

October 29, 2003

Mr. Don Strough  
Strough Family Trust of 1983  
PO Box 489  
Orinda, California 94563

Alameda County  
OCT 31 2003  
Environmental Health

**Subject: LETTER OF TRANSMITTAL**  
**Third Quarter 2003 Groundwater Monitoring Report**  
Strough Family Trust  
327 34<sup>th</sup> Street  
Oakland, California

Dear Mr. Don Strough:

ETIC Engineering, Inc. is pleased to submit one copies of the *First Quarter 2003 Groundwater Monitoring Report* for the above-referenced site. We have distributed additional copies of the report as noted below.

ETIC appreciates the opportunity to provide the Strough Family Trust of 1983 with environmental consulting services. If you have any questions or comments, please contact me at (510) 208-1600, extension 16.

Sincerely,  
**ETIC Engineering, Inc.**



Luis A. Fraticelli, R.G.  
Senior Project Manager

Enclosure: Third Quarter 2003 Groundwater Monitoring Report

Cc: Don Hwang, Alameda County Health Services Agency, 1131 Harbor Bay Parkway, Suite 250,  
Alameda, California 94502-6577  
Jonathan Redding, Wendel Rosen Black and Dean, 1111 Broadway, 24<sup>th</sup> Floor, Oakland, California  
94607  
Project File

Transmittal Letter.doc



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**THIRD QUARTER 2003  
GROUNDWATER MONITORING REPORT**

**STROUGH FAMILY TRUST OF 1983  
VAL STROUGH SITE  
327 34<sup>th</sup> STREET  
OAKLAND, CALIFORNIA**

*Alameda County  
OCT 31 2003  
Environmental Health*

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Prepared For:

Mr. Don Strough  
Strough Family Trust of 1983  
PO Box 489  
Orinda, California 94563

Prepared By:

ETIC Engineering, Inc  
1333 Broadway, Suite 1015  
Oakland, CA 94612

October 29, 2003

**Third Quarter 2003  
Groundwater Monitoring Report**

**Strough Family Trust  
327 34<sup>th</sup> Street  
Oakland, California**

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Prepared for:

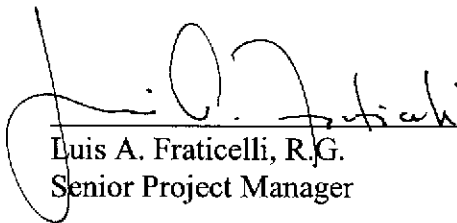
Mr. Don Strough  
Strough Family Trust of 1983  
PO Box 489  
Orinda, California 94563

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ETIC Engineering, Inc.  
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Katherine Brandt  
Project Geologist



Luis A. Fraticelli, R.G.  
Senior Project Manager



**TABLE OF CONTENTS**

TABLE OF CONTENTS ..... i  
 SITE CONTACTS..... ii

1.0 INTRODUCTION.....1

2.0 SITE BACKGROUND .....2  
 2.1 SITE LOCATION AND LAND USE .....2  
 2.2 SITE HISTORY AND PREVIOUS INVESTIGATIONS .....2  
 2.3 REGIONAL GEOLOGY AND HYDROGEOLOGY .....3  
 2.4 SITE AND VICINITY GEOLOGY AND HYDROGEOLOGY .....3

3.0 PROTOCOLS FOR QUARTERLY GROUNDWATER MONITORING .....5  
 3.1 GROUNDWATER GAUGING .....5  
 3.2 WELL PURGING .....5  
 3.3 GROUNDWATER SAMPLING.....6

4.0 RESULTS .....7  
 4.1 LIQUID-PHASE HYDROCARBON MONITORING.....7  
 4.2 GROUNDWATER ELEVATION AND GRADIENT .....7  
 4.3 GROUNDWATER ANALYTICAL RESULTS .....7  
 4.4 WORK PROPOSED FOR NEXT QUARTER.....8

5.0 REFERENCES .....9

List of Tables

- Table 1 – Well Construction Details
- Table 2 – Groundwater Quality Data
- Table 3 – Groundwater Monitoring Schedule

List of Figures

- Figure 1 – Site Vicinity Map
- Figure 2 – Site Map with Groundwater Analytical Data
- Figure 3 – September 2003 Groundwater Contour Map and Rose Diagram

List of Appendixes

- Appendix A – Field Protocols
- Appendix B – Field Documents
- Appendix C – Laboratory Analytical Reports



## SITE CONTACTS

Station Name: Val Strough Chevrolet

Site Address: 327 34<sup>th</sup> Street  
Oakland, California

Consultant: ETIC Engineering, Inc.  
1333 Broadway, Suite 1015  
Oakland, California 94612  
(510) 208-1600

ETIC Project Manager: Luis A. Fraticelli

Regulatory Oversight: Don Hwang  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577  
(510) 567-6746



## 1.0 INTRODUCTION

At the request of the Strough Family Trust of 1983, ETIC Engineering, Inc. has prepared this *Third Quarter 2003 Groundwater Monitoring Report* for Val Strough Chevrolet site located in Oakland, California. This report presents the results for the most recent groundwater monitoring conducted at the site and summarizes recent site activities. This report covers site activities through 29 September 2003, the date of the most recent monitoring event. Groundwater monitoring results, well construction details, and groundwater monitoring plan are provided in the attached figures and tables. Groundwater monitoring protocols, field data, and analytical results are provided in the attached appendixes.

### GENERAL SITE INFORMATION

<b>Site name:</b>	Val Strough Chevrolet
<b>Site address:</b>	327 34 <sup>th</sup> Street, Oakland, California
<b>Current property owner:</b>	Strough Family Trust of 1983
<b>Current site use:</b>	Active Val Strough Chevrolet dealership
<b>Current phase of project:</b>	Groundwater monitoring, onsite investigation
<b>Tanks at site:</b>	Two former tanks (1 gasoline, 1 waste-oil) removed 1993
<b>Number of wells:</b>	7 (all onsite)

### GROUNDWATER MONITORING SUMMARY

<b>Gauging and sampling date:</b>	29 September 2003
<b>Wells gauged and sampled:</b>	MW1, MW4-MW7
<b>Wells gauged only:</b>	MW2, MW3
<b>Groundwater flow direction:</b>	South-southwest
<b>Groundwater gradient:</b>	0.02
<b>Liquid-phase hydrocarbons:</b>	Observed in MW2 and MW3
<b>Laboratory:</b>	Severn Trent Laboratories, Inc (STL) of San Francisco, Pleasanton, California

#### Analyses performed:

- Total Petroleum Hydrocarbons as gasoline (TPH-g), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and methyl t-butyl ether (MTBE) by EPA Method 8260B
- Total Extractable Petroleum Hydrocarbon (TEPH) with Silica Gel Clean-up by EPA Method 8015M

## 2.0 SITE BACKGROUND

### 2.1 SITE LOCATION AND LAND USE

Val Strough Chevrolet is an active automobile dealership and service center located at 327 34<sup>th</sup> Street, Oakland, California on the southwest corner of the intersection of Broadway (Auto Row) and 34<sup>th</sup> Street (Figure 1). The property is located south of Interstate 580. Land use in the area is primarily mixed commercial.

The site topography has a slight grade toward the south. The site is located in the San Francisco Bay area, approximately 2 miles east of the San Francisco Bay. The nearest surface water body is Lake Merritt, which is located approximately one mile south of the site.

### 2.2 SITE HISTORY AND PREVIOUS INVESTIGATIONS

A 1,000-gallon gasoline underground storage tank (UST) was installed in 1975 and a 1,000-gallon waste-oil UST was installed prior to 1949. Between 4 and 5 March 1993, the two 1,000-gallon USTs containing unleaded gasoline and waste oil were excavated and removed from the site. The chemicals of potential concern (COPCs) at the site include TPH-g; TPH as diesel (TPH-d); TPH as motor oil ; BTEX; and MTBE. Confirmation soil samples were collected at the bottom of each end of the UST excavations, at approximately 9.5 to 11 feet below ground surface (bgs). Soil samples beneath the gasoline UST contained TPH-g concentrations of 130 milligrams per kilogram (mg/kg), toluene at 0.20 mg/kg, ethylbenzene at 4.9 mg/kg, and total xylenes at 7.8 mg/kg. The COPCs were not detected in soil samples beneath the waste-oil UST.

In July 1993, GeoPlexes, Inc. installed three groundwater monitoring wells (MW1-MW3) downgradient of the USTs (see Table 1 for construction details). MW1 is located southeast, approximately 10 feet from the waste-oil UST. MW2 is located approximately 15 feet south and downgradient of the gasoline UST. MW3 is located downgradient from MW2 and the two USTs (approximately 40 feet south of the USTs). Figures 2 and 3 show the monitoring well locations.

Soil samples collected from each of the monitoring wells (MW1-MW3) were submitted to a state-certified laboratory for analysis. Soil samples from MW1 were below laboratory reporting limits for the COPCs. Soil samples from MW2 contained elevated TPH and BTEX concentrations. Soil samples from boring MW3 (downgradient of MW2) contained TPH, which were not further quantified by the laboratory due to heavy gasoline/or aged gasoline. TPH-g and benzene were detected in the capillary zone soils and in soils beneath the water table. Upon completion of MW3, approximately ¼ inch of floating liquid-phase hydrocarbons (LPH) was observed in this well. The LPH was determined to consist of gasoline-range hydrocarbons. Groundwater quality data are summarized in Table 2.

In June 1998, two additional groundwater monitoring wells (MW4 and MW5) and one soil boring (B-6) were installed to further characterize the lateral extent of the TPH plume. The monitoring wells were completed to a total depth of 31 feet bgs and B-6 was advanced to 26 feet bgs. Analytical results for the COPCs were not detected, except trace benzene levels in MW4 (0.045 parts per billion [ppb]). All five monitoring wells were sampled and tested (see Table 3).

In July 2000, two additional groundwater monitoring wells (MW6 and MW7) were installed downgradient of the plume on the east and west sides of a box culvert in the eastern portion of the site. The below-ground surface box culvert (Former Tributary of Glen Echo Creek) in the east side of the site (below parking lot area) was also investigated in July 2000. The box culvert transecting the site is a re-enforced concrete box measuring 5 feet by 6 feet. The total depth of the concrete box is approximately 17 feet bgs. A cave-in occurred along the box culvert alignment during winter 1983. The caved-in section of the culvert was replaced and lined with a 5-foot-diameter pipe. The flow-line in the culvert at the time was 22.5 feet bgs.

### 2.3 REGIONAL GEOLOGY AND HYDROGEOLOGY

The area is underlain by the Quaternary Temescal Formation, which consists of interfingering layers of clayey gravel, sandy silty clay, and various clay-silt-sand mixtures. The formation varies in thickness to a maximum depth of approximately 60 feet. Underlying the Temescal Formation is the Quaternary Alameda Formation, which consists of unconsolidated continental and marine gravels, sands, silts, and clays, with some shells and organic material in various places. The formation has a maximum known thickness of 1,050 feet (Radbruck, 1957). The site has an elevation of approximately 61 feet above mean sea level (Environmental Data Resources, Inc., 2003).

The site is located in the East Bay Plain Groundwater Basin. Regional flow of groundwater is to the south, in the general direction of the San Francisco Bay (RWQCB, 1995). A current groundwater elevation contour map (with rose diagram) is presented as Figure 3.

### 2.4 SITE AND VICINITY GEOLOGY AND HYDROGEOLOGY

The geology and hydrogeology of the site have been evaluated using soil boring logs from previous investigations at the site. In general, the lithology at the site consists of silty clays, sandy clays, or clays from the surface to depths ranging from 20 to 22 feet bgs. Silty sand has been encountered from approximately 26 feet bgs to the total depth explored in borings MW1 through MW4 (approximately 31 feet bgs). Sandy clay has been observed in MW2 at approximately 45 feet bgs. The total depth explored to date beneath the site is 34 feet bgs.

In September 2003, groundwater occurred at an average depth of 20.9 feet bgs. Figure 2 depicts a rose diagram showing recent flow directions for the shallow water-bearing zone beneath the site. As shown in the rose diagram, the prevailing groundwater flow direction has been toward the southwest, with an average hydraulic gradient of approximately 0.02 foot/foot. The rose diagram was prepared





using groundwater monitoring data from July 1993 through September 2003. Historical and current groundwater monitoring data are presented in Table 2.

### 3.0 PROTOCOLS FOR QUARTERLY GROUNDWATER MONITORING

The following sections of this report present information relevant to the methods employed during the collection of groundwater samples from site wells.

The scope of work for the quarterly groundwater monitoring event at the site included:

- Checking for LPH in all wells.
- Gauging depth to groundwater in all wells.
- Purging wells to be sampled.
- Collecting and analyzing groundwater samples from wells with no LPH.
- Calculating the groundwater gradient and flow direction.
- Preparing a written report summarizing the results of the monitoring event.

#### 3.1 GROUNDWATER GAUGING

Wells were opened prior to gauging to allow the groundwater level in the wells to equilibrate with atmospheric pressure. The depth to groundwater and depth to LPH, if present, were then measured to the nearest 0.01 feet using an electronic water level meter or optical interface probe. The measurements were made from a permanent reference point at the top of the well casing. Wells with a sheen or measurable LPH were not purged or sampled.

The groundwater elevation map (Figure 2) for this monitoring event was constructed using depth-to-groundwater measurements collected during the current sampling event. Depth-to-groundwater measurements and calculated groundwater elevations are presented in Table 2. Field data forms are presented in Appendix B.

#### 3.2 WELL PURGING

After the wells were gauged, each well was purged a minimum of 3 well casing volumes of water to provide representative groundwater samples for analysis. Field parameters including pH, temperature, and electrical conductance were measured during purging to ensure that these parameters had stabilized before groundwater was sampled. Groundwater in each well was purged using an inertial pump (WaTerra). After the well was purged, the water level was checked to ensure that the well had recharged to at least 80 percent of its pre-purge water level.

### 3.3 GROUNDWATER SAMPLING

After purging, groundwater in each well was sampled using dedicated tubing and an inertial pump (WaTerra). Samples collected for volatile organic analysis were placed in Teflon septum-sealed 40-milliliter glass vials in a manner in which no bubbles accumulated in the container. Each sample bottle was labeled with the site name, well number, date, sampler's initials, and preservative. The samples were placed in a cooler with ice to minimize the potential loss of volatile constituents and delivered to STL San Francisco, a state-certified laboratory. The information for each sample was entered on a chain-of-custody form prior to transport to the laboratory. Groundwater analytical results and chain-of-custody documentation are presented in Appendix C.

Purge water produced during the monitoring event was temporarily stored onsite in 55-gallon drums.

## 4.0 RESULTS

The following sections of this report present the results of the depth-to-groundwater measurements and the analytical laboratory results for the groundwater samples that were collected as a part of this monitoring event.

### 4.1 LIQUID-PHASE HYDROCARBON MONITORING

Wells were monitored for the presence of LPH using a disposable bailer and/or interface probe. LPH was measured at a thickness of 0.48 feet in well MW2 and as a sheen in well MW3.

### 4.2 GROUNDWATER ELEVATION AND GRADIENT

Groundwater flow direction was to the south-southwest with a gradient of 0.02. Groundwater elevations in the monitoring wells during this monitoring event ranged between 41.12 (MW6) and 43.45 (MW1) feet. Groundwater elevations are presented in Figure 3. At the request of the Alameda County Health Services Agency (ACHSA), a rose diagram is also presented on Figure 3.

### 4.3 GROUNDWATER ANALYTICAL RESULTS

Groundwater samples were collected from wells MW1, MW4, MW5, MW6, and MW7. Wells MW2 and MW3 were not sampled on 29 September due to the presence of LPH. Samples were analyzed by STL San Francisco for TPH-g, BTEX, and MTBE by EPA Method 8260B, and for TEPH with silica gel clean-up by EPA Method 8015M. Analytical results for this and prior monitoring events are presented in Table 2. Analytical results for this monitoring event are presented on Figure 3. Copies of the chain-of-custody document and laboratory analytical results for groundwater samples are presented in Appendix C.

The following observations are made comparing the current analytical results with the results of the previous sampling event.

- Concentrations of TPH-g, TPH-d, and TPH-mo were below the laboratory reporting limits in monitoring wells MW1 and MW7. This is consistent with previous sampling events.
- TPH-g was detected in MW4, MW5, and MW6 at concentrations of 1,100 µg/L, 100 µg/L, and 230 µg/L, respectively. Historic TPH-g concentrations in these wells show a stable trend.
- BTEX concentrations were below the laboratory reporting limits in monitoring wells MW1, MW4, and MW6, and MW7. Low concentrations of toluene (0.52 µg/L), ethylbenzene (7.1 µg/L), and total xylenes (35 µg/L) were detected in MW5. Historic BTEX concentrations have been below or slightly above laboratory reporting limits.

- MTBE concentrations ranged from  $<0.50 \mu\text{g/L}$  (MW1) to  $1,700 \mu\text{g/L}$  (MW4). In monitoring wells where MTBE have been detected, the concentrations have continued to be stable. MTBE concentrations in MW7 have historically been below laboratory reporting limits; this event had a detection of  $0.62 \mu\text{g/L}$ .

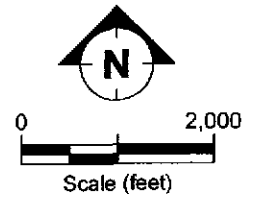
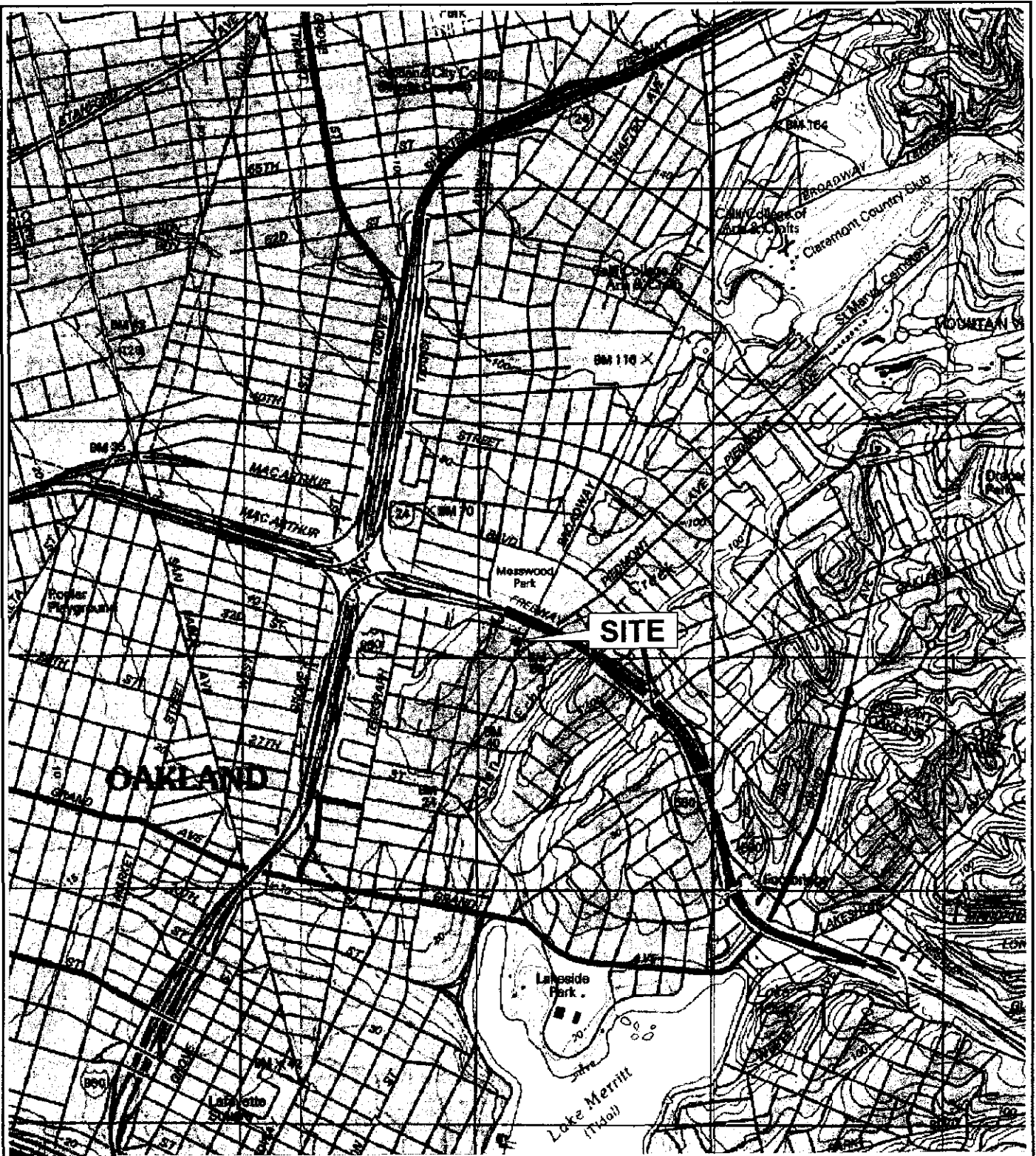
#### 4.4 WORK PROPOSED FOR NEXT QUARTER

- Groundwater will be monitored in accordance with the attached groundwater monitoring schedule presented as Table 3, but will be re-evaluated after four consecutive quarters of monitoring.
- Supplemental Site Investigation Workplan has been submitted to the ACHSA on 17 September 2003 and is awaiting approval.

## 5.0 REFERENCES

- Environmental Data Resources. 2003. EDR Radius Map with GeoCheck, Strough Family Trust, 327 34<sup>th</sup> Street, Oakland, California. September 10.
- ETIC Engineering, Inc. 2003. Supplemental Site Investigation Workplan, Strough Family Trust of 1983, 327 34<sup>th</sup> Street, Oakland, California. September 17.
- Radbruck, Dorothy H. 1957. Areal and Engineering Geology of the Oakland West Quadrangle, California, United States Geologic Survey Miscellaneous Geologic Investigations Map I-239.
- Regional Water Quality Control Board (RWQCB), 1995. Water Quality Control Plan, San Francisco Bay Basin (Region 2). June 21.

## **Figures**



FILENAME: OMR\_302003.DWG - 0/27/03



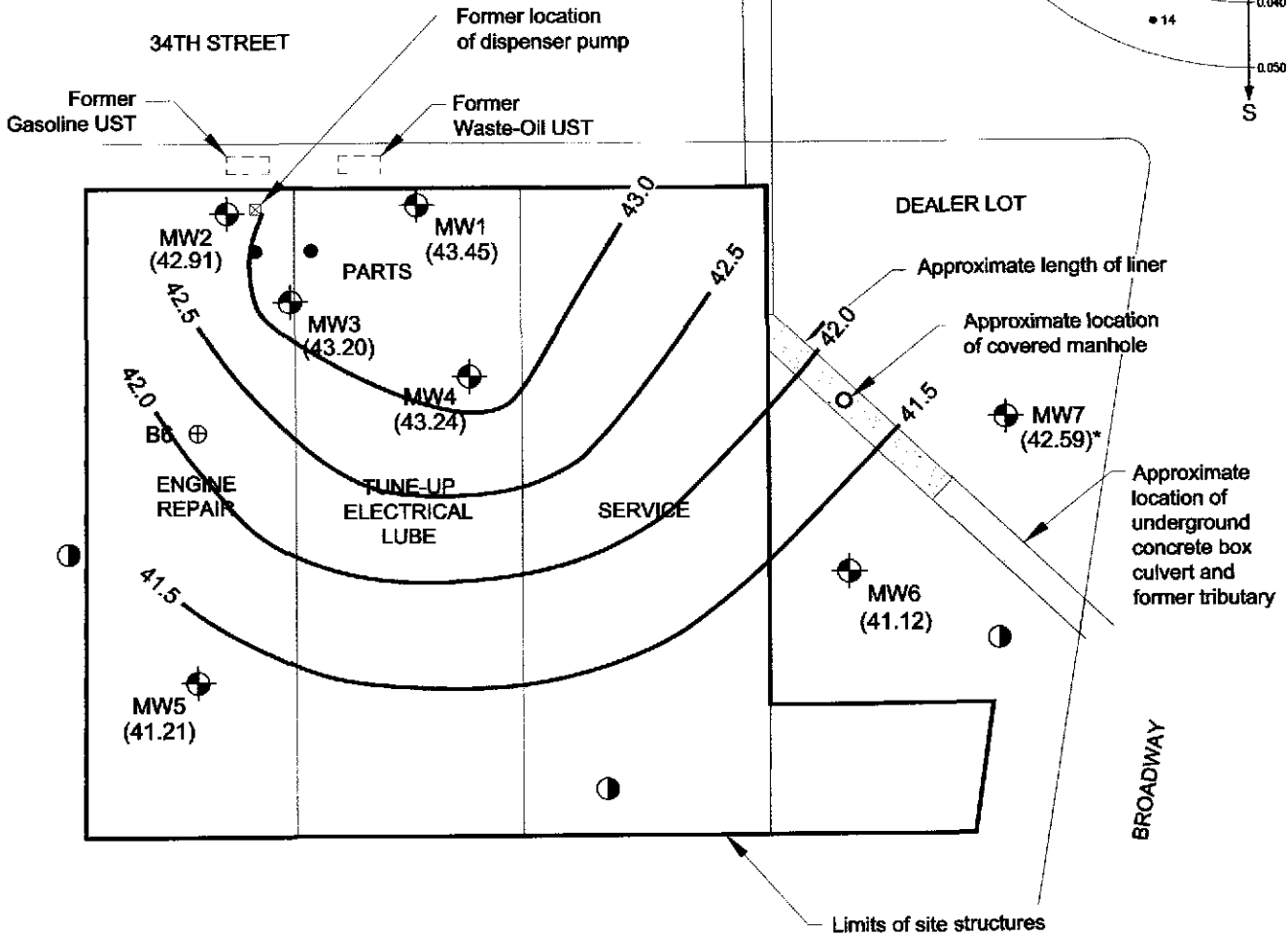
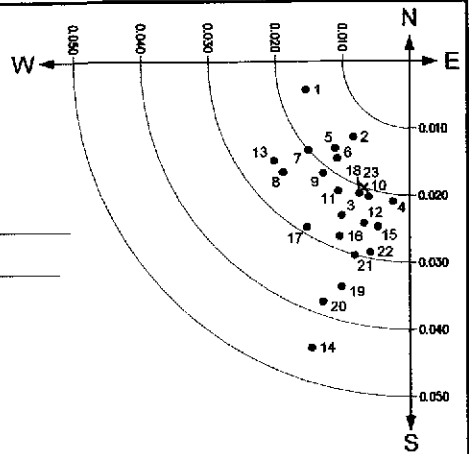
SITE VICINITY MAP  
STROUGH FAMILY TRUST  
327 34TH STREET  
OAKLAND, CALIFORNIA

FIGURE:  
**1**



**ROSE DIAGRAM**

x Current  
● Historical

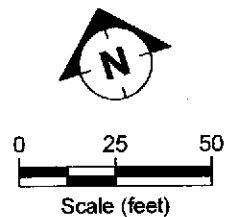


**LEGEND:**

- ⊕ Groundwater monitoring well
- ⊕ Boring location
- Proposed soil boring
- Proposed hydropunch
- ▭ Culvert liner
- ▭ Underground concrete box culvert

43.0 — Groundwater elevation contour (September 2003 data)

\* Well not used to calculate gradient. Well appears to be in a different aquifer.



FILENAME: OWR\_302063.DWG 10/27/03



SEPTEMBER 2003 GROUNDWATER CONTOUR MAP AND ROSE DIAGRAM  
STROUGH FAMILY TRUST  
327 34TH STREET  
OAKLAND, CALIFORNIA

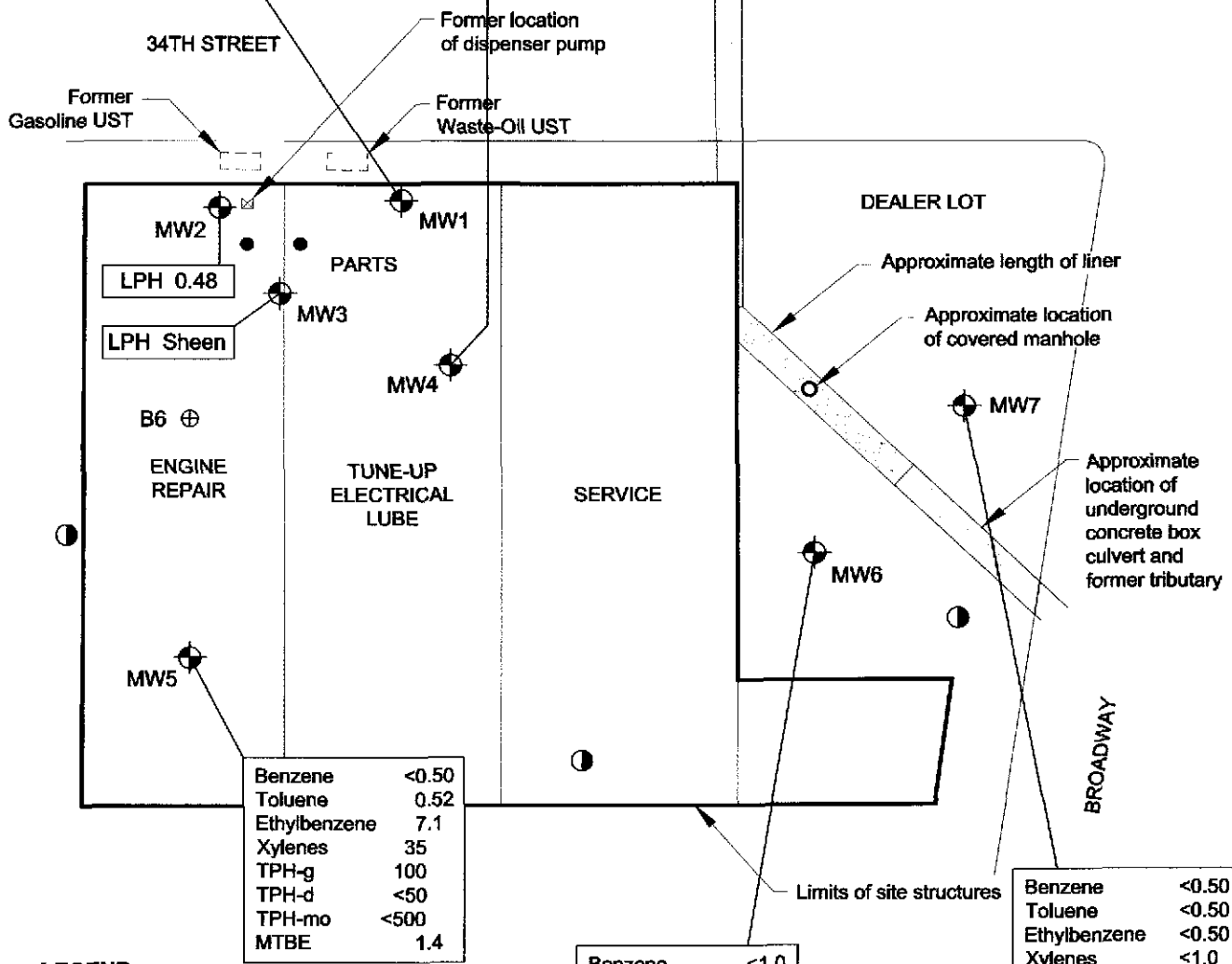
FIGURE:

**2**

Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
Xylenes	<1.0
TPH-g	<50
TPH-d	<50
TPH-mo	<500
MTBE	<0.50

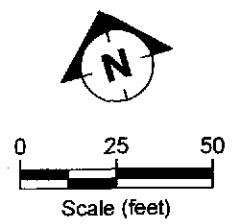
Benzene	<5.0
Toluene	<5.0
Ethylbenzene	<5.0
Xylenes	<10
TPH-g	1,100
TPH-d	<50
TPH-mo	<500
MTBE	1,700

Note:  
Concentrations in micrograms per liter (ug/L).



**LEGEND:**

- ⊕ Groundwater monitoring well
  - ⊕ Boring location
  - Proposed soil boring
  - ⊙ Proposed hydropunch
  - ▬ Culvert liner
  - ▬ Underground concrete box culvert
- TPH-g Total Petroleum Hydrocarbons as gasoline  
 TPH-d Total Petroleum Hydrocarbons as diesel  
 TPH-mo Total Petroleum Hydrocarbons as motor oil  
 MTBE Methyl Tertiary Butyl Ether



FILENAME: 34R\_302303.DWG 10/27/03

## **Tables**

TABLE 1 WELL CONSTRUCTION DETAILS  
STROUGH FAMILY TRUST, 327 34th STREET OAKLAND, CALIFORNIA

Well ID	Well Installation Date	Top-of-Casing Elevation <sup>a</sup> (feet)	Casing Material	Total Depth of Borehole (ft bgs)	Casing Diameter (inches)	Screened Interval (ft bgs)	Slot Size (inches)	Filter Pack Interval (ft bgs)	Filter Pack Material
MW1	07/19/93	64.69	PVC	32	2	17-32	0.020	15-32	Gravel Pack
MW2	07/20/93	65.95	PVC	33	2	18-33	0.020	16-33	Gravel Pack
MW3	07/20/93	65.99	PVC	34	2	18-34	0.020	16-34	Gravel Pack
MW4	06/26/98	63.35	PVC	31	2	15-31	0.020	13-31.5	Lonestar #3 Sand
MW5	06/26/98	65.59	PVC	31	2	15-31	0.020	13-31.5	Lonestar #3 Sand
MW6	07/17/00	59.60	PVC	31.5	2	10-30	0.020	8-30	Lonestar #3 Sand
MW7	07/17/00	59.47	PVC	36.5	2	15-35	0.020	13-35	Lonestar #3 Sand

a Elevations based on a survey conducted August 2002 and referenced benchmark with known elevation (NGVD 29) of 60.40 feet above mean sea level.  
PVC Polyvinyl chloride.  
ft bgs Feet below ground surface.

TABLE 2 GROUNDWATER QUALITY DATA, STROUGH FAMILY TRUST, 327-34TH STREET, OAKLAND, CALIFORNIA

Well Number	Date	Casing Elevation (feet)	Depth to Water (feet)	GW Elevation (feet)	LPH Thickness (feet)	Concentration (µg/L)								Concentrations (mg/L)								
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	CO <sub>2</sub> (lab)	DO (field)	pH (field)	Fe(II)	Mn	SO <sub>4</sub>	N-NH <sub>3</sub>	N-NO <sub>3</sub>	o-PO <sub>4</sub>
MW1	07/27/93	100.00	a 20.79	79.21	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	--	--	--	--	--	--	--	--	--	--	--
MW1	10/02/97	100.00	a 21.22	78.78	0.00	<0.50	<0.50	<0.50	<0.50	<50	--	--	<2.0	--	--	--	--	--	--	--	--	--
MW1	06/30/98	100.00	a 18.21	81.79	0.00	<0.50	<0.50	2.1	0.6	84	--	--	2.1	204	5	6.16	0.15	0.046	55	<0.10	<0.10	2
MW1	07/29/98	100.00	a 18.74	81.26	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	08/26/98	100.00	a 19.28	80.72	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	10/01/98	100.00	a 19.93	80.07	0.00	<1.0	<1.0	<1.0	<1.0	<50	--	--	<2.0	192	3.6	6.49	--	--	--	--	--	--
MW1	10/30/98	100.00	a 20.22	79.78	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	11/30/98	100.00	a 19.99	80.01	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	12/28/98	100.00	a 19.81	80.19	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	01/25/99	100.00	a 19.62	80.38	0.00	<1.0	<1.0	<1.0	<1.0	<50	--	--	<2.0	389	3.4	6.72	--	--	--	--	--	--
MW1	02/26/99	100.00	a 17.18	82.82	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	03/24/99	100.00	a 17.28	82.72	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	05/12/99	100.00	a 17.91	82.09	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	12/15/99	100.00	a 21.01	78.99	0.00	<0.50	<0.50	<0.50	<0.50	<50	--	--	<0.50	--	3.31	6.52	--	--	--	--	--	--
MW1	03/20/00	100.00	a 16.25	83.75	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	07/20/00	100.00	a 19.63	80.37	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	3.4	120	7.37	6.66	0.13	<0.01	54	<0.10	3.4	<0.2
MW1	10/11/00	100.00	a 20.80	79.20	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	04/10-11/01	100.00	a 18.81	81.19	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	1.2	117	NR	NR	<0.10	0.045	57	<0.10	6.6	0.15
MW1	07/10/01	100.00	a 20.51	79.49	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	11/20/01	64.69	b 21.36	43.33	0.00	<0.50	1.3	<0.50	0.81	<50	<50	<300	<2.0	-- <sup>c</sup>	0.65	6.47	0.32	1.8	63	<0.10	--	<0.20
MW1	02/19/02	64.69	b 18.95	45.74	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	05/21/02	64.69	b 19.82	44.87	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	<2.0	120	0.96	6.25	<0.10	0.5	58	<0.10	5.5	<0.20
MW1	06/27/03	64.69	b 19.93	44.76	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW1	09/29/03	64.69	b 21.24	43.45	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	<0.50	--	--	--	--	--	--	--	--	--
MW2	07/27/93	101.27	a 22.10	79.17	0.00	10,000	27,000	2,900	20,000	120,000	--	--	--	--	--	--	--	--	--	--	--	--
MW2	10/02/97	101.27	a 22.91	78.36	0.43	*	*	*	*	*	--	--	*	--	--	--	--	--	--	--	--	--
MW2	06/30/98	101.27	a 19.69	81.58	0.45	7,300	18,000	2,500	15,600	72,000	--	--	5,500	185	2.2	5.98	--	--	--	--	--	--
MW2	07/29/98	101.27	a 20.11	81.16	0.29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2	08/26/98	101.27	a 20.54	80.73	0.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2	10/01/98	101.27	a 21.52	79.75	0.42	6,400	17,000	2,600	17,000	84,000	--	--	2,000	--	2.7	6.47	--	--	--	--	--	--
MW2	10/30/98	101.27	a 21.54	79.73	0.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2	11/30/98	101.27	a 21.21	80.06	0.04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2	12/28/98	101.27	a 21.10	80.17	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2	01/25/99	101.27	a 20.80	80.47	0.01	9,000	26,000	3,800	27,500	130,000	--	--	5,800	386	0.3	6.69	--	--	--	--	--	--
MW2	02/26/99	101.27	a 18.00	83.27	sheen	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2	03/24/99	101.27	a 18.27	83.00	trace	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2	05/12/99	101.27	a 19.08	82.19	trace	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2	12/15-16/99	101.27	a 22.42	78.85	0.025	*	*	*	*	*	*	*	*	--	*	*	--	--	--	--	--	--
MW2	03/20/00	101.27	a 17.09	84.18	0.026	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2	07/20/00	101.27	a 20.86	80.41	0.017	*	*	*	*	*	*	*	*	*	0.88	6.37	*	*	*	*	*	*
MW2	10/11/00	101.27	a 22.10	79.17	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2	04/10-11/01	101.27	a 19.98	81.29	0.00	8,000	22,000	2,600	23,500	150,000	1,500	<600	3,600	168	NR	NR	3.1	2.5	16	0.14	0.19	<0.20

TABLE 2 GROUNDWATER QUALITY DATA, STROUGH FAMILY TRUST, 327-34TH STREET, OAKLAND, CALIFORNIA

Well Number	Date	Casing Elevation (feet)	Depth to Water (feet)	GW Elevation (feet)	LPH Thickness (feet)	Concentration (µg/L)								Concentrations (mg/L)								
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	CO <sub>2</sub> (lab)	DO (field)	pH (field)	Fe(II)	Mn	SO <sub>4</sub>	N-NH <sub>3</sub>	N-NO <sub>3</sub>	o-PO <sub>4</sub>
MW2	07/10/01	101.27	a 21.85	79.42	0.00	5,900	15,000	2,300	12,100	83,000	5,700	<1,500	2,800	--	--	--	--	--	--	--	--	
MW2	11/20/01	65.95	b 22.75	43.20	0.00	--	--	--	--	--	--	--	--	120	NR	6.15	1.8	2	16	<0.10	--	<0.20
MW2	02/19/02	65.95	b 20.12	45.83	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2	05/21/02	65.95	b 21.10	44.85	0.00	8,600	25,000	3,500	26,000	150,000	31,000	<3,000	4,800	160	0.88	5.99	3.9	1.7	13	<0.10	0.54	<0.20
MW2	06/27/03	65.95	b 21.48	44.47	0.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>MW2</b>	<b>09/29/03</b>	<b>65.95</b>	<b>b 23.04</b>	<b>42.91</b>	<b>0.48</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>
MW3	07/27/93	101.29	a 22.28	79.01	0.02	9,100	24,000	5,300	33,000	330,000	--	--	--	--	--	--	--	--	--	--	--	--
MW3	10/02/97	101.29	a 22.71	78.58	0.03	4,200	11,000	1,800	10,600	36,000	--	--	3,500	--	--	--	--	--	--	--	--	--
MW3	06/30/98	101.29	a 19.47	81.82	0.00	4,800	11,000	1,200	7,100	51,000	--	--	3,900	300	2	6.03	1.4	9.8	13	1.4	<0.10	2.4
MW3	07/29/98	101.29	a 20.01	81.28	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	08/26/98	101.29	a 20.62	80.67	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	10/01/98	101.29	a 21.33	79.96	0.00	3,900	8,500	1,200	6,000	38,000	--	--	2,300	240	2	6.65	--	--	--	--	--	--
MW3	10/30/98	101.29	a 21.62	79.67	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	11/30/98	101.29	a 21.31	79.98	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	12/28/98	101.29	a 21.15	80.14	0.06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	01/25/99	101.29	a 20.79	80.50	0.00	4,000	10000	1200	6700	5,100	--	--	2900	238	1	7.01	--	--	--	--	--	--
MW3	02/26/99	101.29	a 18.02	83.27	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	03/24/99	101.29	a 18.37	82.92	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	05/12/99	101.29	a 19.22	82.07	0.0083	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	12/15-16/99	101.29	a 22.43	78.86	0.00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW3	03/20/00	101.29	a 17.14	84.15	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	07/20/00	101.29	a 20.98	80.31	0.00	5,700	14,000	1,600	9,300	69,000	2,900	<300	3,300	128	2.05	6.73	3.9	6.6	20	<0.10	0.55	<0.20
MW3	10/11/00	101.29	a 22.24	79.05	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	04/10-11/01	101.29	a 20.70	80.59	0.00	7,200	<0.001	2,300	12,900	110,000	4,700	<1,500	4,300	137	NR	NR	1	6	8.2	<0.10	0.13	<0.20
MW3	07/10/01	101.29	a 21.97	79.32	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	11/20/01	65.99	b 22.80	43.19	0.00	6,300	16,000	2,400	14,900	100,000	5,900	<900	4,000	120	2.93	6.67	0.84	12	31	<0.10	--	<0.20
MW3	02/19/02	65.99	b 20.11	45.88	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	05/21/02	65.99	b 21.20	44.79	0.00	6,500	17,000	2,200	12,700	91,000	14,000	<3,000	2,200	130	1.01	6.62	4.2	9.6	25	<0.10	0.77	<0.20
MW3	06/27/03	65.99	b 21.32	44.67	sheen	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>MW3</b>	<b>09/29/03</b>	<b>65.99</b>	<b>b 22.79</b>	<b>43.20</b>	<b>sheen</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>
MW4	06/30/98	98.65	a 16.93	81.72	0.00	22,000	930	850	2,100	10,000	--	--	1,800	222	2.6	6.18	0.14	4.3	14	0.8	0.8	1.5
MW4	07/29/98	98.65	a 17.48	81.17	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4	08/26/98	98.65	a 18.65	80.00	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4	10/01/98	98.65	a 18.74	79.91	0.00	570	46	130	36	1,100	--	--	1,300	320	3.4	<0.001	--	--	--	--	--	--
MW4	10/30/98	98.65	a 19.02	79.63	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4	11/30/98	98.65	a 18.74	79.91	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4	12/28/98	98.65	a 18.60	80.05	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4	01/25-26/99	98.65	a 18.32	80.33	0.00	230	<8.3	<8.3	<8.3	290	--	--	1,300	475	6.7	7	--	--	--	--	--	--
MW4	02/26/99	98.65	a 15.81	82.84	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4	03/24/99	98.65	a 16.01	82.64	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4	05/12/99	98.65	a 17.71	80.94	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 2 GROUNDWATER QUALITY DATA, STROUGH FAMILY TRUST, 327-34TH STREET, OAKLAND, CALIFORNIA

Well Number	Date	Casing Elevation (feet)	Depth to Water (feet)	GW Elevation (feet)	LPH Thickness (feet)	Concentration (µg/L)							Concentrations (mg/L)									
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	CO <sub>2</sub> (lab)	DO (field)	pH (field)	Fe(II)	Mn	SO <sub>4</sub>	N-NH <sub>3</sub>	N-NO <sub>3</sub>	o-PO <sub>4</sub>
MW4	12/15-16/99	98.65	a 19.83	78.82	0.00	5.8	<0.50	<0.50	<0.50	<50	--	--	1,400	--	1.75	7.02	--	--	--	--	--	--
MW4	03/20/00	98.65	a 14.9	83.75	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4	07/20/00	98.65	a 18.38	80.27	0.00	91	4.6	19	12.9	210	<50	<300	1,500	126	3.88	6.67	9.5	5.3	11	<0.10	0.04	<0.20
MW4	10/11/00	98.65	a 19.61	79.04	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4	04/10-11/01	98.65	a 17.55	81.10	0.00	110	<5.0	<5.0	<5.0	350	<50	<300	1,100	107	NR	NR	0.8	6.3	10	<0.10	<0.05	<0.20
MW4	07/10/01	98.65	a 19.34	79.31	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4	11/20/01	63.35	b 20.16	43.19	0.00	<2.5	4	<2.5	3.7	96	<50	<300	2,500	130	0.83	6.51	1.6	10	11	<0.10	--	<0.20
MW4	02/19/02	63.35	b 17.34	46.01	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4	05/21/02	63.35	b 18.57	44.78	0.00	340	5.7	70	<1.0	940	83	<300	1,600	150	1.65	6.32	3.1	8.4	9	<0.10	0.06	<0.20
MW4	06/27/03	63.35	b 18.72	44.63	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>MW4</b>	<b>09/29/03</b>	<b>63.35</b>	<b>b 20.11</b>	<b>43.24</b>	<b>0.00</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;10</b>	<b>1,100</b>	<b>&lt;50<sup>d</sup></b>	<b>&lt;500</b>	<b>1,700</b>	--	--	--	--	--	--	--	--	--
MW5	06/30/98	100.9	a 20.60	80.30	0.00	<0.50	<0.50	<0.50	<0.50	<50	--	--	23	220	4.3	6.1	--	--	--	--	--	--
MW5	07/29/98	100.9	a 21.52	79.38	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	08/26/98	100.9	a 22.21	78.69	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	10/01/98	100.9	a 22.95	77.95	0.00	<1.0	<1.0	<1.0	<1.0	<50	--	--	<2.0	256	4.8	6.71	--	--	--	--	--	--
MW5	10/30/98	100.9	a 23.23	77.67	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	11/30/98	100.9	a 23.12	77.78	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	12/28/98	100.9	a 23.18	77.72	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	01/25-26/99	100.9	a 22.61	78.29	0.00	<1.0	<1.0	<1.0	<1.0	<50	--	--	<2.0	305	9.7	7.04	--	--	--	--	--	--
MW5	02/26/99	100.9	a 19.78	81.12	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	03/24/99	100.9	a 20.25	80.65	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	05/12/99	100.9	a 21.06	79.84	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	12/15-16/99	100.9	a 24.19	76.71	0.00	<0.50	<0.50	<0.50	<0.50	<50	--	--	<0.50	--	2.72	7.19	--	--	--	--	--	--
MW5	03/20/00	100.9	a 19.15	81.75	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	07/20/00	100.9	a 21.84	79.06	0.00	<0.50	0.98	<0.50	<0.50	<50	<50	<300	1.9	134	5.58	6.35	0.11	0.017	49	<0.10	3.9	<0.20
MW5	10/11/00	100.9	a 23.4	77.50	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	04/10-11/01	100.9	a 22.3	78.60	0.00	<0.50	2.6	<0.50	0.6	<50	<50	<300	1.5	183	66	NR	<0.10	0.042	45	<0.10	2.9	0.11
MW5	07/10/01	100.9	a 23.64	77.26	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	11/20/01	65.59	b 24.65	40.94	0.00	0.83	12	1.2	11	140	860	2,500	10	-- <sup>c</sup>	66	6.01	0.2	2.5	42	<0.10	--	<0.20
MW5	02/19/02	65.59	b 22.37	43.22	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	05/21/02	65.59	b 23.10	42.49	0.00	<0.50	<0.50	<0.50	<0.50	<50	2,200	<300	<2.0	140	66	6.3	<0.1	0.22	44	<0.10	3	<0.20
MW5	06/27/03	65.59	b 23.07	42.52	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>MW5</b>	<b>09/29/03</b>	<b>65.59</b>	<b>b 24.38</b>	<b>41.21</b>	<b>0.00</b>	<b>&lt;0.50</b>	<b>0.52</b>	<b>7.1</b>	<b>35</b>	<b>100</b>	<b>&lt;50<sup>d</sup></b>	<b>&lt;500</b>	<b>1.4</b>	--	--	--	--	--	--	--	--	--
MW6	07/20/00	96.60	a 18.30	78.30	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	160	122	2.72	6.66	120	1.9	53	6	0.05	<0.20
MW6	10/11/00	96.60	a 18.69	77.91	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW6	04/10-11/01	96.60	a 17.85	78.75	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	180	142	NR	NR	22	2.2	0.69	5.2	<0.05	<0.20
MW6	07/10/01	96.60	a 18.43	78.17	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW6	11/20/01	59.60	b 18.67	40.93	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	450	100	2.03	6.44	29	5.2	1.1	3.4	--	<0.20
MW6	02/19/02	59.60	b 17.40	42.20	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW6	05/21/02	59.60	b 17.68	41.92	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	170	100	0.76	6.6	11	3.4	1.4	8.9	0.65	<0.20
MW6	06/27/03	59.60	b 17.73	41.87	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 2 GROUNDWATER QUALITY DATA, STROUGH FAMILY TRUST, 327-34TH STREET, OAKLAND, CALIFORNIA

Well Number	Date	Casing Elevation (feet)	Depth to Water (feet)	GW Elevation (feet)	LPH Thickness (feet)	Concentration (µg/L)								Concentrations (mg/L)								
						Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	CO <sub>2</sub> (lab)	DO (field)	pH (field)	Fe(II)	Mn	SO <sub>4</sub>	N-NH <sub>3</sub>	N-NO <sub>3</sub>	o-PO <sub>4</sub>
<b>MW6</b>	<b>09/29/03</b>	<b>59.60</b>	<b>b 18.48</b>	<b>41.12</b>	<b>0.00</b>	<1.0	<1.0	<1.0	<2.0	230 <sup>d</sup>	<50	<500	340	--	--	--	--	--	--	--	--	--
MW7	07/20/00	96.75	a 15.93	80.82	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	<0.50	32.2	7.15	7.43	<0.1	0.002	7.5	<0.10	2.6	0.13
MW7	10/11/00	96.75	a 16.90	79.85	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW7	04/10-11/01	96.75	a 15.80	80.95	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	<0.50	77.6	NR	NR	0.18	0.048	49	<0.10	2.7	0.31
MW7	07/10/01	96.75	a 16.71	80.04	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW7	11/20/01	59.47	b 16.17	43.30	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	<2.0	62	0.96	7.11	0.16	1.8	63	<0.10	--	<0.20
MW7	02/19/02	59.47	b 14.92	44.55	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW7	05/21/02	59.47	b 15.18	44.29	0.00	<0.50	<0.50	<0.50	<0.50	<50	<50	<300	<0.50	68	1.03	7.57	0.11	0.35	51	<0.10	2.8	0.11
MW7	06/27/03	59.47	b 16.28	43.19	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>MW7</b>	<b>09/29/03</b>	<b>59.47</b>	<b>b 16.88</b>	<b>42.59</b>	<b>0.00</b>	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	0.62	--	--	--	--	--	--	--	--	--

- LPH Liquid-phase hydrocarbons.
- CO<sub>2</sub> Carbon dioxide.
- DO Dissolved oxygen.
- Fe(II) Ferrous iron.
- Mn Manganese.
- SO<sub>4</sub> Sulfate.
- N-NH<sub>3</sub> Ammonia.
- N-NO<sub>3</sub> Nitrate.
- o-PO<sub>4</sub> Ortho-Phosphate.
- GW Groundwater
- TPH-g Total Petroleum Hydrocarbons as gasoline.
- TPH-d Total Petroleum Hydrocarbons as diesel.
- TPH-mo Total Petroleum Hydrocarbons as motor oil.
- MTBE Methyl tertiary butyl ether.
- NR Not reported.
- µg/L Micrograms per liter.
- mg/L Milligrams per liter.
- \* Free product; sample not analyzed.
- Not analyzed or not sampled.
- < Less than the laboratory reporting limits.
- a Elevations are referenced to monitoring well MW1, with assumed datum of 100.00 feet.
- b Elevations based on a survey conducted August 2002 and referenced benchmark with known elevation (NGVD 29) of 60.40 feet above mean sea level
- c Analysis not conducted due to broken sample containers.
- d Hydrocarbon reported in the gasoline range does not match laboratory gasoline standard.



TABLE 3 GROUNDWATER MONITORING SCHEDULE  
 STROUGH FAMILY TRUST, 327 34th STREET, OAKLAND, CALIFORNIA

Well Number	Groundwater Gauging Frequency	Groundwater Sampling and Analysis Frequency		
		BTEX and TPH-g	MTBE	TEPH
MW1	Q	Q	Q	Q
MW2	Q	Q	Q	Q
MW3	Q	Q	Q	Q
MW4	Q	Q	Q	Q
MW5	Q	Q	Q	Q
MW6	Q	Q	Q	Q
MW7	Q	Q	Q	Q

Q = Quarterly.

BTEX = Benzene, toluene, ethylbenzene, total xylenes.

MTBE = Methyl tertiary butyl ether.

TPH-g = Total Petroleum Hydrocarbons as gasoline.

TEPH = Total Extractable Petroleum Hydrocarbons.

TEPH includes TPH-diesel and TPH-motor oil.

**Appendix A**  
**Field Protocols**

## **PROTOCOLS FOR QUARTERLY GROUNDWATER MONITORING**

### **GROUNDWATER GAUGING**

Wells are opened prior to gauging to allow the groundwater level in the wells to equilibrate with atmospheric pressure. The depth to groundwater and depth to liquid-phase hydrocarbons, if present, are then measured to the nearest 0.01 feet using an electronic water level meter or optical interface probe. The measurements are made from a permanent reference point at the top of the well casing. If less than 1 foot of water is measured in a well, the water is bailed from the well and, if the well does not recover, the well is considered "functionally dry." Wells with a sheen or measurable liquid-phase hydrocarbons are generally not purged or sampled.

### **WELL PURGING**

After the wells are gauged, each well is purged of approximately 3 well casing volumes of water to provide representative groundwater samples for analysis. Field parameters of pH, temperature, and electrical conductance are measured during purging to ensure that these parameters have stabilized before groundwater in a well is sampled. Groundwater in each well is purged using an inertial pump (WaTerra), an electric submersible pump, or a bailer. After the well is purged, the water level is checked to ensure that the well has recharged to at least 80 percent of its original water level.

### **GROUNDWATER SAMPLING**

After purging, groundwater in each well is sampled using dedicated tubing and an inertial pump (WaTerra) or a factory-cleaned disposable bailer. Samples from extraction wells are typically collected from sample ports associated with the groundwater remediation system. Samples collected for volatile organic analysis are placed in Teflon septum-sealed 40-milliliter glass vials. Samples collected for diesel analysis are placed in 1-liter amber glass bottles. Each sample bottle is labeled with the site name, well number, date, sampler's initials, and preservative. The samples are placed in a cooler with ice for delivery to a state-certified laboratory. The information for each sample is entered on a chain-of-custody form prior to transport to the laboratory.

**Appendix B**  
**Field Documents**

MONITORING WELL DATA FORM

Client: **STROUGH FAMILY TRUST**

Project Number: **TMSFT1.1**

Site Location: **327 34TH ST.  
OAKLAND, CA.**

Date: **9/29/03**

Station Number **SFT**

Samplers: **WJ/PP**

MONITORING WELL NUMBER	DEPTH TO WATER (TOC)	DEPTH TO PRODUCT (TOC)	APPARENT PRODUCT THICKNESS	AMOUNT OF PRODUCT REMOVED	MONITORING WELL INTEGRITY	DEPTH TO BOTTOM (TOC)	GENERAL FINDS/COMMENTS
MW1	21.24					30.65	2"
MW2*	23.04	22.56	.48	165 mL		32.20	2"
MW3*	22.79	22.29				32.09	2"
MW4	20.11					27.31	2"
MW5	24.38					26.52	2"
MW6	18.48					28.10	2"
MW7	16.88					34.60	2"

\* POSSIBLE LPH - USE IP AND CONFIRM WITH BAILER


## GROUNDWATER PURGE AND SAMPLE

Project Name: STROUGH FAMILY TRUST	Well No: MW1	Date: 9/29/03
Project No: TMSFT1.1	Personnel: WJ/PP	

### GAUGING DATA

Water Level Measuring Method: WATER LEVEL METER      Measuring Point Description:

WELL PURGE VOLUME CALCULATION	Total Depth (feet)	Depth to Water (feet)	Water Column (feet)	Multiplier for Casing Diameter				Casing Volume (gal)	Total Purge Volume (gal)
		30.65	21.24	9.41	1	2	4	6	1.50
				0.04	0.16	0.64	1.44		

### PURGING DATA

Purge Method: WATERRA      Purge Depth:      Purge Rate: (gpm)

Time	11:20	11:23	11:26		
Volume Purge (gal)	2	4	6		
Temperature (°C)	18.62	18.58	18.57		
pH	5.88	5.98	5.95		
Spec. Cond. (umhos)	1290	1283	1310		
Turbidity/Color	<del>SUM</del> <del>BLW</del>	<del>SUM</del> <del>BLW</del>	<del>SUM</del> <del>BLW</del>		
Odor (Y/N)	N	N	N		
Casing Volumes	-	-	-		
Dewatered (Y/N)	N	N	N		

Comments/Observations: LPH WELLS DETECT WITH IP, CONFIRM WITH BAILER.

DD  
ORP

13.5 / 1.07	2.8 / 1.26	3.5 / 1.33	
-185.0	-191.5	-194.3	

### SAMPLING DATA

Time Sampled: 11:30      Approximate Depth to Water During Sampling: (feet)

Comments:

Sample Number	Number of Containers	Container Type	Perservative	Volume Filled (mL or L)	Turbidity/ Color	Analysis Method
MW1	3	voas	HCL	40ml	/	TPH-g,BTEX,MTBE
MW1	2	amber	NONE	1L	/	TPH-d,TEHo
					/	

Total Purge Volume: 6 (gallons)      Disposal:

Weather Conditions: OK

Condition of Well Box and Casing at Time of Sampling: OK

Well Head Conditions Requiring Correction: NONE

Problems Encountered During Purging and Sampling: NONE

Comments:

## GROUNDWATER PURGE AND SAMPLE

Project Name: <b>STROUGH FAMILY TRUST</b>	Well No: <b>MW4</b>	Date: <b>9/29/03</b>
Project No: <b>TMSFT1.1</b>	Personnel: <b>WJ/PP</b>	

### GAUGING DATA

Water Level Measuring Method: **WATER LEVEL METER**      Measuring Point Description:

WELL PURGE VOLUME CALCULATION	Total Depth (feet)	Depth to Water (feet)	Water Column (feet)	Multiplier for Casing Diameter				Casing Volume (gal)	Total Purge Volume (gal)
	27.31	20.11	7.20	1	2	4	6	1.15	3.45
			0.04	0.16	0.64	1.44			

### PURGING DATA

Purge Method: **WATERRA**

Purge Depth:

Purge Rate:

(gpm)

Time	12:22	12:23	12:24			
Volume Purge (gal)	1	2	3			
Temperature (C)	19.00	19.01	18.99			
pH	6.08	6.24	6.27			
Spec Cond. (umhos)	646	621	605			
Turbidity/Color	<del>SILTY BRN</del>	<del>SILTY BRN</del>	<del>SILTY BRN</del>			
Odor (Y/N)	N	N	N			
Casing Volumes	-	-	-			
Dewatered (Y/N)	N	N	N			

Comments/Observations:

LPH WELLS DETECT WITH IP, CONFIRM WITH BAILER.

DO ORP

5.21.48	3.51.32	3.01.28
-187.8	-193.2	-195.6

### SAMPLING DATA

Time Sampled: **12:25**

Approximate Depth to Water During Sampling:

(feet)

Comments:

Sample Number	Number of Containers	Container Type	Perservative	Volume Filled (mL or L)	Turbidity/ Color	Analysis Method
MW4	3	voas	HCL	40ml	<del>                    </del>	
MW4	2	amber	NONE	1L	<del>                    </del>	TPH-g,BTEX,MTBE
					<del>                    </del>	TPH-d,TEHo

Total Purge Volume: **3** (gallons)

Disposal:

Weather Conditions: **OK**

Condition of Well Box and Casing at Time of Sampling: **OK**

Well Head Conditions Requiring Correction: **NONE**

Problems Encountered During Purging and Sampling: **NONE**

Comments:

## GROUNDWATER PURGE AND SAMPLE

Project Name: STROUGH FAMILY TRUST	Well No: <i>MWS</i>	Date: 9/29/03
Project No: TMSFT1.1	Personnel: WJ/PP	

### GAUGING DATA

Water Level Measuring Method: WATER LEVEL METER

Measuring Point Description:

WELL PURGE VOLUME CALCULATION	Total Depth (feet)	Depth to Water (feet)	Water Column (feet)	Multiplier for Casing Diameter				Casing Volume (gal)	Total Purge Volume (gal)
	26.52 $\oplus$	24.38 $\oplus$	2.14 $\otimes$	1	2	4	6	.34 $\oplus$	1.02
			0.04	0.16	0.64	1.44			

### PURGING DATA

Purge Method: WATERRA

Purge Depth:

Purge Rate:

(gpm)

Time	11:45	11:46	11:47			
Volume Purge (gal)	<del>1.25</del> .25	.50	.75			
Temperature (C)	18.77	18.62	18.52			
pH	5.84	5.79	5.68			
Spec. Cond. (umhos)	300	497	500			
Turbidity/Color	<del>SILTY BAN</del>	<del>SILTY BAN</del>	<del>SILTY BAN</del>			
Odor (Y/N)	N	N	N			
Casing Volumes	-	-	-			
Dewatered (Y/N)	N	N	N			

Comments/Observations: LPH WELLS DETECT WITH IP, CONFIRM WITH BAILER.

<i>DO</i> 25.9 / 2.39	<i>OP</i> 29.0 / 2.70	30.6 / 2.91
-175.2	-175.8	-177.0

### SAMPLING DATA

Time Sampled: 11:50

Approximate Depth to Water During Sampling:

(feet)

Comments:

Sample Number	Number of Containers	Container Type	Perservative	Volume Filled (mL or L)	Turbidity/ Color	Analysis Method
<i>MWS</i>	3	voas	HCL	40ml	/	TPH-g, BTEX, MTBE
<i>MWS</i>	2	amber	NONE	1L	/	TPH-d, TEHo
					/	

Total Purge Volume: .75 (gallons)

Disposal:

Weather Conditions: OK

Condition of Well Box and Casing at Time of Sampling: OK

Well Head Conditions Requiring Correction: NONE

Problems Encountered During Purging and Sampling: NONE

Comments:



### GROUNDWATER PURGE AND SAMPLE

Project Name: STROUGH FAMILY TRUST	Well No: <i>MW6</i>	Date: 9/29/03
Project No: TMSFT1.1	Personnel: WJ/PP	

#### GAUGING DATA

Water Level Measuring Method: WATER LEVEL METER      Measuring Point Description:

WELL PURGE VOLUME CALCULATION	Total Depth (feet)	Depth to Water (feet)	Water Column (feet)	Multiplier for Casing Diameter				Casing Volume (gal)	Total Purge Volume (gal)
		28.10	18.48	9.62	1 0.04	2 0.16	4 0.64	6 1.44	1.53

#### PURGING DATA

Purge Method: WATERRA      Purge Depth:      Purge Rate: (gpm)

Time	10:31	10:34	10:37			
Volume Purge (gal)	2	4	6			
Temperature (C)	18.55	18.47	18.44			
pH	6.30	6.26	6.26			
Spec Cond (umhos)	<del>709</del>	682	639			
Turbidity/Color	<del>SWT</del> BLK	<del>SWT</del> BLK	<del>SWT</del> BLK			
Odor (Y/N)	N	N	N			
Casing volumes	-	-	-			
Dewatered (Y/N)	N	N	N			

Comments/Observations: LPH WELLS DETECT WITH IP, CONFIRM WITH BAILER.

*DO ORP*

5.1%/.46	2.8%/.26	2.2%/.20
-181.7	-185.5	-188.9

#### SAMPLING DATA

Time Sampled: 10:40      Approximate Depth to Water During Sampling: (feet)

Comments:

Sample Number	Number of Containers	Container Type	Perservative	Volume Filled (mL or L)	Turbidity/Color	Analysis Method
<i>MW6</i>	3	voas	HCL	40ml	/	TPH-g,BTEX,MTBE
<i>MW6</i>	2	amber	NONE	1L	/	TPH-d,TEHo
					/	

Total Purge Volume: *6* (gallons)      Disposal:

Weather Conditions: *OK*

Condition of Well Box and Casing at Time of Sampling: *OK*

Well Head Conditions Requiring Correction: *NONE*

Problems Encountered During Purging and Sampling: *NONE*

Comments:

## GROUNDWATER PURGE AND SAMPLE

Project Name: STROUGH FAMILY TRUST	Well No: MW7	Date: 9/29/03
Project No: TMSFT1.1	Personnel: WJ/PP	

### GAUGING DATA

Water Level Measuring Method: WATER LEVEL METER      Measuring Point Description:

WELL PURGE VOLUME CALCULATION	Total Depth (feet)	Depth to Water (feet)	Water Column (feet)	Multiplier for Casing Diameter				Casing Volume (gal)	Total Purge Volume (gal)
		34.60	16.88	17.72	1 0.04	2 0.16	4 0.64	6 1.44	2.83

### PURGING DATA

Purge Method: WATERRA      Purge Depth:      Purge Rate: (gpm)

Time	10:53	10:56	10:59			
Volume Purge (gal)	3	6	9			
Temperature (°C)	19.93	19.79	19.62			
pH	6.52	6.51	6.48			
Spec Cond (umhos)	800	772	794			
Turbidity/Color	SUTY BAN	SUTY BAN	SUTY BAN			
Odor (Y/N)	N	N	N			
Casing Volumes	-	-	-			
Dewatered (Y/N)	N	N	N			

Comments/Observations: LPH WELLS DETECT WITH IP, CONFIRM WITH BAILER.

DO ORP	5.9 / 1.54	4.8 / 1.44
	-178.7	-184.5
		9.6 / 1.85
		-186.2

### SAMPLING DATA

Time Sampled: 11:00      Approximate Depth to Water During Sampling: (feet)

Comments:

Sample Number	Number of Containers	Container Type	Perservative	Volume Filled (mL or L)	Turbidity/ Color	Analysis Method
MW7	3	voas	HCL	40ml		TPH-g, BTEX, MTBE
MW7	2	amber	NONE	1L		TPH-d, TEHo

Total Purge Volume: 9 (gallons)      Disposal:

Weather Conditions: OK

Condition of Well Box and Casing at Time of Sampling: OK

Well Head Conditions Requiring Correction: NONE

Problems Encountered During Purging and Sampling: NONE

Comments:

**Appendix C**

**Laboratory Analytical Reports**

ETIC Pleasant Hill

October 06, 2003

2285 Morello Avenue  
Pleasant Hill, CA 94523

Attn.: Sherris Prall

Project#: TMSFT1.1:

Project: Strough Family Trust

Dear Ms. Prall,

Attached is our report for your samples received on 09/29/2003 14:40

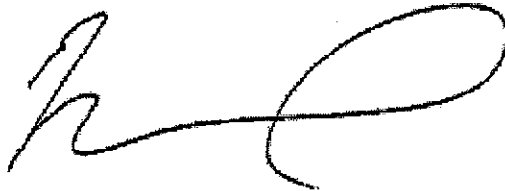
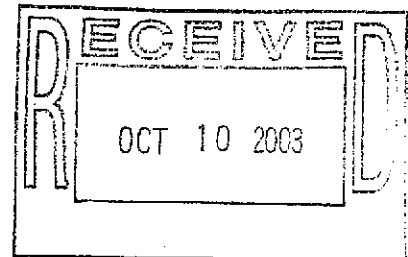
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after 11/13/2003 unless you have requested otherwise.

We appreciate the opportunity to be of service to you. If you have any questions, please call me at (925) 484-1919.

You can also contact me via email. My email address is: [wvancil@stl-inc.com](mailto:wvancil@stl-inc.com)

Sincerely,

Vincent Vancil  
Project Manager

Severn Trent Laboratories, Inc.

STL San Francisco \* 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 \* [www.stl-inc.com](http://www.stl-inc.com) \* CA DHS ELAP# 2496

Fuel Oxygenates by 8260B

ETIC Pleasant Hill

Attn.: Sherris Prall

2285 Morello Avenue

Pleasant Hill, CA 94523

Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:

Strough Family Trust

Received: 09/29/2003 14:40

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW1	09/29/2003 11:30	Water	1
MW4	09/29/2003 12:25	Water	2
MW5	09/29/2003 11:50	Water	3
MW6	09/29/2003 10:40	Water	4
MW7	09/29/2003 11:00	Water	5

Severn Trent Laboratories, Inc.

STL San Francisco \* 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 \* www.stl-inc.com \* CA DHS ELAP# 2496

10/06/2003 13:12

Fuel Oxygenates by 8260B

ETIC Pleasant Hill

Attn.: Sherris Prall

2285 Morello Avenue

Pleasant Hill, CA 94523

Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:

Strough Family Trust

Received: 09/29/2003 14:40

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW1	Lab ID:	2003-09-1094 - 1
Sampled:	09/29/2003 11:30	Extracted:	10/4/2003 10:32
Matrix:	Water	QC Batch#:	2003/10/04-1A:62

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	10/04/2003 10:32	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	10/04/2003 10:32	
Benzene	ND	0.50	ug/L	1.00	10/04/2003 10:32	
Toluene	ND	0.50	ug/L	1.00	10/04/2003 10:32	
Ethylbenzene	ND	0.50	ug/L	1.00	10/04/2003 10:32	
Total xylenes	ND	1.0	ug/L	1.00	10/04/2003 10:32	
<b>Surrogate(s)</b>						
1,2-Dichloroethane-d4	94.3	76-114	%	1.00	10/04/2003 10:32	
Toluene-d8	101.0	88-110	%	1.00	10/04/2003 10:32	

Severn Trent Laboratories, Inc.

STL San Francisco \* 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 \* www.stl-inc.com \* CA DHS ELAP# 2496

10/06/2003 13:12

Fuel Oxygenates by 8260B

ETIC Pleasant Hill

Attn.: Sherris Prall

2285 Morello Avenue

Pleasant Hill, CA 94523

Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:

Strough Family Trust

Received: 09/29/2003 14:40

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW4	Lab ID:	2003-09-1094 - 2
Sampled:	09/29/2003 12:25	Extracted:	10/4/2003 10:54
Matrix:	Water	QC Batch#:	2003/10/04-1A-62
Analysis Flag: 0 ( See Legend and Note Section )			

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	1100	500	ug/L	10.00	10/04/2003 10:54	g
Methyl tert-butyl ether (MTBE)	1700	5.0	ug/L	10.00	10/04/2003 10:54	
Benzene	ND	5.0	ug/L	10.00	10/04/2003 10:54	
Toluene	ND	5.0	ug/L	10.00	10/04/2003 10:54	
Ethylbenzene	ND	5.0	ug/L	10.00	10/04/2003 10:54	
Total xylenes	ND	10	ug/L	10.00	10/04/2003 10:54	
<b>Surrogate(s)</b>						
1,2-Dichloroethane-d4	98.8	76-114	%	10.00	10/04/2003 10:54	
Toluene-d8	103.4	88-110	%	10.00	10/04/2003 10:54	

Severn Trent Laboratories, Inc.

STL San Francisco \* 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 \* www.stl-inc.com \* CA DHS ELAP# 2496

10/06/2003 13:12

Fuel Oxygenates by 8260B

ETIC Pleasant Hill

Attn.: Sherris Prall

2285 Morello Avenue

Pleasant Hill, CA 94523

Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:

Strough Family Trust

Received: 09/29/2003 14:40

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW5	Lab ID:	2003-09-1094 - 3
Sampled:	09/29/2003 11:50	Extracted:	10/4/2003 11:16
Matrix:	Water	QC Batch#:	2003/10/04-1A.62

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	100	50	ug/L	1.00	10/04/2003 11:16	g
Methyl tert-butyl ether (MTBE)	1.4	0.50	ug/L	1.00	10/04/2003 11:16	
Benzene	ND	0.50	ug/L	1.00	10/04/2003 11:16	
Toluene	0.52	0.50	ug/L	1.00	10/04/2003 11:16	
Ethylbenzene	7.1	0.50	ug/L	1.00	10/04/2003 11:16	
Total xylenes	35	1.0	ug/L	1.00	10/04/2003 11:16	
<b>Surrogate(s)</b>						
1,2-Dichloroethane-d4	97.3	76-114	%	1.00	10/04/2003 11:16	
Toluene-d8	106.6	88-110	%	1.00	10/04/2003 11:16	

Severn Trent Laboratories, Inc.

STL San Francisco \* 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1819 Fax 925 484 1096 \* www.stl-inc.com \* CA DHS ELAP# 2496

10/06/2003 13:12



Fuel Oxygenates by 8260B

ETIC Pleasant Hill

Attn.: Sherris Prall

2285 Morello Avenue

Pleasant Hill, CA 94523

Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:

Strough Family Trust

Received: 09/29/2003 14:40

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW6	Lab ID:	2003-09-1094 - 4
Sampled:	09/29/2003 10:40	Extracted:	10/4/2003 11:43
Matrix:	Water	QC Batch#:	2003/10/04-1A.62
Analysis Flag: o ( See Legend and Note Section )			

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	230	100	ug/L	2.00	10/04/2003 11:43	g
Methyl tert-butyl ether (MTBE)	340	1.0	ug/L	2.00	10/04/2003 11:43	
Benzene	ND	1.0	ug/L	2.00	10/04/2003 11:43	
Toluene	ND	1.0	ug/L	2.00	10/04/2003 11:43	
Ethylbenzene	ND	1.0	ug/L	2.00	10/04/2003 11:43	
Total xylenes	ND	2.0	ug/L	2.00	10/04/2003 11:43	
<b>Surrogate(s)</b>						
1,2-Dichloroethane-d4	113.9	76-114	%	2.00	10/04/2003 11:43	
Toluene-d8	105.8	88-110	%	2.00	10/04/2003 11:43	

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10/06/2003 13:12

Fuel Oxygenates by 8260B

ETIC Pleasant Hill

Attn.: Sherris Prall

2285 Morello Avenue  
Pleasant Hill, CA 94523  
Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:  
Strough Family Trust

Received: 09/29/2003 14:40

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW7	Lab ID:	2003-09-1094 - 5
Sampled:	09/29/2003 11:00	Extracted:	10/4/2003 12:06
Matrix:	Water	QC Batch#:	2003/10/04-1A:62

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	10/04/2003 12:06	
Methyl tert-butyl ether (MTBE)	0.62	0.50	ug/L	1.00	10/04/2003 12:06	
Benzene	ND	0.50	ug/L	1.00	10/04/2003 12:06	
Toluene	ND	0.50	ug/L	1.00	10/04/2003 12:06	
Ethylbenzene	ND	0.50	ug/L	1.00	10/04/2003 12:06	
Total xylenes	ND	1.0	ug/L	1.00	10/04/2003 12:06	
<b>Surrogate(s)</b>						
1,2-Dichloroethane-d4	96.4	76-114	%	1.00	10/04/2003 12:06	
Toluene-d8	101.5	88-110	%	1.00	10/04/2003 12:06	

Fuel Oxygenates by 8260B

ETIC Pleasant Hill

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Pleasant Hill, CA 94523

Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:

Strough Family Trust

Received: 09/29/2003 14:40

Batch QC Report

Prep(s): 5030B

Method Blank

MB: 2003/10/04-1A.62-009

Water

Test(s): 8260B

QC Batch # 2003/10/04-1A.62

Date Extracted: 10/04/2003 10:09

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	10/04/2003 10:09	
Gasoline	ND	50	ug/L	10/04/2003 10:09	
Benzene	ND	0.5	ug/L	10/04/2003 10:09	
Toluene	ND	0.5	ug/L	10/04/2003 10:09	
Ethylbenzene	ND	0.5	ug/L	10/04/2003 10:09	
Total xylenes	ND	1.0	ug/L	10/04/2003 10:09	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	10/04/2003 10:09	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	94.3	76-114	%	10/04/2003 10:09	
Toluene-d8	104.4	88-110	%	10/04/2003 10:09	

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10/06/2003 13:12

Fuel Oxygenates by 8260B

ETIC Pleasant Hill  
Attn.: Sherris Prall

2285 Morello Avenue  
Pleasant Hill, CA 94523  
Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:  
Strough Family Trust

Received: 09/29/2003 14:40

Batch QC Report

Prep(s): 5030B

Test(s): 8260B

Laboratory Control Spike

Water

QC Batch # 2003/10/04-1A.62

LCS 2003/10/04-1A.62-024

Extracted: 10/04/2003

Analyzed: 10/04/2003 09:24

LCSD 2003/10/04-1A.62-047

Extracted: 10/04/2003

Analyzed: 10/04/2003 09:47

Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Benzene	28.8	29.7	25	115.2	118.8	3.1	69-129	20		
Toluene	27.2	27.9	25	108.8	111.6	2.5	70-130	20		
Methyl tert-butyl ether (MTBE)	28.6	28.4	25	114.4	113.6	0.7	65-165	20		
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	454	451	500	90.8	90.2		76-114			
Toluene-d8	507	519	500	101.4	103.8		88-110			

Fuel Oxygenates by 8260B

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Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:

Strough Family Trust

Received: 09/29/2003 14:40

Legend and Notes

Analysis Flag

o

Reporting limits were raised due to high level of analyte present in the sample.

Result Flag

g

Hydrocarbon reported in the gasoline range does not match our gasoline standard.

TEPH w/ Silica Gel Clean-up

ETIC Pleasant Hill

Attn.: Sherris Prall

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Pleasant Hill, CA 94523

Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:

Strough Family Trust

Received: 09/29/2003 14:40

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW1	09/29/2003 11:30	Water	1
MW4	09/29/2003 12:25	Water	2
MW5	09/29/2003 11:50	Water	3
MW6	09/29/2003 10:40	Water	4
MW7	09/29/2003 11:00	Water	5

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10/06/2003 12:40

TEPH w/ Silica Gel Clean-up

ETIC Pleasant Hill

Attn.: Sherris Prall

2285 Morello Avenue

Pleasant Hill, CA 94523

Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:

Strough Family Trust

Received: 09/29/2003 14:40

Prep(s):	3510/8015M	Test(s):	8015M
Sample ID:	MW1	Lab ID:	2003-09-1094-1
Sampled:	09/29/2003 11:30	Extracted:	10/1/2003 08:46
Matrix:	Water	QC Batch#:	2003/10/01-03.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	10/02/2003 10:22	
Motor Oil	ND	500	ug/L	1.00	10/02/2003 10:22	
<b>Surrogate(s)</b>						
o-Terphenyl	71.4	60-130	%	1.00	10/02/2003 10:22	

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10/06/2003 12:40

TEPH w/ Silica Gel Clean-up

ETIC Pleasant Hill  
Attn.: Sherris Prall

2285 Morello Avenue  
Pleasant Hill, CA 94523  
Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:  
Strough Family Trust

Received: 09/29/2003 14:40

Prep(s):	3510/8015M	Test(s):	8015M
Sample ID:	MW4	Lab ID:	2003-09-1094 - 2
Sampled:	09/29/2003 12:25	Extracted:	10/1/2003 08:46
Matrix:	Water	QC Batch#:	2003/10/01-03.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	10/02/2003 10:47	
Motor Oil	ND	500	ug/L	1.00	10/02/2003 10:47	
<b>Surrogate(s)</b>						
o-Terphenyl	67.3	60-130	%	1.00	10/02/2003 10:47	

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10/06/2003 12:40



TEPH w/ Silica Gel Clean-up

ETIC Pleasant Hill

Attn.: Sherris Prall

2285 Morello Avenue

Pleasant Hill, CA 94523

Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:

Strough Family Trust

Received: 09/29/2003 14:40

Prep(s):	3510/8015M	Test(s):	8015M
Sample ID:	MW5	Lab ID:	2003-09-1094 - 3
Sampled:	09/29/2003 11:50	Extracted:	10/1/2003 08:46
Matrix:	Water	QC Batch#:	2003/10/01-03-10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	10/02/2003 11:13	
Motor Oil	ND	500	ug/L	1.00	10/02/2003 11:13	
<b>Surrogate(s)</b>						
o-Terphenyl	70.1	60-130	%	1.00	10/02/2003 11:13	

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10/06/2003 12:40

TEPH w/ Silica Gel Clean-up

ETIC Pleasant Hill

Attn.: Sherris Prall

2285 Morello Avenue

Pleasant Hill, CA 94523

Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:

Strough Family Trust

Received: 09/29/2003 14:40

Prep(s):	3510/8015M	Test(s):	8015M
Sample ID:	MW6	Lab ID:	2003-09-1094 - 4
Sampled:	09/29/2003 10:40	Extracted:	10/1/2003 08:46
Matrix:	Water	QC Batch#:	2003/10/01-03/10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	10/03/2003 11:38	
Motor Oil	ND	500	ug/L	1.00	10/03/2003 11:38	
<i>Surrogate(s)</i>						
o-Terphenyl	83.9	60-130	%	1.00	10/03/2003 11:38	

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10/06/2003 12:40

TEPH w/ Silica Gel Clean-up

ETIC Pleasant Hill

Attn.: Sherris Prall

2285 Morello Avenue

Pleasant Hill, CA 94523

Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:

Strough Family Trust

Received: 09/29/2003 14:40

Prep(s):	3510/8015M	Test(s):	8015M
Sample ID:	MW7	Lab ID:	2003-09-1094-5
Sampled:	09/29/2003 11:00	Extracted:	10/1/2003 08:46
Matrix:	Water	QC Batch#:	2003/10/01-03:10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	10/02/2003 11:13	
Motor Oil	ND	500	ug/L	1.00	10/02/2003 11:13	
<i>Surrogate(s)</i>						
o-Terphenyl	70.5	60-130	%	1.00	10/02/2003 11:13	

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10/06/2003 12:40

TEPH w/ Silica Gel Clean-up

ETIC Pleasant Hill  
Attn.: Sherris Prall

2285 Morello Avenue  
Pleasant Hill, CA 94523  
Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:  
Strough Family Trust

Received: 09/29/2003 14:40

Batch QC Report					
Prep(s): 3510/8015M				Test(s): 8015M	
Method Blank		Water		QC Batch # 2003/10/01-03:10	
MB: 2003/10/01-03:10-003				Date Extracted: 10/01/2003 08:46	

Compound	Conc.	RL	Unit	Analyzed	Flag
Diesel	109	50	ug/L	10/02/2003 11:31	b
Motor Oil	ND	500	ug/L	10/02/2003 11:31	
<b>Surrogates(s)</b>					
o-Terphenyl	75.2	60-130	%	10/02/2003 11:31	

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10/06/2003 12:40

TEPH w/ Silica Gel Clean-up

ETIC Pleasant Hill  
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Phone: (925) 602-4710 Fax: (925) 602-4720

Project: TMSFT1.1:  
Strough Family Trust

Received: 09/29/2003 14:40

Batch QC Report										
Prep(s): 3510/8015M						Test(s): 8015M				
Laboratory Control Spike				Water			QC Batch # 2003/10/01-03.10			
LCS: 2003/10/01-03.10-001		LCSD: 2003/10/01-03.10-002		Extracted: 10/01/2003		Extracted: 10/01/2003		Analyzed: 10/02/2003 21:13		Analyzed: 10/01/2003 16:25
Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Diesel	987	1080	1000	98.7	108.0	9.0	60-130	25		
Surrogates(s) o-Terphenyl	18.0	18.6	20.0	90.1	92.9		60-130	0		

**2003-09-1094**

From **SHERRIS PRALL** Analysis Request

Company **ETIC**  
Address **2285 MORELLO AVE.  
PLEASANT HILL, CA 94523**  
Sampler (Signature) *[Signature]*  
Phone (925) 602-4710 Fax/Email (925) 602-4720

Sample ID	Date	Time	Mat rix	Pres erv.	TPH (EPA 8260) X Gas w/ X BTEX X MTBE	TPH-d and THE-o by 8015 w/ Silica gel clean-up	EDF											Number of Containers				
MW1	9/29	11:30	W	HCL	X	X	X															
MW2	9/29		W	HCL	X	X	X															5
MW3	9/29		W	HCL	X	X	X															5
MW4	9/29	12:25	W	HCL	X	X	X															5
MW5	9/29	11:50	W	HCL	X	X	X															5
MW6	9/29	10:40	W	HCL	X	X	X															5
MW7	9/29	11:00	W	HCL	X	X	X															5

**Project Info.**  
Project Name: Stough Family Trust  
Project#: TMSFT1.1:  
PO#: Oak 85  
Credit Card#:  
Conforms to record:  
Other: Std 5 Day 72h 48h 24h  
Report:  Routine  Level 2  Level 3  Level 4  EDD  
Special Instructions / Comments:  
GLOBAL ID#

**Sample Receipt**  
# of Containers: 1440  
Head Space:  
Temp:  
Conforms to record:  
Other

1) Relinquished by: *[Signature]* 1440  
Signature Time  
*[Signature]* 9/29/03  
Printed Name Date  
**ETIC ENGINEERING**  
Company

1) Received by:  
Signature Time  
Printed Name Date  
Company

2) Relinquished by:  
Signature Time  
Printed Name Date  
Company

2) Received by:  
Signature Time  
Printed Name Date  
Company

3) Relinquished by:  
Signature Time  
Printed Name Date  
Company

3) Received by:  
*[Signature]* 1440  
Signature Time  
*[Signature]* 9/29/03  
Printed Name Date  
**STC SF**  
Company

STL San Francisco

### Sample Receipt Checklist

Submission #: 2003- 09 - 1094

Checklist completed by: (initials) CR Date: 09, 30/03

Courier name:  STL San Francisco  Client \_\_\_\_\_

Custody seals intact on shipping container/samples

Yes \_\_\_ No \_\_\_ Not Present

Chain of custody present?

Yes  No \_\_\_

Chain of custody signed when relinquished and received?

Yes  No \_\_\_

Chain of custody agrees with sample labels?

Yes  No \_\_\_

Samples in proper container/bottle?

Yes  No \_\_\_

Sample containers intact?

Yes  No \_\_\_

Sufficient sample volume for indicated test?

Yes  No \_\_\_

All samples received within holding time?

Yes  No \_\_\_

Container/Temp Blank temperature in compliance ( $4^{\circ}C \pm 2$ )?

Temp: 5.3 °C Yes  No \_\_\_

Water - VOA vials have zero headspace?

Ice Present Yes  No \_\_\_

No VOA vials submitted \_\_\_ Yes  No \_\_\_

(if bubble is present, refer to approximate bubble size and itemize in comments as S (small ~O), M (medium ~ O) or L (large ~ O))

Water - pH acceptable upon receipt?  Yes  No

pH adjusted- Preservative used:  HNO<sub>3</sub>  HCl  H<sub>2</sub>SO<sub>4</sub>  NaOH  ZnOAc -Lot #(s) \_\_\_\_\_

For any item check-listed "No", provided detail of discrepancy in comment section below:

Comments: \_\_\_\_\_

### Project Management [Routing for instruction of indicated discrepancy(ies)]

Project Manager: (initials) \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/03

Client contacted:  Yes  No

Summary of discussion: \_\_\_\_\_

Corrective Action (per PM/Client): \_\_\_\_\_