R0134

ETIC ENGINEERING

First Quarter 2004
Groundwater Monitoring Report

Strough Family Trust of 1983
Former Val Strough Chevrolet
327 34th Street
Oakland, California

April 30, 2004

Prepared for:

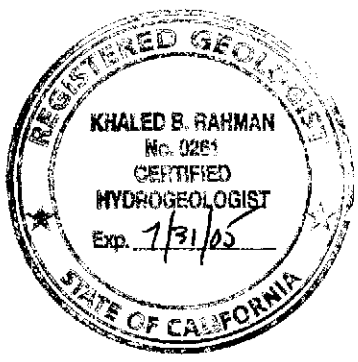
Mr. Don Strough
Strough Family Trust of 1983
PO Box 489
Orinda, California 94563

Prepared by:

ETIC Engineering, Inc.
1333 Broadway, Suite 1015
Oakland, California 94612

Katherine Brandt
Project Manager

Khaled Rahman, R.G., C.Hg.
Senior Geologist



ETIC ENGINEERING

FIRST QUARTER 2004
GROUNDWATER MONITORING REPORT

STROUGH FAMILY TRUST OF 1983
FORMER VAL STROUGH CHEVROLET
327 34th STREET
OAKLAND, CALIFORNIA

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, California 94612

April 30, 2004

TABLE OF CONTENTS

List of Figures

List of Tables

List of Appendixes

SITE CONTACTS

Site Name:	Former Val Strough Chevrolet
Site Address:	327 34th Street Oakland, California
Consultant:	ETIC Engineering, Inc. 1333 Broadway, Suite 1015 Oakland, California 94612 (510) 208-1600
ETIC Project Manager:	Katherine A. Brandt
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 *First Quarter 2004 Groundwater Monitoring Report* for the Val Strough Chevrolet site located in Oakland, California. This report documents the procedures and findings of the 15 March 2004 groundwater 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 appendices.

GENERAL SITE INFORMATION

Site name:	Former Val Strough Chevrolet
Site address:	327 34th Street, Oakland, California
Current property owner:	Strough Family Trust of 1983
Current site use:	Automotive Dealership and Service Center
Current phase of project:	Groundwater monitoring, interim remedial action
Tanks at site:	Two former tanks (1 gasoline, 1 waste-oil) removed 1993
Number of wells:	7 (all onsite)

GROUNDWATER MONITORING SUMMARY

Gauging and sampling date:	15 March 2004
Wells gauged and sampled:	MW1, MW4-MW7
Wells gauged only:	MW2, MW3
Groundwater flow direction:	South-southwest
Groundwater gradient:	0.03-0.02
Liquid-phase hydrocarbons:	Observed in wells MW2 and MW3
Laboratory:	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 modified EPA Method 8015.

2.0 SITE BACKGROUND

2.1 SITE LOCATION AND LAND USE

The site is an automotive dealership and service center located at 327 34th Street, Oakland, California on the southwest corner of the intersection of Broadway (Auto Row) and 34th 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 approximately 2 miles east of 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. In 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. 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). Well MW1 is located approximately 10 feet southeast of the former waste-oil UST. Well MW2 is located approximately 15 feet south of the gasoline UST. Well MW3 is located approximately 40 feet south of the two USTs. Figures 2 and 3 show the monitoring well locations.

Soil samples from well MW1 were below laboratory reporting limits for the COPCs. Soil samples from well MW2 contained elevated TPH-g and BTEX concentrations. Soil samples from well MW3 (downgradient of MW2) contained TPH-g, 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, 0.16 feet of floating liquid-phase hydrocarbons (LPH) was observed in well MW3. 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 hydrocarbon plume. The COPCs were not detected in soil samples from these wells, except for 0.045 parts per billion (ppb) benzene in well MW4 (see Table 3).

In July 2000, two additional groundwater monitoring wells (MW6 and MW7) were installed in the parking lot on the east and west sides of a box culvert in the eastern portion of the site. The underground box culvert (Former Tributary of Glen Echo Creek) is a re-enforced concrete box measuring 5 feet wide by 6 feet high. 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.

In December 2003, two soil borings (SB1 and SB2) and three hydropunch borings (HP1, HP2, and HP3) were advanced onsite (Figure 2). The soil borings were advanced to collected depth discrete soil samples in the area of highest petroleum hydrocarbon concentrations in soil near well MW2. The hydropunch borings were advanced downgradient/crossgradient of well MW6, between MW5 and MW6, and southwest of the former release/source area. The grab groundwater sample from hydropunch boring (HP3) between MW5 and MW6 was unsuccessful in recovering water.

2.3 REGIONAL 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 groundwater flow 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 2.

2.4 SITE HYDROGEOLOGY

The hydrogeology of the site have been evaluated using soil boring logs from previous investigations at the site. In general, the site subsurface 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 of 31 feet bgs. Sandy clay has been observed in well MW2 at approximately 35 feet bgs, the total depth explored beneath the site.

In March 2004, groundwater occurred at an average depth of 17.95 feet bgs. Figure 2 indicates a rose diagram showing generalized flow directions for the shallow water-bearing zone beneath the site based on data collected from July 1993 to March 2004. As shown in the rose diagram, the prevailing groundwater flow direction has been toward the southwest, with an average hydraulic gradient of approximately 0.03 foot/foot. 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 the wells.
- Gauging depth to groundwater in the wells.
- Purging wells to be sampled.
- Collecting and analyzing groundwater samples from wells with no LPH.
- Calculating the groundwater gradient and flow direction.
- Preparing this report summarizing the results of the monitoring event.

3.1 GROUNDWATER GAUGING

The wells were opened prior to gauging to allow the groundwater level 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

A minimum of 3 well casing volumes of water was purged from each well 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 a WaTerra inertial pump. After purging and prior to sampling, 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 a WaTerra inertial pump. The samples were submitted to STL San Francisco, of Pleasanton, California, a state-certified laboratory. Groundwater analytical results and chain-of-custody documentation are presented in Appendix C.

4.0 RESULTS

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 0.01 feet in well MW2 and a sheen in monitoring well MW3.

4.2 GROUNDWATER ELEVATION AND GRADIENT

Groundwater elevations in the site wells during this monitoring event ranged from 43.14 feet above mean sea level (msl) at well MW6 to 46.72 feet msl at well MW2. Groundwater elevations are presented in Figure 2. Groundwater flow is generally to the south-southwest with a gradient of approximately 0.03 foot/foot. At the request of the Alameda County Health Services Agency (ACHSA), a rose diagram is also presented on Figure 2.

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 15 March 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 modified EPA Method 8015. 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 and laboratory analytical reports for the groundwater samples are presented in Appendix C.

4.4 FINDINGS

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

- LPH was reported in wells MW2 and MW3, which is consistent with recent monitoring events.
- Concentrations of TPH-g and TPH-mo were below laboratory reporting limits in each of the monitoring wells sampled, except wells MW4 and MW6 which reported TPH-g at 54 µg/L and 200 µg/L, respectively. Last quarter, wells MW4 and MW6 were below elevated reporting limits (see Table 2).
- Concentrations of TPH-d were below laboratory reporting limits in each of the monitoring wells sampled. Last quarter, well MW1 reported 58 µg/L for TPH-d.

- BTEX concentrations were below the laboratory reporting limits in each of the monitoring wells sampled, expect for well MW4, which reported benzene at 1.5 µg/L. Last quarter, BTEX was below laboratory detection limits for all wells sampled.
- MTBE concentrations ranged from below laboratory reporting limits (MW1, MW5, and MW7) to 220 µg/L (MW6). Well MW4 had a decreased in concentration from 1,000 µg/L to 41 µg/L between the two sampling events.

5.0 PLANNED SITE ACTIVITIES

5.1 GROUNDWATER MONITORING

Groundwater will be monitored in accordance with the groundwater monitoring schedule presented as Table 3. This monitoring schedule will be re-evaluated following the second quarter 2004 event.

5.2 INTERIM REMEDIAL ACTION

A High Vacuum Dual-Phase Extraction (DPE) pilot test was conducted on 30 March 2004. An *Interim Remedial Action Plan* is being prepared that will present a scope of work for continued DPE events to remove source area hydrocarbon mass to the point where natural attenuation can be more effectively applied at the site.

6.0 REFERENCES

Environmental Data Resources. 2003. EDR Radius Map with GeoCheck, Strough Family Trust, 327 34th Street, Oakland, California. September 10.

ETIC Engineering, Inc. 2003. Supplemental Site Investigation Workplan, Strough Family Trust of 1983, 327 34th Street, Oakland, California. September 17.

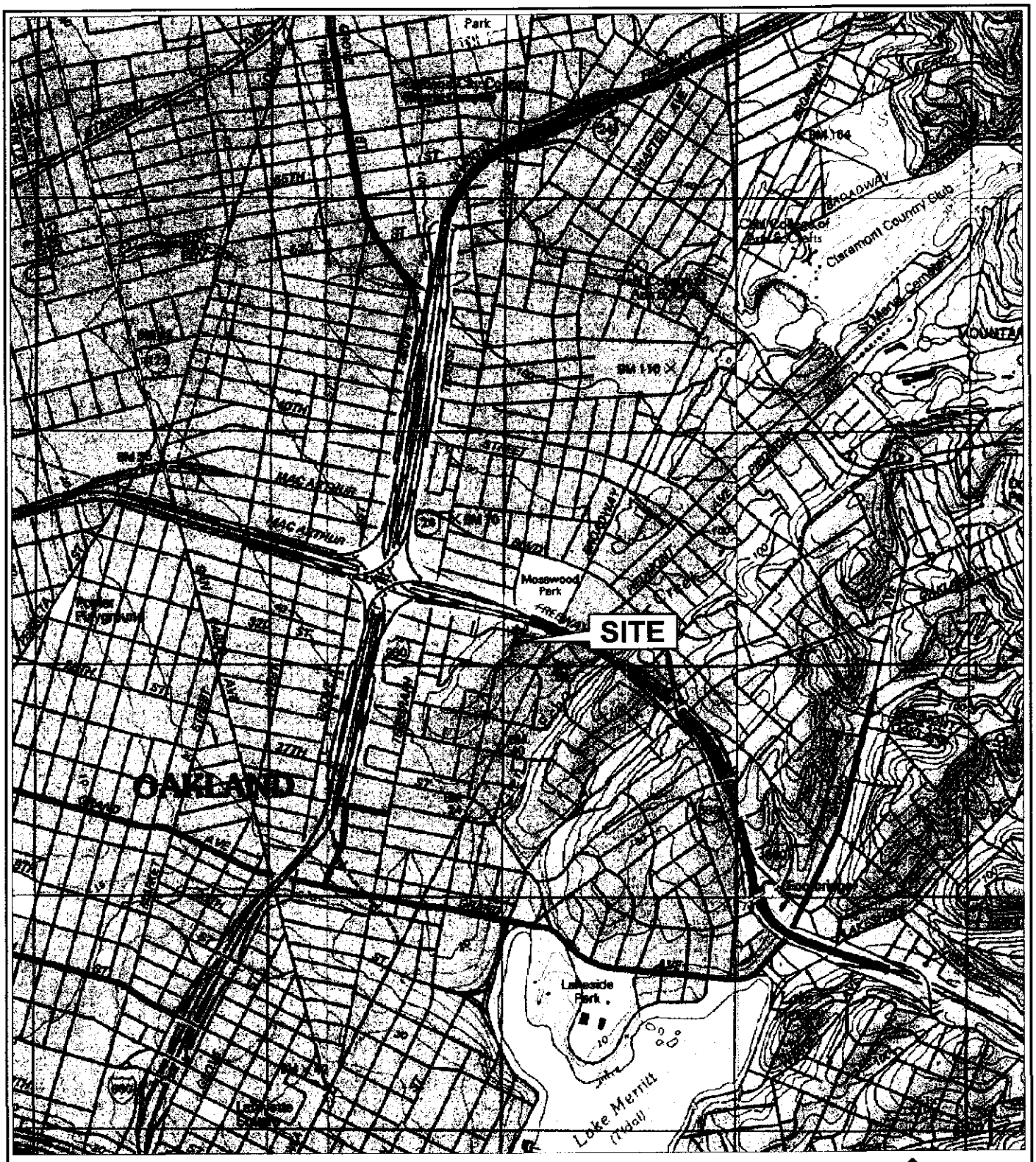
ETIC Engineering, Inc. 2004. Fourth Quarter 2003 Groundwater Monitoring Report, Strough Family Trust of 1983-Oakland, California. Fuel Leak Case No. RO0000134. January.

ETIC Engineering, Inc. 2004. Supplemental Site Investigation Report and Dual-Phase Extraction Pilot Test Workplan, Strough Family Trust of 1983, 327 34th Street, Oakland, California. February.

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

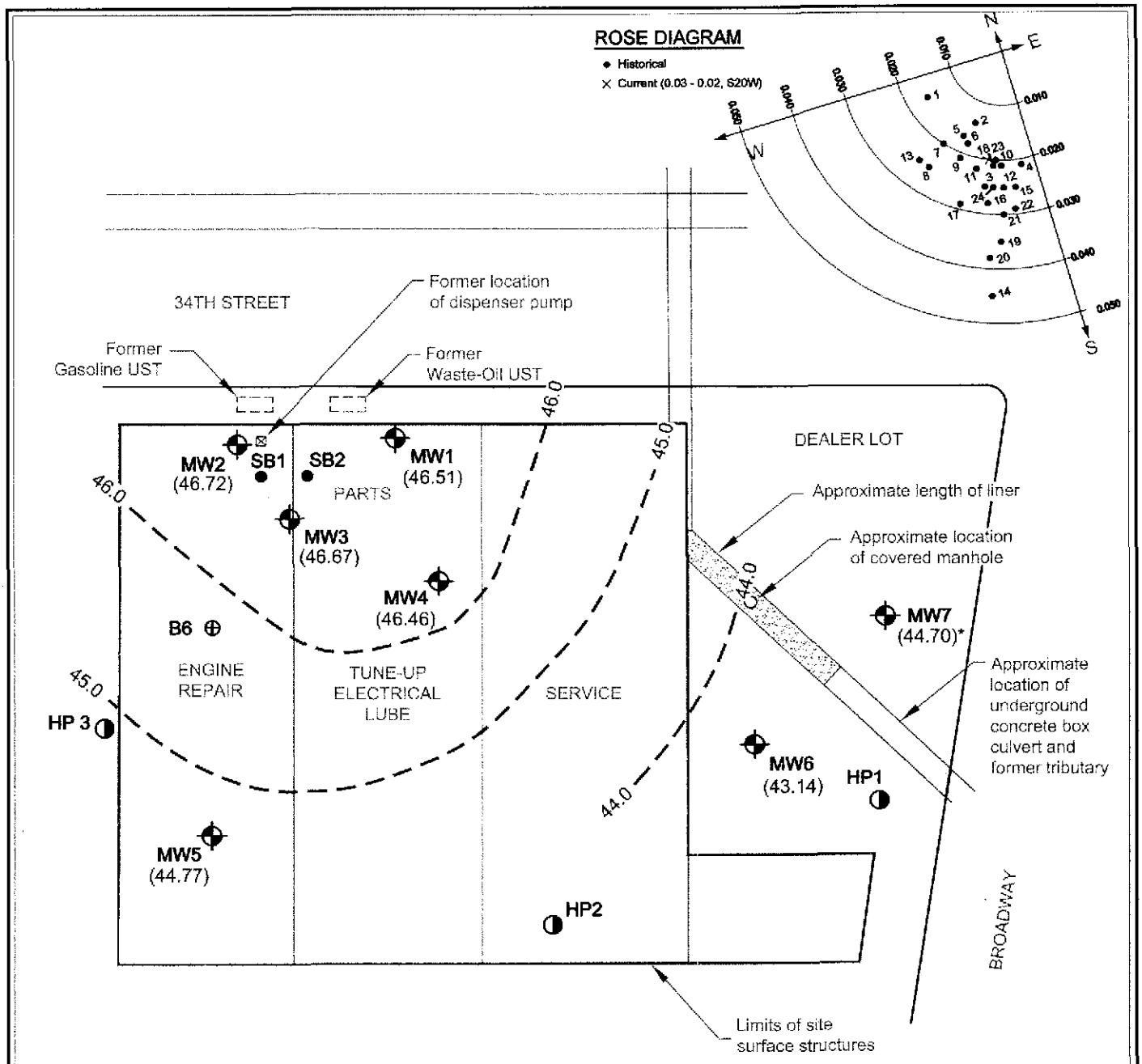


ETIC ENGINEERING

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

FIGURE: 1

FILENAME: OMR_102004.DWG 04/28/04



LEGEND:

- Groundwater monitoring well
- Boring location
- Soil boring
- Hydropunch
- Culvert liner
- Underground concrete box culvert
- 43.0 Groundwater elevation contour in feet above mean sea level
- * Well not used to calculate gradient.

N

0 25 50

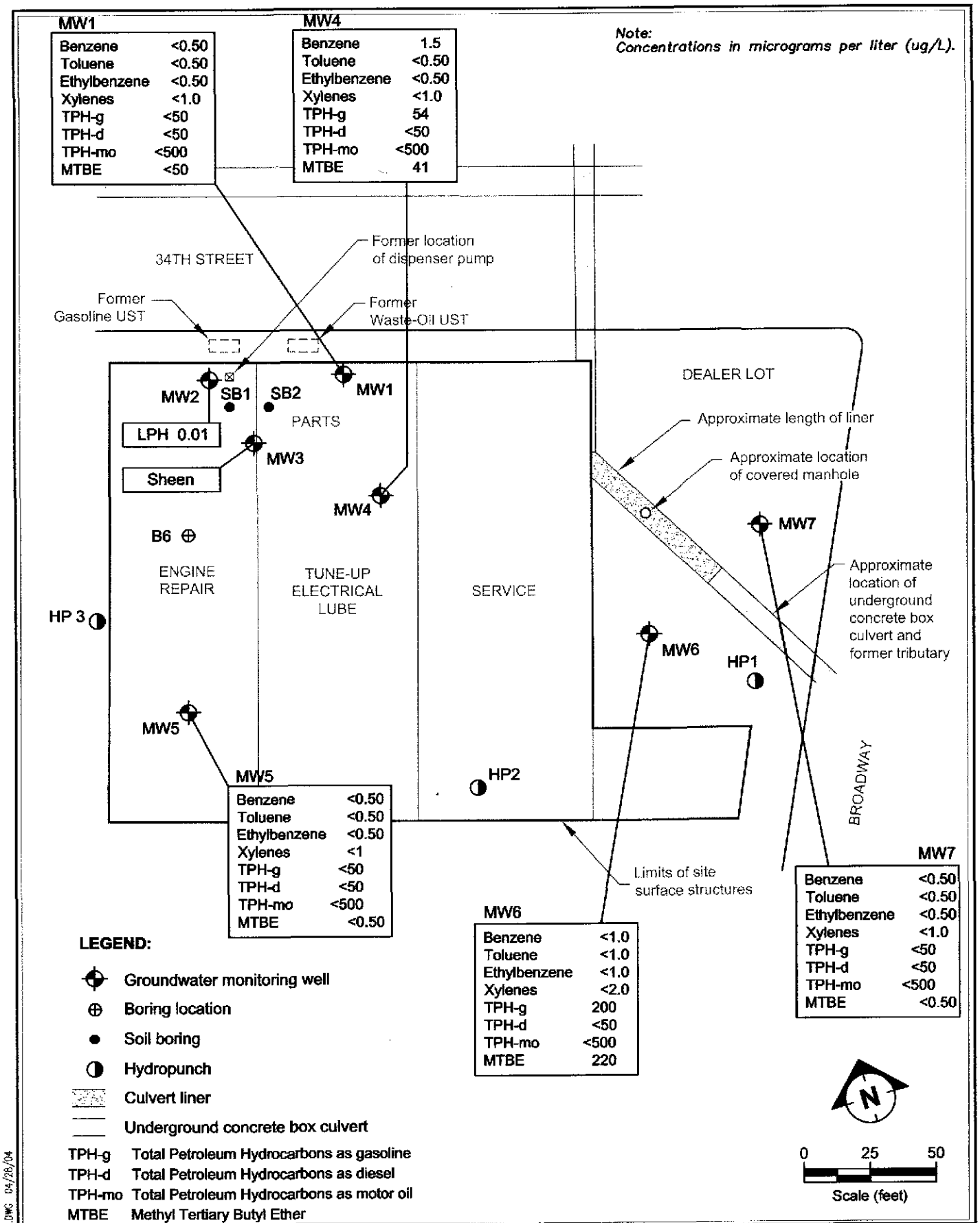
Scale (feet)

FILENAME: GWR_102004.DWG 04/28/04

ETIC ENGINEERING

MARCH 2004 GROUNDWATER CONTOUR MAP AND ROSE DIAGRAM
STROUGH FAMILY TRUST
327 34TH STREET
OAKLAND, CALIFORNIA

FIGURE: **2**



ETIC ENGINEERING

MARCH 2004 GROUNDWATER ANALYTICAL DATA
STROUGH FAMILY TRUST
327 34TH STREET
OAKLAND, CALIFORNIA

FIGURE: 3

FILENAME: QMR_102004.DWG 04/28/04

Tables

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

Well ID	Well Installation Date	Top-of-Casing Elevation[a] (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 CUMULATIVE GROUNDWATER ANALYTICAL DATA
STROUGH FAMILY TRUST, 327 34th STREET OAKLAND, CALIFORINA

Well Number	Date	Casing Elevation (feet)		Depth to Water (feet)	GW Elevation (feet)	LPH Thickness (feet)	Concentration (µg/L)								Concentration (mg/L)								
							Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	CO_2 (lab)	DO (field)	pH (field)	Fe(II)	Mn	SO_4	$N\text{-}NH_3$	$N\text{-}NO_3$	$o\text{-}PO_4$
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	--	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	--	--	--	--	--	--	--	--	--
MW1	12/12/03	64.69	b	21.27	43.42	0.00	<0.50	<0.50	<0.50	1.1	<50	58	<500	<0.50	--	--	--	--	--	--	--	--	--
MW1	**03/15/04**	**64.69**	**b**	**18.18**	**46.51**	**0.00**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<50**	**<50**	**<500**	**<0.50**	--	**0.14**	--	--	--	--	--	--	--
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
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

TABLE 2 CUMULATIVE GROUNDWATER ANALYTICAL DATA
STROUGH FAMILY TRUST, 327 34th STREET OAKLAND, CALIFORINA

Well Number	Date	Casing Elevation (feet)		Depth to Water (feet)	GW Elevation (feet)	LPH Thickness (feet)	Concentration (µg/L)								Concentration (mg/L)								
							Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	CO_2 (lab)	DO (field)	pH (field)	Fe(II)	Mn	SO_4	$N\text{-}NH_3$	$N\text{-}NO_3$	$o\text{-}PO_4$
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2	09/29/03	65.95	b	23.04	42.91	0.48	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW2[c]	12/12/03	65.95	b	22.75	43.31	0.16	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW2[c]	**03/15/04**	**65.95**	**b**	**19.24**	**46.72**	**0.01**	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3	09/29/03	65.99	b	22.79	43.20	sheen	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW3[c]	12/12/03	65.99	b	22.73	43.27	0.01	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW3[c]	**03/15/04**	**65.99**	**b**	**19.32**	**46.67**	**sheen**	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW4	06/30/98	98.65	a	16.93	81.72	0.00	2,200	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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 2 CUMULATIVE GROUNDWATER ANALYTICAL DATA
STROUGH FAMILY TRUST, 327 34th STREET OAKLAND, CALIFORINA

Well Number	Date	Casing Elevation (feet)		Depth to Water (feet)	GW Elevation (feet)	LPH Thickness (feet)	Concentration (µg/L)								Concentration (mg/L)							
							Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	CO_2 (lab)	DO (field)	pH (field)	Fe(II)	Mn	SO_4	$N\text{-}NH_3$	$N\text{-}NO_3$	$o\text{-}PO_4$
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4	09/29/03	63.35	b	20.11	43.24	0.00	<5.0	<5.0	<5.0	<10	1,100	<50[d]	<500	1,700	--	--	--	--	--	--	--	--	--
MW4	12/12/03	63.35	b	20.06	43.29	0.00	<13	<13	<13	<25	<1,300	<50	<500	1,000	--	--	--	--	--	--	--	--	--
MW4	**03/15/04**	**63.35**	**b**	**16.89**	**46.46**	**0.00**	**1.5**	**<0.50**	**<0.50**	**<1.0**	**54[d]**	**<50**	**<500**	**41**	--	**0.16**	--	--	--	--	--	--	--
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	--[c]	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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5	09/29/03	65.59	b	24.38	41.21	0.00	<0.50	0.52	7.1	35	100	<50[d]	<500	1.4	--	--	--	--	--	--	--	--	--
MW5	12/12/03	65.59	b	23.90	41.69	0.00	<0.50	<0.50	<0.50	<1	<50	<50	<500	1.5	--	--	--	--	--	--	--	--	--
MW5	**03/15/04**	**65.59**	**b**	**20.82**	**44.77**	**0.00**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<50**	**<50**	**<500**	**<0.50**	--	**6.4**	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW6	09/29/03	59.60	b	18.48	41.12	0.00	<1.0	<1.0	<1.0	<2.0	230[d]	<50	<500	340	--	--	--	--	--	--	--	--	--
MW6	12/12/03	59.60	b	17.89	41.71	0.00	<2.5	<2.5	<2.5	<5.0	<250	51	<500	190	--	--	--	--	--	--	--	--	--

TABLE 2 CUMULATIVE GROUNDWATER ANALYTICAL DATA
STROUGH FAMILY TRUST, 327 34th STREET OAKLAND, CALIFORINA

Well Number	Date	Casing Elevation (feet)		Depth to Water (feet)	GW Elevation (feet)	LPH Thickness (feet)	Concentration (µg/L)								Concentration (mg/L)								
							Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	TPH-mo	MTBE	CO_2 (lab)	DO (field)	pH (field)	Fe(II)	Mn	SO_4	$N\text{-}NH_3$	$N\text{-}NO_3$	$o\text{-}PO_4$
MW6	**03/15/04**	**59.60**	**b**	**16.46**	**43.14**	**0.00**	**<1.0**	**<1.0**	**<1.0**	**<2.0**	**200**	**<50**	**<500**	**220**	--	**0.11**	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW7	09/29/03	59.47	b	16.88	42.59	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	0.62	--	--	--	--	--	--	--	--	--
MW7	12/12/03	59.47	b	14.95	44.52	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	<0.50	--	--	--	--	--	--	--	--	--
MW7	03/15/04	59.47	b	14.77	44.70	0.00	<0.50	<0.50	<0.50	<1.0	<50	<50	<500	<0.50	--	0.54	--	--	--	--	--	--	--

LPH Liquid-phase hydrocarbons.
CO_2 Carbon dioxide.
DO Dissolved oxygen.
Fe(II) Ferrous iron.
Mn Manganese.
SO_4 Sulfate.
$N\text{-}NH_3$ Ammonia.
$N\text{-}NO_3$ Nitrate.
$o\text{-}PO_4$ 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.
e Groundwater elevation in wells with LPH are corrected by multiplying the specific gravity of gasoline (0.69) by the LPH thickness and adding this value to the water elevation.

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.

ETIC ENGINEERING

Appendix A

Protocols for Groundwater Monitoring

PROTOCOLS FOR 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.

ETIC ENGINEERING

Appendix B

Field Documents

ETIC Engineering, Inc.

MONITORING WELL DATA FORM

Client: STROUGH FAMILY TRUST

Date: 3.15.04

Project Number: TMSFT.6

Station Number: SFT

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

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 FIELD COMMENTS
MW1	18.18					30.55	2"
MW2*	19.24	19.23				32.15	2"
MW3*	19.32					32.45	2"
MW4	16.89					26.85	2"
MW5	20.82					26.35	2"
MW6	16.46					27.15	2"
MW7	14.97					34.75	2"

* POSSIBLE LPH - USE IP AND CONFIRM WITH BAILER

G:\USERS\DFitzgerald\STROUGH FAMILY TRUST (2)\[SFTMonitoring] Note: Depth to bottom measured during first quarter unless noted

ETIC ENGINEERING

GROUNDWATER PURGE AND SAMPLE

Project Name: STROUGH FAMILY TRUST Well No: MW1 Date: 3-15-04

Project No: TMSFT.6 Personnel: (W)

GAUGING DATA

Water Level Measuring Method: (WLM / IP) PROBE 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)
	30.55 −	18.18 =	12.37 ×	1 (0.04), (2) (0.16), 4 (0.64), 6 (1.44)	1.97 =	5.93

PURGING DATA

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

Time	10:10	10:15	10:25			
Volume Purge (gal)	2	4	6			
Temperature (C)	18.58	18.53	18.53			
pH	6.44	6.45	6.45			
Spec Cond. (umhos)	922 / 809	869 / 761	865 / 768			
Turbidity/Color	silty / brn	silty / brn	silty / brn			
Odor (Y/N)	N	N	N			
Casing Volumes	—	—	—			
Dewatered (Y/N)	N	N	N			

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

1.8 / .17 mg/L 1.4 / .13 mg/L 1.5 / .14 mg/L

105.2 orp 108.4 orp 109.8 orp

SAMPLING DATA

Time Sampled: 10:30 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:

ETIC ENGINEERING

GROUNDWATER PURGE AND SAMPLE

Project Name: STROUGH FAMILY TRUST Well No: MW4 Date: 3.15.24

Project No: TMSFT.6 Personnel: MA

GAUGING DATA

Water Level Measuring Method: WLM / IP PROBE 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)
	26.85	−	16.89	=	9.96	X	1	(2)	4	6	1.59	=	4.78
							0.04	0.16	0.64	1.44			

PURGING DATA

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

Time	10:38	10:42	10:46			
Volume Purge (gal)	2	4	6			
Temperature (C)	18.92	18.93	18.94			
pH	6.60	6.60	6.60			
Spec. Cond. (umhos)	789/697	775/685	767/679			
Turbidity/Color	SLT BRN	SLT BRN	SLT BRN			
Odor (Y/N)	N	N	N			
Casing Volumes	1	1	1			
Dewatered (Y/N)	N	N	N			

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

3.5 / .32 MG/L 2.4 / .28 MG/L 1.7 / .16 MG/L

59.6 ORP 64.5 ORP 61.0 ORP

SAMPLING DATA

Time Sampled: 10:50 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
MW4	3	voas	HCL	40ml		TPH-g,BTEX,MTBE
MW4	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:

ETIC ENGINEERING

GROUNDWATER PURGE AND SAMPLE

Project Name:	STROUGH FAMILY TRUST	Well No: MW5	Date: 3-15-04
Project No:	TMSFT.6	Personnel: CWS	

GAUGING DATA

Water Level Measuring Method: (WLM) / IP PROBE   Measuring Point Description:

WELL PURGE VOLUME CALCULATION	Total Depth (feet)		Depth to Water (feet)		Water Column (feet)		Multiplier for Casing Diameter: 1 (0.04), (2) (0.16), 4 (0.64), 6 (1.44)	Casing Volume (gal)		Total Purge Volume (gal)
	26.35	−	20.82	=	5.53	X	2 (0.16)	.88	=	2.65

PURGING DATA

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

Time	11:07	11:10	11:13			
Volume Purge (gal)	.75	1.5	2.25			
Temperature (C)	18.20	18.22	18.23			
pH	6.10	6.09	6.06			
Spec. Cond. (umhos)	374/326	372/324	373/325			
Turbidity/Color	SILTY / BRN	SILTY / BRN	SILTY / BRN			
Odor (Y/N)	N	N	N			
Casing Volumes	—	—	—			
Dewatered (Y/N)	N	N	N			

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

71.0 / 6.69 mg/L   69.7 / 6.54 mg/L   68.1 / 6.40 mg/L

154.7 orp   166.9 orp   180.1 orp

SAMPLING DATA

Time Sampled: 11:15   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
MW5	3	voas	HCL	40ml		TPH-g,BTEX,MTBE
MW5	2	amber	NONE	1L		TPH-d,TEHo

Total Purge Volume: 2.25 *(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:

G:\USERS\...\STROUGH FAMILY TRUST\...\Sheet1

ETIC ENGINEERING

GROUNDWATER PURGE AND SAMPLE

Project Name: STROUGH FAMILY TRUST
Well No: MW6
Date: 3.15.04

Project No: TMSFT.6
Personnel: VM

GAUGING DATA

Water Level Measuring Method: (WLM) / IP PROBE
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)
	27.15	(−) 16.46	(=) 10.69	(X) 1: 0.04, (2): 0.16, 4: 0.64, 6: 1.44	1.71	(=) 5.13

PURGING DATA

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

Time	9:11	9:14	9:17			
Volume Purge (gal)	2	4	6			
Temperature (C)	18.22	18.27	18.32			
pH	6.66	6.68	6.67			
Spec. Cond. (umhos)	720/627	755/640	767/649			
Turbidity/Color	SILTY/BRN	SILTY/BRN	SILTY/BRN			
Odor (Y/N)	N	N	N			
Casing Volumes	—	—	—			
Dewatered (Y/N)	N	N	N			

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

4.1/.39 MG/L 3.2/.30 MG/L 1.2/.11 MG/L

−84.1 ORP −97.4 ORP −114.1 ORP

SAMPLING DATA

Time Sampled: 9:20
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
MW6	3	voas	HCL	40ml		TPH-g,BTEX,MTBE
MW6	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:

ETIC ENGINEERING

GROUNDWATER PURGE AND SAMPLE

Project Name:	STROUGH FAMILY TRUST	Well No: MW7	Date: 3.15.04
Project No:	TMSFT.6	Personnel: (W)	

GAUGING DATA

Water Level Measuring Method: (WLM) / IP PROBE   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)
	34.75	−	14.77	=	19.98	X	1: 0.04; (2): 0.16; 4: 0.64; 6: 1.44	3.19	=	9.59

PURGING DATA

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

Time	9:37	9:40	9:43			
Volume Purge (gal)	3	6	9			
Temperature (C)	19.56	19.57	19.68			
pH	6.85	6.87	6.84			
Spec Cond (umhos)	841/753	853/764	812/727			
Turbidity/Color	SILTY / BRN	SILTY / BRN	SILTY / BRN			
Odor (Y/N)	N	N	N			
Casing Volumes	—	—	—			
Dewatered (Y/N)	N	N	N			

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

5.1 / .47 mg/L	4.3 / .45 mg/L	5.9 / .54 mg/L
116.4 orp	114.5 orp	113.3 orp

SAMPLING DATA

Time Sampled: 9:45   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:

ETIC ENGINEERING

Appendix C

Laboratory Analytical Reports

SEVERN TRENT STL

Submission#: 2004-03-0533

ETIC Oakland

March 26, 2004

1333 Broadway, Suite 1015
Oakland, CA 94612

Attn.: Kathy Brandt

Project#: TMSFT.9
Project: Strough Family Trust

Kathy

Attached is our report for your samples received on 03/16/2004 17:51
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 04/30/2004 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: vvancil@stl-inc.com

Sincerely,

Vincent Vancil
Project Manager

RECEIVED
APR 0 6 2004
ETIC ENGINEERING

SEVERN TRENT STL

Submission #: 2004-03-0533

Fuel Oxygenates by 8260B

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW1	03/15/2004 10:30	Water	1
MW4	03/15/2004 10:50	Water	2
MW5	03/15/2004 11:15	Water	3
MW6	03/15/2004 09:20	Water	4
MW7	03/15/2004 09:45	Water	5

Fuel Oxygenates by 8260B

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Prep(s): 5030B
Sample ID: **MW1**
Sampled: 03/15/2004 10:30
Matrix: Water

Test(s): 8260B
Lab ID: 2004-03-0533 - 1
Extracted: 3/19/2004 12:46
QC Batch#: 2004/03/19-01.68

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/19/2004 12:46	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	03/19/2004 12:46	
Benzene	ND	0.50	ug/L	1.00	03/19/2004 12:46	
Toluene	ND	0.50	ug/L	1.00	03/19/2004 12:46	
Ethylbenzene	ND	0.50	ug/L	1.00	03/19/2004 12:46	
Total xylenes	ND	1.0	ug/L	1.00	03/19/2004 12:46	
Surrogate(s)						
1,2-Dichloroethane-d4	90.2	76-114	%	1.00	03/19/2004 12:46	
Toluene-d8	94.2	88-110	%	1.00	03/19/2004 12:46	

Fuel Oxygenates by 8260B

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Prep(s): 5030B
Sample ID: **MW4**
Sampled: 03/15/2004 10:50
Matrix: Water

Test(s): 8260B
Lab ID: 2004-03-0533 - 2
Extracted: 3/19/2004 13:05
QC Batch#: 2004/03/19-01.68

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	54	50	ug/L	1.00	03/19/2004 13:05	g
Methyl tert-butyl ether (MTBE)	41	0.50	ug/L	1.00	03/19/2004 13:05	
Benzene	1.5	0.50	ug/L	1.00	03/19/2004 13:05	
Toluene	ND	0.50	ug/L	1.00	03/19/2004 13:05	
Ethylbenzene	ND	0.50	ug/L	1.00	03/19/2004 13:05	
Total xylenes	ND	1.0	ug/L	1.00	03/19/2004 13:05	
Surrogate(s)						
1,2-Dichloroethane-d4	91.8	76-114	%	1.00	03/19/2004 13:05	
Toluene-d8	93.5	88-110	%	1.00	03/19/2004 13:05	

SEVERN TRENT STL

Submission #: 2004-03-0533

Fuel Oxygenates by 8260B

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Prep(s): 5030B
Sample ID: **MW5**
Sampled: 03/15/2004 11:15
Matrix: Water

Test(s): 8260B
Lab ID: 2004-03-0533 - 3
Extracted: 3/19/2004 13:24
QC Batch#: 2004/03/19-01.68

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/19/2004 13:24	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	03/19/2004 13:24	
Benzene	ND	0.50	ug/L	1.00	03/19/2004 13:24	
Toluene	ND	0.50	ug/L	1.00	03/19/2004 13:24	
Ethylbenzene	ND	0.50	ug/L	1.00	03/19/2004 13:24	
Total xylenes	ND	1.0	ug/L	1.00	03/19/2004 13:24	
Surrogate(s)						
1,2-Dichloroethane-d4	89.4	76-114	%	1.00	03/19/2004 13:24	
Toluene-d8	90.8	88-110	%	1.00	03/19/2004 13:24	

Fuel Oxygenates by 8260B

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Prep(s): 5030B
Sample ID: **MW6**
Sampled: 03/15/2004 09:20
Matrix: Water
Analysis Flag: o (See Legend and Note Section)

Test(s): 8260B
Lab ID: 2004-03-0533 - 4
Extracted: 3/23/2004 12:33
QC Batch#: 2004/03/23-01.68

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	200	100	ug/L	2.00	03/23/2004 12:33	
Methyl tert-butyl ether (MTBE)	220	1.0	ug/L	2.00	03/23/2004 12:33	
Benzene	ND	1.0	ug/L	2.00	03/23/2004 12:33	
Toluene	ND	1.0	ug/L	2.00	03/23/2004 12:33	
Ethylbenzene	ND	1.0	ug/L	2.00	03/23/2004 12:33	
Total xylenes	ND	2.0	ug/L	2.00	03/23/2004 12:33	
Surrogate(s)						
1,2-Dichloroethane-d4	101.4	76-114	%	2.00	03/23/2004 12:33	
Toluene-d8	93.0	88-110	%	2.00	03/23/2004 12:33	

Fuel Oxygenates by 8260B

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Prep(s): 5030B
Sample ID: **MW7**
Sampled: 03/15/2004 09:45
Matrix: Water

Test(s): 8260B
Lab ID: 2004-03-0533 - 5
Extracted: 3/19/2004 14:02
QC Batch#: 2004/03/19-01.68

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/19/2004 14:02	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	03/19/2004 14:02	
Benzene	ND	0.50	ug/L	1.00	03/19/2004 14:02	
Toluene	ND	0.50	ug/L	1.00	03/19/2004 14:02	
Ethylbenzene	ND	0.50	ug/L	1.00	03/19/2004 14:02	
Total xylenes	ND	1.0	ug/L	1.00	03/19/2004 14:02	
Surrogate(s)						
1,2-Dichloroethane-d4	85.6	76-114	%	1.00	03/19/2004 14:02	
Toluene-d8	90.8	88-110	%	1.00	03/19/2004 14:02	

Fuel Oxygenates by 8260B

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Batch QC Report

Prep(s): 5030B
Method Blank
MB: 2004/03/19-01.68-055

Water

Test(s): 8260B
QC Batch # 2004/03/19-01.68
Date Extracted: 03/19/2004 07:55

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	03/19/2004 07:55	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	03/19/2004 07:55	
Benzene	ND	0.5	ug/L	03/19/2004 07:55	
Toluene	ND	0.5	ug/L	03/19/2004 07:55	
Ethylbenzene	ND	0.5	ug/L	03/19/2004 07:55	
Total xylenes	ND	1.0	ug/L	03/19/2004 07:55	
Surrogates(s)					
1,2-Dichloroethane-d4	98.4	76-114	%	03/19/2004 07:55	
Toluene-d8	91.2	88-110	%	03/19/2004 07:55	

Fuel Oxygenates by 8260B

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Batch QC Report

Prep(s): 5030B
Method Blank
MB: 2004/03/23-01.68-026

Water

Test(s): 8260B
QC Batch # 2004/03/23-01.68
Date Extracted: 03/23/2004 08:26

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	03/23/2004 08:26	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	03/23/2004 08:26	
Benzene	ND	0.5	ug/L	03/23/2004 08:26	
Toluene	ND	0.5	ug/L	03/23/2004 08:26	
Ethylbenzene	ND	0.5	ug/L	03/23/2004 08:26	
Total xylenes	ND	1.0	ug/L	03/23/2004 08:26	
Surrogates(s)					
1,2-Dichloroethane-d4	90.8	76-114	%	03/23/2004 08:26	
Toluene-d8	91.6	88-110	%	03/23/2004 08:26	

Fuel Oxygenates by 8260B

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Batch QC Report

Prep(s): 5030B

Test(s): 8260B

Laboratory Control Spike **Water** **QC Batch # 2004/03/19-01.68**

LCS 2004/03/19-01.68-017 Extracted: 03/19/2004 Analyzed: 03/19/2004 07:17
LCSD 2004/03/19-01.68-036 Extracted: 03/19/2004 Analyzed: 03/19/2004 07:36

Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
Methyl tert-butyl ether (MTBE)	17.2	19.8	25.0	68.8	79.2	14.1	65-165	20		
Benzene	18.5	20.9	25.0	74.0	83.6	12.2	69-129	20		
Toluene	20.6	21.5	25.0	82.4	86.0	4.3	70-130	20		
Surrogates(s)										
1,2-Dichloroethane-d4	391	415	500	78.2	83.0		76-114			
Toluene-d8	466	448	500	93.2	89.6		88-110			

Fuel Oxygenates by 8260B

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Batch QC Report

Prep(s): 5030B

Test(s): 8260B

Laboratory Control Spike **Water** **QC Batch # 2004/03/23-01.68**

LCS 2004/03/23-01.68-048 Extracted: 03/23/2004 Analyzed: 03/23/2004 07:48
LCSD 2004/03/23-01.68-007 Extracted: 03/23/2004 Analyzed: 03/23/2004 08:07

Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
Methyl tert-butyl ether (MTBE)	21.3	20.6	25.0	85.2	82.4	3.3	65-165	20		
Benzene	22.1	21.7	25.0	88.4	86.8	1.8	69-129	20		
Toluene	23.0	23.0	25.0	92.0	92.0	0.0	70-130	20		
Surrogates(s)										
1,2-Dichloroethane-d4	432	412	500	86.4	82.4		76-114			
Toluene-d8	477	463	500	95.4	92.6		88-110			

Fuel Oxygenates by 8260B

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Batch QC Report

Prep(s): 5030B

Test(s): 8260B

Matrix Spike (MS / MSD) **Water** **QC Batch # 2004/03/19-01.68**

MW7 >> MS

MS: 2004/03/19-01.68-021 Extracted: 03/19/2004 Lab ID: 2004-03-0533 - 005
Analyzed: 03/19/2004 14:21
Dilution: 1.00

MSD: 2004/03/19-01.68-040 Extracted: 03/19/2004 Analyzed: 03/19/2004 14:40
Dilution: 1.00

Compound	Conc. ug/L			Spk.Level	Recovery %			Limits %		Flags	
	MS	MSD	Sample	ug/L	MS	MSD	RPD	Rec.	RPD	MS	MSD
Methyl tert-butyl ether	21.9	20.6	ND	25.0	87.6	82.4	6.1	65-165	20		
Benzene	22.7	22.3	ND	25.0	90.8	89.2	1.8	69-129	20		
Toluene	22.8	22.8	ND	25.0	91.2	91.2	0.0	70-130	20		
Surrogate(s)											
1,2-Dichloroethane-d4	424	418		500	84.8	83.6		76-114			
Toluene-d8	435	442		500	87.0	88.4		88-110		s	

Fuel Oxygenates by 8260B

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

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.

s

One surrogate recovery out of control, but second surrogate within QC limits confirms test performance.

SEVERN TRENT STL

Submission #: 2004-03-0533

TEPH w/ Silica Gel Clean-up

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW1	03/15/2004 10:30	Water	1
MW4	03/15/2004 10:50	Water	2
MW5	03/15/2004 11:15	Water	3
MW6	03/15/2004 09:20	Water	4
MW7	03/15/2004 09:45	Water	5

TEPH w/ Silica Gel Clean-up

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Prep(s): 3510/8015M
Sample ID: **MW1**
Sampled: 03/15/2004 10:30
Matrix: Water

Test(s): 8015M
Lab ID: 2004-03-0533 - 1
Extracted: 3/19/2004 06:50
QC Batch#: 2004/03/19-01.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	03/21/2004 02:53	
Motor Oil	ND	500	ug/L	1.00	03/21/2004 02:53	
Surrogate(s)						
o-Terphenyl	81.8	50-120	%	1.00	03/21/2004 02:53	

TEPH w/ Silica Gel Clean-up

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Prep(s): 3510/8015M
Sample ID: **MW4**
Sampled: 03/15/2004 10:50
Matrix: Water

Test(s): 8015M
Lab ID: 2004-03-0533 - 2
Extracted: 3/19/2004 06:50
QC Batch#: 2004/03/19-01.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	03/21/2004 03:23	
Motor Oil	ND	500	ug/L	1.00	03/21/2004 03:23	
Surrogate(s)						
o-Terphenyl	75.7	50-120	%	1.00	03/21/2004 03:23	

TEPH w/ Silica Gel Clean-up

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Prep(s): 3510/8015M
Sample ID: **MW5**
Sampled: 03/15/2004 11:15
Matrix: Water

Test(s): 8015M
Lab ID: 2004-03-0533 - 3
Extracted: 3/19/2004 06:50
QC Batch#: 2004/03/19-01.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	03/21/2004 03:54	
Motor Oil	ND	500	ug/L	1.00	03/21/2004 03:54	
Surrogate(s)						
o-Terphenyl	76.7	50-120	%	1.00	03/21/2004 03:54	

TEPH w/ Silica Gel Clean-up

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Prep(s): 3510/8015M
Sample ID: **MW6**
Sampled: 03/15/2004 09:20
Matrix: Water

Test(s): 8015M
Lab ID: 2004-03-0533 - 4
Extracted: 3/19/2004 06:50
QC Batch#: 2004/03/19-01.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	03/21/2004 04:24	
Motor Oil	ND	500	ug/L	1.00	03/21/2004 04:24	
Surrogate(s)						
o-Terphenyl	84.3	50-120	%	1.00	03/21/2004 04:24	

TEPH w/ Silica Gel Clean-up

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Prep(s): 3510/8015M
Sample ID: **MW7**
Sampled: 03/15/2004 09:45
Matrix: Water

Test(s): 8015M
Lab ID: 2004-03-0533 - 5
Extracted: 3/19/2004 06:50
QC Batch#: 2004/03/19-01.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	03/21/2004 04:55	
Motor Oil	ND	500	ug/L	1.00	03/21/2004 04:55	
Surrogate(s)						
o-Terphenyl	87.3	50-120	%	1.00	03/21/2004 04:55	

TEPH w/ Silica Gel Clean-up

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Batch QC Report

Prep(s): 3510/8015M
Method Blank
MB: 2004/03/19-01.10-001

Water

Test(s): 8015M
QC Batch # 2004/03/19-01.10
Date Extracted: 03/19/2004 06:50

Compound	Conc.	RL	Unit	Analyzed	Flag
Diesel	ND	50	ug/L	03/19/2004 11:49	
Motor Oil	ND	500	ug/L	03/19/2004 11:49	
Surrogates(s)					
o-Terphenyl	87.1	60-130	%	03/19/2004 11:49	

TEPH w/ Silica Gel Clean-up

ETIC Oakland
Attn.: Kathy Brandt

1333 Broadway, Suite 1015
Oakland, CA 94612
Phone: (510) 208-1600 Fax: (510) 208-1604

Project: TMSFT.9
Strough Family Trust

Received: 03/16/2004 17:51

Batch QC Report

Prep(s): 3510/8015M

Test(s): 8015M

Laboratory Control Spike **Water** **QC Batch # 2004/03/19-01.10**

LCS 2004/03/19-01.10-002 Extracted: 03/19/2004 Analyzed: 03/19/2004 18:50
LCSD 2004/03/19-01.10-003 Extracted: 03/19/2004 Analyzed: 03/19/2004 19:21

Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
Diesel	1090	1060	1000	109.0	106.0	2.8	60-130	25		
Surrogates(s)										
o-Terphenyl	19.6	19.3	20.0	98.0	96.5		60-130	0		

SEVERN TRENT SERVICES

2004-05-0533

STL

Chain of Custody

1220 Quarry Lane ● Pleasanton CA 94566-4756
Phone: (925) 484-1919 ● Fax: (925) 484-1096
Email: info@chromalab.com

Reference #: 83938

Date 3.15.04 Page 1 of 1

From

Proj.Mgr	KATHY BRANDT
Company	ETIC
Address	1333 BROADWAY,STE. 1015 OAKLAND CA. 94612
Sampler (Signature)	WYNN PRECHTEL
Phone (510)208-1600	Fax/Email(510)208-1604

Analysis Request

Sample ID	Date	Time	Matrix	Preserv.	TPH (EPA 8260) X Gas w/ X BTEX X MTBE	TPH-d and TEPH-o by 8015 with silica gel clean-up	EDF	Number of Containers
MW1	3/15	10:30	W	HCL	X	X	X	5
MW2			W	HCL	X	X	X	5
MW3			W	HCL	X	X	X	5
MW4		10:50	W	HCL	X	X	X	5
MW5		11:15	W	HCL	X	X	X	5
MW6		11:25	W	HCL	X	X	X	5
MW7		9:45	W	HCL	X	X	X	5

Project Info.

Project Name: **STROUGH FAMILY TRUST**

Project# **TMSFT.9**

PO#: OAK 4029

Credit Card#:

TAT: Std 5 Day | 72h | 48h | 24h

Report: ☐ Routine ☐ Level 2 ☐ Level 3 ☐ Level 4 (EDF)

Special Instructions / Comments:

GLOBAL ID#

Sample Receipt

of Containers:

Head Space:

Temp:

Conforms to record:

Other

1) Relinquished by:
Signature 14:30 Time
WYNN PRECHTEL 3/15 Printed Name Date
ETIC Company

2) Relinquished by:
Signature Time
Printed Name Date
Company

3) Relinquished by:
Signature 1751 Time
B Mora 3/16/04 Printed Name Date
STL-SF Company

1) Received by:
Signature 1151 Time
B Mora 3/16/04 Printed Name Date
STL-SF Company

2) Received by:
Signature Time
Printed Name Date
Company

3) Received by:
Signature 1751 Time
Nounak 3/16/04 Printed Name Date
STL-SF Company

Rev 05/01

SEVERN TRENT STL

STL San Francisco

Sample Receipt Checklist

Submission #:2004- 03 - 0533

Checklist completed by: (initials) TL Date: 03 / 17 /04

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 (4^0 C ± 2)?	Temp: 3.2°C Yes ✓	No____
	Ice Present Yes ✓	No____
Water - VOA vials have zero headspace?	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_3 ☐ HCl ☐ H_2SO_4 ☐ 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: __ / __ /04

Client contacted: ☐ Yes ☐ No

Summary of discussion:

Corrective Action (per PM/Client):