND)
D. B 4	<5.0 (ND)
E. B 5	<5.0 (ND)
F. B 6	<5.0 (ND)

Method Blank = <0.5  $\mu\text{g/l}$  (none detected)  
 Mean Spike Recovery = 102%

E. TPH - motor oil

Sample	Motor Oil ( $\mu\text{g/l}$ )
A. B 1	< 5.0 (ND)
B. B 2	< 5.0 (ND)
C. B 3	< 5.0 (ND)

Method Blank = < 0.5  $\mu\text{g/l}$  (none detected)



Ronald W. Shrewsbury  
Analytical Chemist  
RWS:dg(2)

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# Calcoast Analytical, Inc.

Date 10/8/98 Chain of Custody Page 2 of 3

Proj. Mgr.: Joel Greer - Geologic  
 Company: Paradise Mechanical, Inc  
 Address: POB 1836  
2600 Williams St  
San Leandro CA

## Analysis Report

Samples (signature) Joel (Phone No.) 510 7876867  
 (Fax No.) 510 7871457

Sample ID	Type	Date	Time	Matrix	Preserve.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/ BTEX (EPA 602, 8020)	TPH - Diesel, TEPH (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASENEUTRALS, ACIDS (EPA 625/627, 8270, 325)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)	LUFT METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)	7 PPHAS Motor Oil	NUMBER OF CONTAINERS		
B1 (5.5)	1 liter	10/8/98		Soil			X	X																1	
B1 (10.5)																									
B2 (6)																									
B2 (9)							X	X																	
B3 (5.5)							X	X																	
B3 (10.5)							X	X																	
B4 (5.5)							X	X																	
B4 (10.5)							X	X																	
B5 (5.5)							X	X																	

Project Information		Sample Receipt			
Project Name <u>Berkley Farms</u>	Total No. of Containers	Conforms To Record		Other	
Project No. <u>4525 San Pablo</u>	Head Space	24	48	72	
PO #	Spec'd Good Condition/Cold				
TAT <input checked="" type="checkbox"/> Standard					
5-Day					

Relinquished By: Joel  
 (Signature)  
Joel Greer  
 (Printed Name)  
10/8/98 3:45  
 (Date) (Time)

1. Relinquished By: (Signature) (Printed Name) (Date) (Time)

2. Relinquished By: (Signature) (Printed Name) (Date) (Time)

3. Relinquished By: (Signature) (Printed Name) (Date) (Time)

Special Instructions / Comments:  
Paradiso Job #1095  
if TPHAS Motor Oil in  
Soil > 100 ppm, need  
to run 8010 + Luft 5 metals

Received By: Ronald Shrewsbury  
 (Signature)  
Ronald Shrewsbury  
 (Printed Name)  
10/8/98 3:45  
 (Date) (Time)

1. Received By: (Signature) (Printed Name) (Date) (Time)

2. Received By: (Signature) (Printed Name) (Date) (Time)

3. Received By: (Signature) (Printed Name) (Date) (Time)

