

RO 288

PHONE (925) 284-4208  
FAX (925) 284-4189  
EMAIL:  
johnrsutton@mindspring.com

**THE SUTTON GROUP**

SOILS, FOUNDATIONS, DRAINAGE, SLOPES, CONTAINMENTS  
CIVIL, GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

3708 Mount Diablo Blvd,  
Suite 215  
Lafayette, CA, 94549

December 18, 2002

DEC 23 2002

Mr. Amir Gholami  
Alameda County Health Care Services  
EHS/Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA, 94502-6577

*Handwritten notes:*  
23/10/02  
John R. Sutton  
ALC

**Subject Transmittal of Well Installation Report  
Site of Former 1,000 Gal. UST  
Oro Loma Sanitary District's Maintenance Facility  
2600 Grant Avenue, San Lorenzo, CA  
SG File 3022.10**

**STID 1996**

Dear Mr. Gholami:

At the request of our client, Oro Loma Sanitary District, we herewith submit for your review the report that describes installation of two additional monitoring wells at the subject site, well development and reports the initial sampling results. The work was described in our work plan, as amended, which you approved in a letter dated August 27, 2002.

Should you have questions or comments or if we can assist you further in your evaluation of this information please call me.

Yours truly,

**THE SUTTON GROUP**

*Handwritten signature of John R. Sutton*  
John R. Sutton

Attachment: Report dated November 30, 2002

cc: Mike Cortez at OLSD, w/o attachment

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## THE SUTTON GROUP

SOILS, FOUNDATIONS, DRAINAGE, SLOPES, CONTAINMENTS  
CIVIL, GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

3708 Mount Diablo Blvd  
Suite 215  
Lafayette, CA, 94549

November 30, 2002

DEC 23 2002

Mr. Michael Cortez  
Oro Loma Sanitary District  
2600 Grant Avenue  
San Lorenzo, 94580

**Subject: Report of Installation and Initial Sampling of  
Supplementary Ground Water Monitoring Wells at  
Former Gasoline Tank Site Closure  
2600 Grant Ave., San Lorenzo, CA  
OLSD PO No. 4911, SG File No. 3022.10**

**ST ID 1996**

Dear Mr. Cortez:

We document herein the installation of two additional ground water monitoring wells in the general vicinity of the District's Engineering Department office building. These two wells supplement three wells installed in the same general area in 1999. Alameda County Health Department's Division of Environmental Protection (Agency) first requested these additional wells in their letter dated August 20, 2001.

This work was performed in accordance with our work plan for this project dated May 2, 2002, and an addendum dated July 28, 2002 that resulted from negotiations with the Agency. The amended work plan was approved by the Agency in their letter dated August 27, 2002. The Alameda County Public Works Agency's Water Resources Section issued Drilling Permit Number W02-1002, dated October 10, 2002 for installing the new wells. A copy is attached.

### ***Borings and Monitoring Well Installation***

The two monitoring wells were constructed on October 16, 2002. Figure 1 is a site location map and Figure 2 shows the locations of these two new monitoring wells, as well as those of the three existing wells and the previous soil boring/exploratory trench locations installed to document site conditions since 1993. New wells MW-4 and MW-5 are located in the Engineering Office Building's parking lot, MW-4 being 10 feet southeast of the center of the former tank and MW-5 west of the south corner of the building. The wells were developed by surging and bailing, and sampled on October 21, 2002.

### **Soil Samples**

Soil Samples were collected from the borings during the drilling process. Selected soil samples were submitted for testing by Severn Trent Laboratory (formerly known as Chromalab) in accordance with the work plan. Results of these soil sample analyses are

November 30, 2002

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summarized on Table 1 and the laboratory test reports are appended. It should be noted that the deeper soil sample analyzed from each boring was later shown to be from deeper than the groundwater surface. The test results indicate a general absence of gasoline constituents in the soil samples collected from the borings at 3 feet depth, suggesting that leakage from the piping was confined to the immediate vicinity of the tank, which was excavated in 1995. The test results also indicate measurable concentrations of gasoline and its constituents in the soil samples from 8 feet depth, which as stated above, is below the groundwater table. The results indicate an order-of-magnitude greater presence in the hole closer to the source, as would be expected. Of note was the absence of MTBE.

#### Groundwater Samples

Water samples were collected from each of the wells on October 20, 2002. All five monitoring wells were sounded prior to any bailing. The new wells were then surged for 15 minutes using a 2 inch surge block. The new wells were then purged by bailing, however both wells being in bayland soils, i.e. Bay Mud clays with some sand lenses, responded slowly. And while well 10 casing volumes (12 gallons) were drawn from MW-4, only about 4 gallons could be drawn from MW-5 over a period of 4 hours. Water in both wells was turbid at the time of sampling.

As was expected based on previous soil and grab ground water samples in this area of the site, the well water samples contain gasoline and its key constituents. Tables 2 and 2A provide a summary of the water sample analyses. Notable is the very low concentration of MTBE as compared to the overall gasoline constituents' presence. MTBE was present in the well water sample closest to the tank, but it was absent in the other well sample more distant from the source. Benzene was present at a greater concentration in the well further from the source but this may relate to sampling and the slow recharge of the well by the time of sampling. Benzene concentrations in ground water are also plotted as iso-lines on Figure 2, which is partially based on data from previous on-site investigations.

Additionally, at the request of the Agency, we analyzed these initial water samples for the seven key gasoline oxygenate and additive compounds. The water samples from monitoring wells MW-4 and 5 were analyzed for TAME, DIPE, ETBE, TBA, EDB, EDC and Ethanol. Results of these analyses are summarized as Table 2A. As shown on the table none of the seven compounds was present. This concurs with the initial sample results from MW-1, 2 and 3.

#### **Well Head Survey**

At the request of Alameda County, a licensed surveyor was engaged to more accurately locate the 5 monitoring wells. The well covers were surveyed in relation to property landmarks, and the ground surface elevation was determined at each of the well covers.

November 30, 2002

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The well elevations and groundwater measurements were correlated to an Alameda County bench mark. The nearest County-verified bench mark is in Grant Avenue at Phil Drive (see Figure 1). Its elevation is 2.175m, or 7.136 ft per the County Surveyor. Our surveyor determined the elevations on the rim of each well cover relative to the bench mark. The distance from surface to the top of each well casing was then measured by this firm.

The wells were located and coordinates determined relative to the alignment of Grant Avenue. Maps from the County Assessor indicate the property lines along the last quarter mile of Grant Avenue are straight lines bearing N51° 04' 10"E. As there was no local reference to the state coordinate system, the basis of coordinates was arbitrarily chosen as the south corner of the Engineering Building, which was assigned the coordinates N5,000 x E5,000 feet. A plot of the well locations in relation to the site infrastructure and the well cover elevations, as provided by the surveying firm of New and New Engineering, Inc., is appended. The well locations are also shown on Figure 2.

### **Flow Gradient**

The depth to water in each of the five monitoring wells was measured prior to purging and sampling on October 21, 2002, and the water surface elevations calculated. The elevations are tabulated on Table 3. From the data, the direction of ground water flow was determined to be S21°E and the ground water gradient 0.016 ft/ft. It is of note that the same flow direction and gradient was obtained using any two of the three onsite wells and well MW-2 in Grant Avenue. This is the same general direction that was estimated from the ground surface elevations, and used in previous site evaluations related to the tank leakage over the past 9 years of investigation. The flow direction and gradient are shown on Figure 2.

Well MW-1 further inland on Grant Avenue, has a lower water surface elevation than MW-2. This difference has been consistent over the 3-year well sampling history. Use of MW-1 in lieu of MW-2 would result in a flow direction approximately southeast, suggestive of the 'cross-over via the sewer branch from the District's offices to the main trunk, as shown on Figure 2. As has been previously demonstrated, all groundwater flow is eventually to the District's POTW located to the southwest (Figure 1).

### **Future Sampling**

The water sampling for gasoline and key constituents will be repeated on a quarterly basis in January, April and July 2003.

### **Certification**

Borings, well construction and sampling were performed in accordance with the approved work plan and generally accepted practices currently used in the area. The

November 30, 2002

Page 4

work was performed under the oversight of John R. Sutton, a California-registered Civil and Geotechnical Engineer.

### **Distribution**

A copy of this report should be submitted to Mr. Amir Gholami at Alameda County Health Agency in Alameda. Following District's review of this report, and upon your request, we will mail a copy the report to Mr. Gholami on the Districts behalf.

Copies of the boring logs and well Location Plan have been sent to Alameda County Public Works Agency, Water Resources Section, per their request.

\*\*\*\*\*

We appreciate the opportunity to be of continued service to The District. Please call me if I can assist you in any other way.

Yours truly,

**THE SUTTON GROUP**

  
John R. Sutton,  
Geotechnical Engineer No. 812



### Attachments:

- Table 1: Summary of Soil Sample Analyses
- Table 2: Summary of Water Sample Analyses, Gas/BTEX, MTBE
- Table 2A Summary of Water Sample Analyses, 7 Fuel Oxygenates
- Table 3 Water Level Data
- Figure 1: Site Location Map
- Figure 2: Monitoring Well Locations and Benzene Plume Map
- Well Construction Permit, Alameda County Public Works Agency
- Well Log MW-4
- Well Log MW-5
- Well Survey Plan
- Analytical Reports: Severn Trent Laboratory, Nov. 12, 13, 2002 (total 38 pages)

2 Copies Sent

**TABLE 1**  
**SUMMARY OF SOIL SAMPLE ANALYSES: MONITORING WELL BORINGS, 2002**

TOTAL PETROLEUM HYDROCARBONS AS GASOLINE, BTEX, MTBE

EPA METHOD 8260B/5030BM

RESULTS IN mg/kg (ppm)

SAMPLES COLLECTED 10/16/02

Sample ID and Depth	Gasoline	Benzene	Toluene	Ethyl Benzene	Xylenes (total)	MTBE
MW 4-1 SB 4 @ 3-3.5'	ND	ND	ND	ND	ND	ND
MW 4-2 SB 4 @ 8-8.5'	380*	13*	25*	37*	160*	ND
MW 5-1 SB 5 @ 3-3.5'	ND	39	ND	ND	ND	ND
MW 5-2 SB 5 @ 8-8.5"	24*	1.1*	0.19*	0.26*	0.63*	ND*
REPORTING LIMITS	1.0	0.005	0.005	0.005	0.005	0.005

\*ELEVATED REPORTING LIMITS USED. FOR LIMITS REFER TO LABORATORY CERTIFICATES IN APPENDIX C

ORO LOMA SANITARY DISTRICT

3022.10 rpt TABLE 2 Soil Oct 2002 11/13/02

**THE SUTTON GROUP**

**TABLE 2**  
**SUMMARY OF WATER SAMPLE ANALYSES: MONITORING WELLS**

TOTAL PETROLEUM HYDROCARBONS AS GASOLINE, BTEX, MTBE

EPA METHOD 8260B/5030BM

RESULTS IN µg/L (ppb)

<i>Well ID</i>	<i>Sample Date</i>	<i>Gasoline</i>	<i>Benzene</i>	<i>Toluene</i>	<i>Ethyl Benzene</i>	<i>Xylenes (total)</i>	<i>MTBE</i>
MW 4	10/21/2002	64,000	5,800	6,200	3,500	18,000	140
MW 5	10/21/2002	65,000*	12,000*	20,000*	1,600*	7,100*	ND
REPORTING LIMITS		10,000	100	50	50	100	500

\* ELEVATED REPORTING LIMITS USED. FOR LIMITS REFER TO LABORATORY CERTIFICATES APPENDED

**TABLE 2A**  
**SUMMARY OF GROUND WATER SAMPLE ANALYSES, SHEET 2**  
**SELECTED FUEL OXYGENATES AND ADDITIVES**

EPA METHOD 8260B / 5030B

RESULTS IN µg/L (ppb)

	<i>Tert-Amyl Methyl Ether</i>	<i>Tert-Butyl Alcohol</i>	<i>Di-Isopropyl Ether</i>	<i>1,2 Dibromo Ethane</i>	<i>1,2 Dichloro Ethane</i>	<i>Ethanol</i>	<i>Ethyl Tert-Butyl Ether</i>
<b>Sample Location</b>	<b>(TAME)</b>	<b>(TBA)</b>	<b>(DIPE )</b>	<b>(EDB)</b>	<b>(EDC / 1,2 DCA)</b>		<b>(ETBE)</b>
<b>MW-4</b>	ND	ND	ND	ND	ND	ND	ND
<b>MW-5</b>	ND	ND	ND	ND	ND	ND	ND
<b>REPORTING LIMITS</b>	100	1000	200	100	100	100	100

Samples collected 10/21/2002



**TABLE 3**  
**GROUND WATER ELEVATIONS**

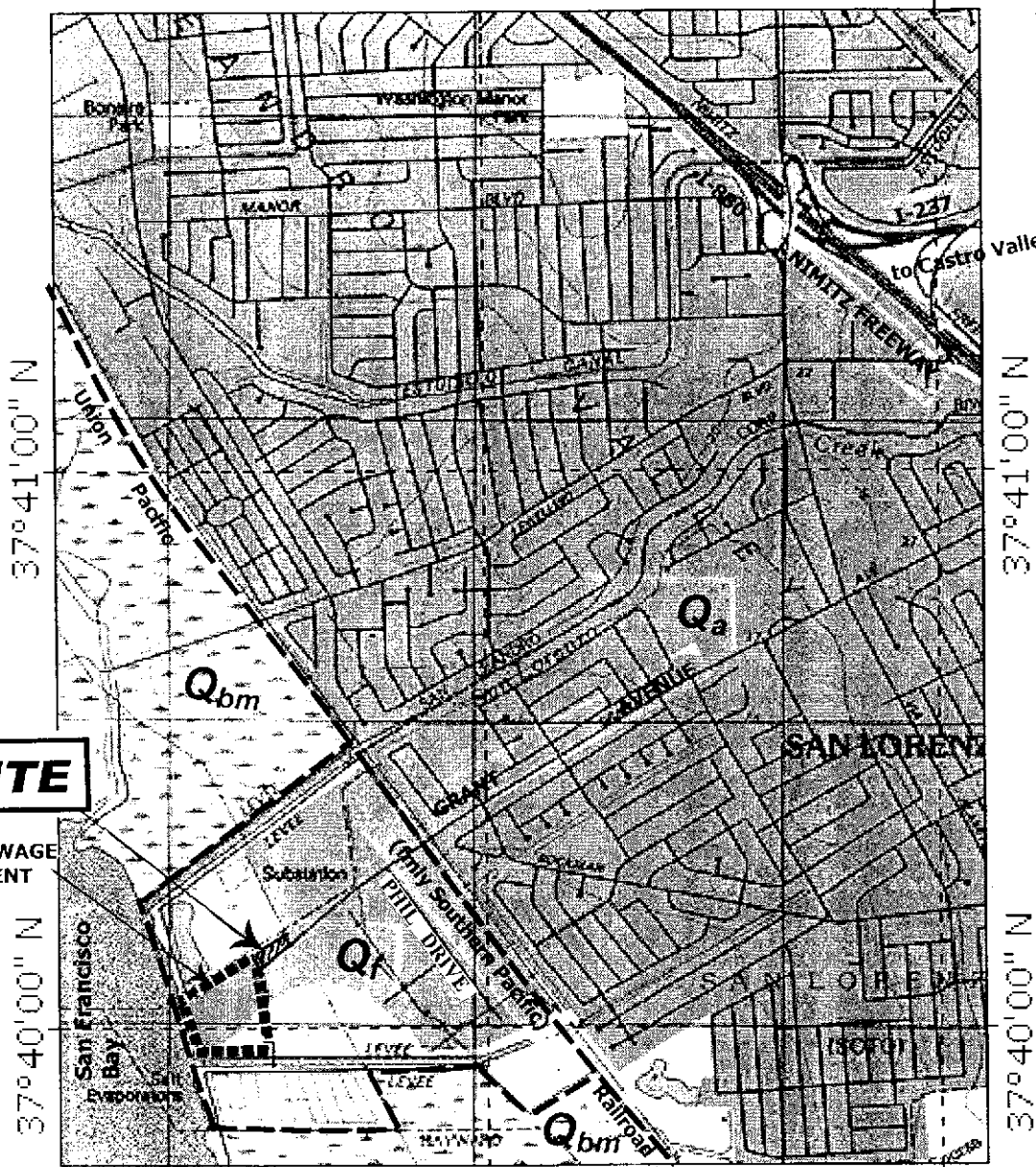
GROUND WATER MEASUREMENTS ON 10/21/02

ALL MEASUREMENTS ARE IN FEET

<i>Monitoring Well</i>	<i>Rim Elevation*</i>	<i>Δ To Top Of Well Casing</i>	<i>TOC Depth To Ground Water</i>	<i>Adj. Depth To Ground Water</i>	<i>Ground Water Elevation</i>
MW 1	8.65	.38	6.55	6.93	1.72
MW 2	8.75	.26	6.45	6.71	2.04
MW 3	10.19	.43	6.55	6.98	3.21
MW 4	9.68	.20	5.90	6.10	3.58
MW 5	8.92	.48	5.60	6.08	2.84

Basis of elevations, Alameda County bench mark "Grant -Phil" at intersection of Grant Avenue and Phil Drive.  
Elevation 2.175meters, msl = 7.136 feet.

WGS84 122°08'00" W



**SITE**

OLSD SEWAGE TREATMENT PLANT

**LEGEND**

- Qbm Bay Land
- Qf Filled Bay Land
- Qa Alluvium

SCALE: 1:24,000

Printed from TOPOI ©2001 National Geographic Holdings (www.topo.com)

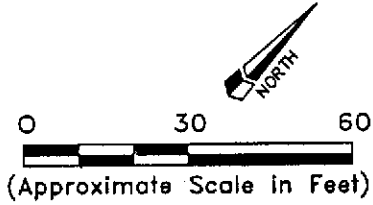
**THE SUTTON GROUP**  
 Engineering and Environmental Services  
 3708 Mount Diablo Blvd, Suite 215  
 Lafayette, California, 94549  
 Phone: (925).284-4208  
 Fax: (925).284-4189

**LOCATION MAP with GEOLOGY**  
 ORO LOMA SANITARY DISTRICT  
 SERVICE CENTER  
 2600 GRANT AVENUE,  
 SAN LORENZO, CA

PROJECT No. 3022.10  
**FIGURE 1**  
 4/29/02

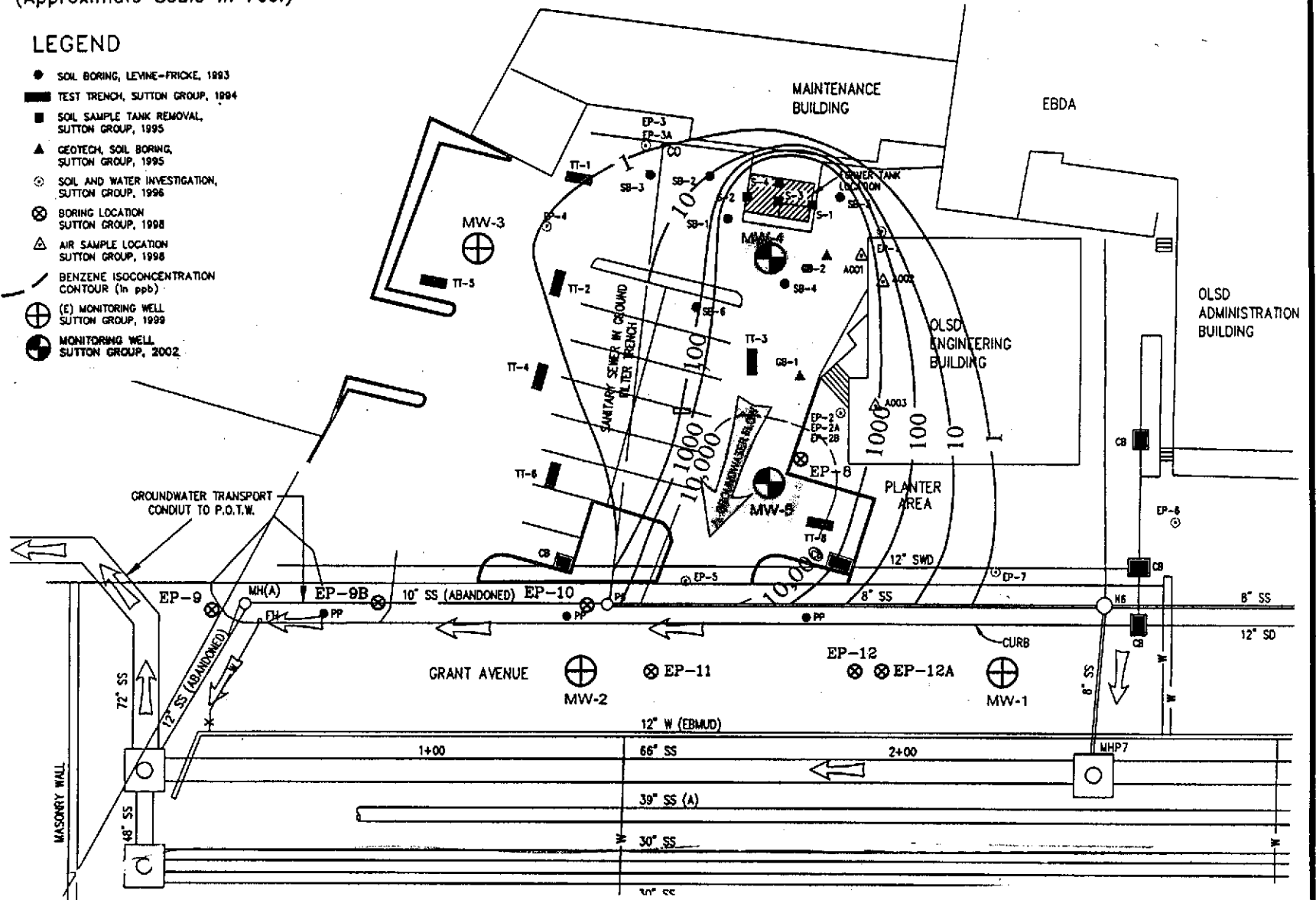
Groundwater Gradient Direction: S21°E  
 Gradient: 0.016 ft/ft

Bearing of Grant Avenue is N51° 04' 10"E



**LEGEND**

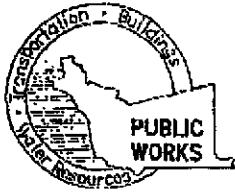
- SOIL BORING, LEVINE-FRICKE, 1993
- TEST TRENCH, SUTTON GROUP, 1994
- SOIL SAMPLE TANK REMOVAL, SUTTON GROUP, 1995
- ▲ GEOTECH. SOIL BORING, SUTTON GROUP, 1995
- ⊙ SOIL AND WATER INVESTIGATION, SUTTON GROUP, 1996
- ⊗ BORING LOCATION, SUTTON GROUP, 1998
- △ AIR SAMPLE LOCATION, SUTTON GROUP, 1998
- BENZENE ISOCONCENTRATION CONTOUR (in ppb)
- ⊕ (E) MONITORING WELL, SUTTON GROUP, 1999
- ⊗ MONITORING WELL, SUTTON GROUP, 2002



**THE SUTTON GROUP**  
 Engineering and Environmental Services  
 3708 Mount Diablo Blvd, Suite 215  
 Lafayette, California, 94549  
 Phone: (925) 284-4208

**SITE PLAN WITH MONITORING WELLS AND BENZENE PLUME**  
 ORO LOMA SANITARY DISTRICT  
 2600 GRANT AVE., SAN LORENZO, CA

PROJECT No. 3022-10  
**FIGURE 2**  
 11/19/02



**ALAMEDA COUNTY PUBLIC WORKS AGENCY**

**WATER RESOURCES SECTION**  
 399 ELMHURST ST. HAYWARD CA. 94544-1395  
 PHONE (510) 670-6633 James Yoo  
 FAX (510) 782-1939

APPLICANTS: PLEASE ATTACH A SITE MAP FOR ALL DRILLING PERMIT APPLICATIONS  
 DESTRUCTION OF WELLS OVER 45 FEET REQUIRES A SEPARATE PERMIT APPLICATION

**DRILLING PERMIT APPLICATION**

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT ORC LOMA SANITARY DIST  
MAINTENANCE BUILDING AREA  
2600 GRANT AVE  
SAN LORENZO 94580

PERMIT NUMBER W02-1001  
 WELL NUMBER \_\_\_\_\_  
 APN \_\_\_\_\_

**PERMIT CONDITIONS**

Circled Permit Requirements Apply

**A. GENERAL**

1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

**B. WATER SUPPLY WELLS**

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

**C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS**

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

**D. GEOTECHNICAL**

Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

**E. CATHODIC**

Fill hole anode zone with concrete placed by tremie.

**F. WELL DESTRUCTION**

Send a map of work site. A separate permit is required for wells deeper than 45 feet.

**G. SPECIAL CONDITIONS**

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

Submit site map within 5 days

CLIENT  
 Name ORC LOMA SANITARY DISTRICT  
 Address 2600 GRANT AV Phone 510-276-4700  
 City SAN LORENZO Zip 94580

APPLICANT  
 Name THE SUTTON GROUP  
 Address 3708 MT. DIABLO BLVD Fax 925-284-1119  
 City LAFAYETTE CA Phone 925-284-1408  
 Zip 94549

**TYPE OF PROJECT**

Well Construction  Geotechnical Investigation  
 Cathodic Protection  General   
 Water Supply  Contamination   
 Monitoring  Well Destruction

**PROPOSED WATER SUPPLY WELL USE**

New Domestic  Replacement Domestic  
 Municipal  Irrigation   
 Industrial  Other \_\_\_\_\_

**DRILLING METHOD:**

Mud Rotary  Air Rotary  Auger   
 Cable  Other

DRILLER'S NAME EXPLORATION GEOSERVICES

DRILLER'S LICENSE NO. C57-484285

**WELL PROJECTS**

Drill Hole Diameter 8 in. Maximum 15 ft.  
 Casing Diameter 2 in. Depth 15 ft.  
 Surface Seal Depth 4 ft. Owner's Well Number MW40

**GEOTECHNICAL PROJECTS**

Number of Borings \_\_\_\_\_ Maximum Depth \_\_\_\_\_ ft.  
 Hole Diameter \_\_\_\_\_ in.

ESTIMATED STARTING DATE OCT 16, 2002

ESTIMATED COMPLETION DATE OCT 22, 2002

APPROVED \_\_\_\_\_ DATE 10-10-02

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE \_\_\_\_\_ DATE 10/7/02

PLEASE PRINT NAME JOHN R SUTTON GE Rev. 3-04-02

**THE SUTTON GROUP**  
 3708 Mt. Diablo Blvd,  
 SUITE 215  
 Lafayette, CA, 94549  
 (925) 284-4208

**BORING and WELL CONSTRUCTION LOG**

**WELL No. MW-4**  
 Sheet 1 of 1

Project No.	302210	Drilling Company	Exploration Geoservices, Inc.	
Date Drilled	10/16/2002	Driller	John Collins	Lic. No. C57: 484288
Client	Oro Loma Sanitary District	Drill Rig Model	Mobile B40	
Site address	2600 Grant Avenue	Drilling Method /Dia.	8"x3 1/4" Hollow stemmed auger	
	San Lorenzo, CA, 94580	Sampling Method	2" calif.	
Boring Location	Engrg./Mntc. Bldg Pkg. lot, near tank loc.	Rim Elevation	9.68	Datum: msl
			TOC= rim -0.20'	

Logged By	John R. Sutton, GE No. 812	Water depth	5.90' toc			
JRS		Time/Date	10/21/02			

DEPT H FEET	SAMPLE #, TYPE	BLOWS / 6 IN. / N	SYMBOL	USCS CLASS	DESCRIPTION	PID READING	WELL CONSTRUCTION	DEPTH FEET
0					Asphalt over Aggregate base, total thickness 8in			0
@2	C20	12		GP-GM	FILL, crushed rock to 2" max size, moist, blue green color			@1 1/2
	4-1	11		24	Slight petroleum odor	002		@3 1/2 @4'
5								5
@7	C20	3		GM	As above, increased odor			
	4-2	3		5		273		
10								10
@12	C20	2		CH-OH & SM	CLAY, silty, soft, some fine sand layers, peat, mod to strong organic, mod. petroleum odor, wet, gray/black BAY MUD			
	4-3	2		3	As above but with roots to 1/8" sulfurous odor only	008		@14'
15					Total Depth drilled = 14 ft.			15
					Fresh augers were used for each hole.			
					<b>WELL CONSTRUCTION DETAILS:</b>			
					Surface: Cast iron MW cover set in concrete			
					2" pvc well casing w/ screwed joints			
					0 Blank pipe 0-1 1/2' concrete			
					0- 4' .010" screen 1 1/2'-3 1/2' bentonite chips*			
					4'-14' Bottom cap 3 1/2'-14' #2/12 sand			
20					* Chips hydrated with tap water			20

SAMPLER Type: S = 2" OD SPT; CA = 2" ID California, 25 = 2 1/2" ID California, ST = Shelby, P = Pitcher Sample

**THE SUTTON GROUP**  
 3708 Mt. Diablo Blvd,  
 SUITE 215  
 Lafayette, CA, 94549  
 (925) 284-4208

**BORING and WELL CONSTRUCTION LOG**

**WELL No. MW-5**  
 Sheet 1 of 1

Project No.	302210	Drilling Company	Exploration Geoservices, Inc.
Date Drilled	10/16/2002	Driller	John Collins Lic. No. C57: 484288
Client	Oro Loma Sanitary District	Drill Rig Model	Mobile B40
Site address	2600 Grant Avenue San Lorenzo, CA, 94580	Drilling Method /Dia.	8"x3 1/2" Hollow stem auger
Boring Location	Eng/Mntc. Bldg Pkg. lot, nr SW cor. Eng bldg	Sampling Method	2" calif.
		Rim Elevation	8.92' Datum: msl
			TOC= rim -0.48'

Logged By	John R. Sutton, GE No. 812	Water depth	5.60' toc			
JRS		Time/Date	10/21/02			

DEPT H FEET	SAMPLE #, TYPE	BLOWS / 6 IN. / N	SYMBOL	USCS CLASS	DESCRIPTION	PID PPM	WELL CONSTR'N DETAILS	DEPTH FEET
0					Asphalt over aggregate base to 1 1/2" (red brown), to 2 1/2 ft			0
@2	C20	9			Becomes less firm at 2 1/2 ft			@1 1/2
	5-1	8	14	GP	FILL, crushed rock to 2" max size, moist, little fines, blue green Slight petroleum odor	13		@3 1/2'
5				CH-OH	BAYLAND, soft CLAY and SAND, strong sulfurous odor, black			@4'
@7	C20	3			As above, increased odor	44		5
	5-2	3	5	CH-OH	CLAY, silty, soft, some fine sand layers, mod to strong organic, mod petroleum odor, wet, gray/black BAY MUD			10
@12	C20	2			BAYLAND Clay with peat, strong sulfurous odor	16		10
	5-3	2	3		Strong petroleum odor on mud at auger tip			@14'
15					Total Depth drilled = 14 ft.			15
					Fresh augers were used for each hole.			
					<b>WELL CONSTRUCTION DETAILS</b>			
					Surface: Cast iron MW cover set in concrete, locking cap.			
					0-4' Blank pipe	0-1 1/2'	concrete	
					4'-14' .010" well screen	1 1/2'-3 1/2'	bentonite chips*	
					14' Bottom cap	3 1/2'-14'	#2/12 sand	
20					* Chips hydrated with tap water			20

SAMPLER Type: S = 2" OD SPT; CA = 2" ID California, 25 = 2 1/2" ID California, ST = Shelby, P = Pitcher Sample

NEW ENGINEERING INC.  
7181 THORNDALE DRIVE  
OAKLAND CALIF. 94611  
510-339-9887

3  
10.185  
161.01  
N 4682.25  
E 4610.00

N 5022.88  
E 4560.53  
46  
9.694  
40  
9.682

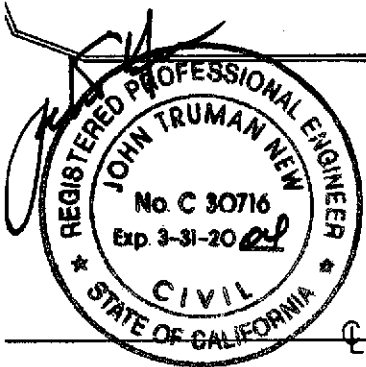
N 5044.18  
E 4928.37

parking lot

Office Building

SCALE 1"=20'

N 4927.70  
E 4888.41  
8.922  
mon  
8.916  
mon  
E 5000.00  
N 5000.00



GRANT AVENUE

8.750  
8.757  
26  
N 4930.78  
E 4682.45

8.648  
8.648  
16  
N 4864.88  
E 5037.82

N50°09'00"E

note: coordinates given are relative only and not based on state grid

ORO LOMA SANITARY DISTRICT

2600 GRANT AVENUE

SAN LORENZO, CA

• monitoring wells ( typical of 5)

note: two elevations are given at each well rim.

Submission#: 2002-10-0400

November 13, 2002

SEVERN

TRENT

LABORATORY

**Sutton Group**

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Attn.: John Sutton

Project#: 3022.10

Project: Oro Loma San. Dist

STL San Francisco  
1220 Quarry Ln  
Pleasanton CA 94566

Tel.: (925) 484-1919  
Fax: (925) 484-1096  
www.stl-inc.com  
www.chromalab.com

CA DHS ELAP#:2496

Mr. Sutton

Attached is our report for your samples received on 10/17/2002 17:35

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 12/01/2002 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@chromalab.com](mailto:vvancil@chromalab.com)

Sincerely,



Vincent Vancil  
Project Manager



Submission #: 2002-10-0400

Fuel Oxygenates by 8260B

Sutton Group

Attn.: John Sutton

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Phone: (925) 284-4208 Fax: (925) 284-4189

Project: 3022.10

Oro Loma San. Dist

SEVERN

TRENT

LABORATORY

STL San Francisco  
1220 Quarry Lane  
Pleasanton, CA 94566

Tel: (925) 484-1919  
Fax: (925) 484-1096  
www.stl-inc.com  
www.chromalab.com

Received: 10/17/2002 17:35

CA DHS ELAP# 2496

### Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW4-1	10/16/2002	Soil	1
MW5-1	10/16/2002	Soil	3
MW5-2	10/16/2002	Soil	4

Submission #: 2002-10-0400

Fuel Oxygenates by 8260B

Sutton Group

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Project: 3022.10

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CA DHS ELAP# 2496

Prep(s): 5030B Test(s): 8260B  
Sample ID: MW4-1 Lab ID: 2002-10-0400 - 1  
Sampled: 10/16/2002 Extracted: 10/23/2002 14:14  
Matrix: Soil QC Batch#: 2002/10/23-01:27

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Methyl tert-butyl ether (MTBE)	ND	5.0	ug/Kg	1.00	10/23/2002 14:14	
Benzene	ND	5.0	ug/Kg	1.00	10/23/2002 14:14	
Toluene	ND	5.0	ug/Kg	1.00	10/23/2002 14:14	
Ethyl benzene	ND	5.0	ug/Kg	1.00	10/23/2002 14:14	
Total xylenes	ND	5.0	ug/Kg	1.00	10/23/2002 14:14	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	108.4	70-121	%	1.00	10/23/2002 14:14	
Toluene-d8	94.7	81-117	%	1.00	10/23/2002 14:14	

Submission #: 2002-10-0400

Fuel Oxygenates by 8260B

Sutton Group

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CA DHS ELAP# 2496

Prep(s): 5030B Test(s): 8260B  
Sample ID: MW5-1 Lab ID: 2002-10-0400 - 3  
Sampled: 10/16/2002 Extracted: 10/23/2002 14:37  
Matrix: Soil QC Batch#: 2002/10/23-01.27

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Methyl tert-butyl ether (MTBE)	ND	5.0	ug/Kg	1.00	10/23/2002 14:37	
Benzene	39	5.0	ug/Kg	1.00	10/23/2002 14:37	
Toluene	ND	5.0	ug/Kg	1.00	10/23/2002 14:37	
Ethyl benzene	ND	5.0	ug/Kg	1.00	10/23/2002 14:37	
Total xylenes	ND	5.0	ug/Kg	1.00	10/23/2002 14:37	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	110.6	70-121	%	1.00	10/23/2002 14:37	
Toluene-d8	93.4	81-117	%	1.00	10/23/2002 14:37	

Submission #: 2002-10-0400

Fuel Oxygenates by 8260B

Sutton Group

Attn.: John Sutton  
3780 Mount Diablo BLVD suite 215  
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Project: 3022.10  
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CA DHS ELAP# 2496

Prep(s): 5030B Test(s): 8260B  
Sample ID: MW5-2 Lab ID: 2002-10-0400 - 4  
Sampled: 10/16/2002 Extracted: 10/23/2002 15:44  
Matrix: Soil QC Batch#: 2002/10/23-01.27  
Analysis Flag: 0 ( See Legend and Note Section )

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Methyl tert-butyl ether (MTBE)	ND	20	ug/Kg	3.91	10/23/2002 15:44	
Benzene	1100	20	ug/Kg	3.91	10/23/2002 15:44	
Toluene	190	20	ug/Kg	3.91	10/23/2002 15:44	
Ethyl benzene	260	20	ug/Kg	3.91	10/23/2002 15:44	
Total xylenes	630	20	ug/Kg	3.91	10/23/2002 15:44	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	117.6	70-121	%	3.91	10/23/2002 15:44	
Toluene-d8	103.0	81-117	%	3.91	10/23/2002 15:44	

Submission #: 2002-10-0400

Fuel Oxygenates by 8260B

Sutton Group

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Project: 3022.10

Oro Loma San. Dist

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CA DHS ELAP# 2496

Batch QC Report

Prep(s): 5030B

Method: Blank

MB: 2002/10/23-01.27-005

Soil

Test(s): 8260B

QC Batch # 2002/10/23-01.27

Date Extracted: 10/23/2002 12:00

Compound	Conc.	RL	Unit	Analyzed	Flag
Methyl tert-butyl ether (MTBE)	ND	5.0	ug/Kg	10/23/2002 12:00	
Benzene	ND	5.0	ug/Kg	10/23/2002 12:00	
Toluene	ND	5.0	ug/Kg	10/23/2002 12:00	
Ethyl benzene	ND	5.0	ug/Kg	10/23/2002 12:00	
Total xylenes	ND	5.0	ug/Kg	10/23/2002 12:00	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	112.5	70-121	%	10/23/2002 12:00	
Toluene-d8	93.8	81-117	%	10/23/2002 12:00	

Submission #: 2002-10-0400

Fuel Oxygenates by 8260B

Sutton Group

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Project: 3022.10

Oro Loma San. Dist

Received: 10/17/2002 17:35

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CA DHS ELAP# 2496

Batch QC Report

Prep(s): 5030B

Test(s): 8260B

Laboratory Control Spike

Soil

QC Batch # 2002/10/23-01.27

LCS 2002/10/23-01.27-003

Extracted: 10/23/2002

Analyzed: 10/23/2002 11:10

LCSD 2002/10/23-01.27-004

Extracted: 10/23/2002

Analyzed: 10/23/2002 11:38

Compound	Conc. ug/Kg		Exp.Conc.	Recovery		RPD	Ctrl.Limits %			Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS	LCSD
Methyl tert-butyl ether (MTBE)	58.1	59.0	50.0	116.2	118.0	1.5	65-165	20			
Benzene	46.2	48.5	50.0	92.4	97.0	4.9	69-129	20			
Toluene	49.2	50.4	50.0	98.4	100.8	2.4	70-130	20			
<b>Surrogates(s)</b>											
1,2-Dichloroethane-d4	564	566	500	112.8	113.2		70-121				
Toluene-d8	486	478	500	97.2	95.6		81-117				

Submission #: 2002-10-0400

Fuel Oxygenates by 8260B

Sutton Group

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Phone: (925) 284-4208 Fax: (925) 284-4189

Project: 3022.10

Oro Loma San. Dist

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CA DHS ELAP# 2496

**Batch QC Report**

Prep(s): 5030B

Test(s): 8260B

**Matrix Spike ( MS / MSD )**

**Soil**

**QC Batch # 2002/10/23-01.27**

MW5-1 >> MS

Lab ID: 2002-10-0400 - 003

MS: 2002/10/23-01.27-013

Extracted: 10/23/2002

Analyzed: 10/23/2002 14:59

Dilution: 1.00

MSD: 2002/10/23-01.27-016

Extracted: 10/23/2002

Analyzed: 10/23/2002 16:06

Dilution: 1.00

Compound	Conc. ug/Kg			Spk.Level ug/Kg	Recovery			Limits %		Flags	
	MS	MSD	Sample		MS	MSD	RPD	Rec.	RPD	MS	MSD
Methyl tert-butyl ether	54.8	61.4	ND	48.8	112.3	126.6	12.0	65-165	20		
Benzene	603	254	38.6	48.8	1156.6	444.1	89.0	69-129	20	mso	rpd
Toluene	48.4	45.4	ND	48.8	99.2	93.6	5.8	70-130	20		
<b>Surrogate(s)</b>											
1,2-Dichloroethane-d4	571	610		500	114.2	122.0		70-121			sh
Toluene-d8	475	476		500	95.0	95.1		81-117			

Submission #: 2002-10-0400

Fuel Oxygenates by 8260B

Sutton Group

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Project: 3022.10

Oro Loma San. Dist

Received: 10/17/2002 17:35

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CA DHS ELAP# 2496

---

### Legend and Notes

---

#### Analysis Flag

o

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

#### Result Flag

mso

MS/MSD spike recoveries were out of QC limits due to matrix interference.  
Precision and Accuracy were verified by LCS/LCSD.

rpd

Analyte RPD was out of QC limits due to sample heterogeneity.

sh

Surrogate recovery was higher than QC limit due to matrix interference.



Submission #: 2002-10-0400

Gasoline

Sutton Group

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Project: 3022.10

Oro Loma San. Dist

Received: 10/17/2002 17:35

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CA DHS ELAP# 2496

**Samples Reported**

Sample Name	Date Sampled	Matrix	Lab #
MW4-1	10/16/2002	Soil	1
MW5-1	10/16/2002	Soil	3

Submission #: 2002-10-0400

SEVERN

TRENT

LABORATORY

Gasoline

Sutton Group

Attn.: John Sutton

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Project: 3022.10

Oro Loma San. Dist

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CA DHS ELAP# 2496

Prep(s): 5035 Test(s): 8015M  
Sample ID: MW4-1 Lab ID: 2002-10-0400 - 1  
Sampled: 10/16/2002 Extracted: 10/24/2002 13:42  
Matrix: Soil QC Batch#: 2002/10/24-01.01

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	1.0	mg/Kg	1.00	10/24/2002 13:42	
<b>Surrogates(s)</b>						
4-Bromofluorobenzene-FID	62.7	58-124	%	1.00	10/24/2002 13:42	

Submission #: 2002-10-0400

Gasoline

Sutton Group

Attn.: John Sutton  
3780 Mount Diablo BLVD suite 215  
Lafayette, CA 94549  
Phone: (925) 284-4208 Fax: (925) 284-4189

Project: 3022.10  
Oro Loma San. Dist

Received: 10/17/2002 17:35

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CA DHS ELAP# 2496

Prep(s): 5035 Test(s): 8015M  
Sample ID: MW5-1 Lab ID: 2002-10-0400 - 3  
Sampled: 10/16/2002 Extracted: 10/22/2002 17:50  
Matrix: Soil QC Batch#: 2002/10/22-01.02

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	1.0	mg/Kg	1.00	10/22/2002 17:50	
<b>Surrogates(s)</b>						
4-Bromofluorobenzene-FID	80.6	58-124	%	1.00	10/22/2002 17:50	

Submission #: 2002-10-0400

Gasoline

Sutton Group  
Attn.: John Sutton  
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Project: 3022.10  
Oro Loma San. Dist

Received: 10/17/2002 17:35

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CA DHS ELAP# 2496

**Batch QC Report**

Prep(s): 5035  
Method Blank  
MB: 2002/10/22-01.02-006

Soil

Test(s): 8015M  
QC Batch # 2002/10/22-01.02  
Date Extracted: 10/22/2002 10:32

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	1.0	mg/Kg	10/22/2002 10:32	
<b>Surrogates(s)</b>					
4-Bromofluorobenzene-FID	103.2	58-124	%	10/22/2002 10:32	

Submission #: 2002-10-0400

Gasoline

Sutton Group

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Project: 3022.10

Oro Loma San. Dist

Received: 10/17/2002 17:35

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CA DHS ELAP# 2496

Batch QC Report

Prep(s): 5035

Method Blank

MB: 2002/10/24-01.01-003

Soil

Test(s): 8015M

QC Batch # 2002/10/24-01.01

Date Extracted: 10/24/2002 07:49

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	1.0	mg/Kg	10/24/2002 07:49	
<i>Surrogates(s)</i>					
4-Bromofluorobenzene-FID	78.5	58-124	%	10/24/2002 07:49	

Submission #: 2002-10-0400

Gasoline

Sutton Group

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Project: 3022.10

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Received: 10/17/2002 17:35

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CA DHS ELAP# 2496

**Batch QC Report**

Prep(s): 5035

Test(s): 8015M

Laboratory Control Spike

Soil

QC Batch # 2002/10/22-01.02

LCS 2002/10/22-01.02-009

Extracted: 10/22/2002

Analyzed: 10/22/2002 12:13

LCSD 2002/10/22-01.02-010

Extracted: 10/22/2002

Analyzed: 10/22/2002 12:47

Compound	Conc. mg/Kg		Exp. Conc.	Recovery		RPD %	Ctrl. Limits %		Flags	
	LCS	LCSD		LCS	LCSD		Rec.	RPD	LCS	LCSD
Gasoline	0.444	0.537	0.500	88.8	107.4	19.0	75-125	35		
<b>Surrogates(s)</b>										
Trifluorotoluene-FID	411	492	500	82.2	98.4		53-125			

Submission #: 2002-10-0400

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LABORATORY

Gasoline

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CA DHS ELAP# 2496

Batch QC Report

Prep(s): 5035

Test(s): 8015M

Laboratory Control Spike

Soil

QC Batch # 2002/10/24-01.01

LCS 2002/10/24-01.01-004

Extracted: 10/24/2002

Analyzed: 10/24/2002 08:45

LCSD 2002/10/24-01.01-005

Extracted: 10/24/2002

Analyzed: 10/24/2002 09:14

Compound	Conc. mg/Kg		Exp.Conc.	Recovery		RPD %	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		Rec.	RPD	LCS	LCSD
Gasoline	0.479	0.494	0.500	95.8	98.8	3.1	75-125	35		
<b>Surrogates(s)</b> 4-Bromofluorobenzene-FID	363	366	500	72.6	73.2		58-124			

Submission #: 2002-10-0400

Gas/BTEX Compounds (High Level)

Sutton Group

Attn.: John Sutton

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Project: 3022.10

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CA DHS ELAP# 2496

**Samples Reported**

Sample Name	Date Sampled	Matrix	Lab #
MW4-2	10/16/2002	Soil	2
MW5-2	10/16/2002	Soil	4



Submission #: 2002-10-0400

Gas/BTEX Compounds (High Level)

Sutton Group

Attn.: John Sutton

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Project: 3022.10

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CA DHS ELAP# 2496

Prep(s): 5030 Test(s): 8015M  
Sample ID: MW4-2 Lab ID: 2002-10-0400 - 2  
Sampled: 10/16/2002 Extracted: 10/21/2002 11:00  
Matrix: Soil QC Batch#: 2002/10/21-05:02

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	380	50	mg/Kg	5.00	10/22/2002 16:44	
<b>Surrogates(s)</b> 4-Bromofluorobenzene-FID	370.2	58-124	%	1.00	10/22/2002 16:44	sh

Submission #: 2002-10-0400

Gas/BTEX Compounds (High Level)

Sutton Group

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CA DHS ELAP# 2496

Prep(s): 5030 Test(s): 8015M  
Sample ID: MW5-2 Lab ID: 2002-10-0400 - 4  
Sampled: 10/16/2002 Extracted: 10/21/2002 11:00  
Matrix: Soil QC Batch#: 2002/10/21-05.02

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	24	10	mg/Kg	1.00	10/21/2002 18:43	
<b>Surrogates(s)</b> 4-Bromofluorobenzene-FID	102.1	58-124	%	1.00	10/21/2002 18:43	

Submission #: 2002-10-0400

Gas/BTEX Compounds (High Level)

Sutton Group

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Project: 3022.10

Oro Loma San. Dist

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CA DHS ELAP# 2496

**Batch QC Report**

Prep(s): 5030

Method Blank

MB: 2002/10/21-05.02-001

Soil

Test(s): 8015M

QC Batch # 2002/10/21-05.02

Date Extracted: 10/21/2002 11:00

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	10	mg/Kg	10/21/2002 19:17	
<b>Surrogates(s)</b>					
4-Bromofluorobenzene-FID	118.6	58-124	%	10/21/2002 19:17	

Submission #: 2002-10-0400

Gas/BTEX Compounds (High Level)

Sutton Group

Attn.: John Sutton

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Phone: (925) 284-4208 Fax: (925) 284-4189

Project: 3022.10

Oro Loma San. Dist

Received: 10/17/2002 17:35

SEVERN  
TRENT  
LABORATORY

STL San Francisco  
1220 Quarry Lane  
Pleasanton, CA 94566

Tel: (925) 484-1919  
Fax: (925) 484-1096  
www.stl-inc.com  
www.chromalab.com

CA DHS ELAP# 2496

Batch QC Report

Prep(s): 5030

Test(s): 8015M

Laboratory Control Spike

Soil

QC Batch # 2002/10/21-05.02

LCS 2002/10/21-05.02-004

Extracted: 10/21/2002

Analyzed: 10/22/2002 08:33

LCSD 2002/10/21-05.02-005

Extracted: 10/21/2002

Analyzed: 10/22/2002 09:58

Compound	Conc. mg/Kg		Exp.Conc.	Recovery		RPD %	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		Rec.	RPD	LCS	LCSD
Gasoline	0.508	0.568	0.625	81.3	90.9	11.1	75-125	35		
<i>Surrogates(s)</i>										
4-Bromofluorobenzene-FID	599	582	500	119.8	116.4		58-124	0		

Submission #: 2002-10-0400

Gas/BTEX Compounds (High Level)

Sutton Group

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Project: 3022.10

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CA DHS ELAP# 2496

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Legend and Notes

---

**Result Flag**

sh

Surrogate recovery was higher than QC limit due to matrix interference.

Submission #: 2002-10-0400

Gas/BTEX Fuel Oxygenates by 8260B (High Level)

Sutton Group

Attn.: John Sutton

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Phone: (925) 284-4208 Fax: (925) 284-4189

Project: 3022.10

Oro Loma San. Dist

Received: 10/17/2002 17:35

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www.chromalab.com

CA DHS ELAP# 2496

**Samples Reported**

Sample Name	Date Sampled	Matrix	Lab #
MW4-2	10/16/2002	Soil	2

Submission #: 2002-10-0400

Gas/BTEX Fuel Oxygenates by 8260B (High Level)

Sutton Group

Attn.: John Sutton

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Phone: (925) 284-4208 Fax: (925) 284-4189

Project: 3022.10

Oro Loma San. Dist

Received: 10/17/2002 17:35

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LABORATORY

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Fax: (925) 484-1096  
www.stl-inc.com  
www.chromalab.com

CA DHS ELAP# 2496

Prep(s): 5030B Test(s): 8260B  
Sample ID: MW4-2 Lab ID: 2002-10-0400 - 2  
Sampled: 10/16/2002 Extracted: 10/23/2002 13:30  
Matrix: Soil QC Batch#: 2002/10/23-02.27  
Analysis Flag: o ( See Legend and Note Section )

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Benzene	13000	2500	ug/Kg	5.00	10/23/2002 13:30	
Toluene	25000	2500	ug/Kg	5.00	10/23/2002 13:30	
Ethyl benzene	37000	2500	ug/Kg	5.00	10/23/2002 13:30	
Total xylenes	160000	2500	ug/Kg	5.00	10/23/2002 13:30	
Methyl tert-butyl ether (MTBE)	ND	2500	ug/Kg	5.00	10/23/2002 13:30	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	114.2	70-121	%	5.00	10/23/2002 13:30	
Toluene-d8	101.8	81-117	%	5.00	10/23/2002 13:30	

Submission #: 2002-10-0400

Gas/BTEX Fuel Oxygenates by 8260B (High Level)

Sutton Group

Attn.: John Sutton

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Phone: (925) 284-4208 Fax: (925) 284-4189

Project: 3022.10

Oro Loma San. Dist

Received: 10/17/2002 17:35

SEVERN

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www.chromalab.com

CA DHS ELAP# 2496

**Batch QC Report**

Prep(s): 5030B

Method Blank

MB: 2002/10/23-02.27-017

Soil

Test(s): 8260B

QC Batch # 2002/10/23-02.27

Date Extracted: 10/23/2002 16:28

Compound	Conc.	RL	Unit	Analyzed	Flag
Benzene	ND	500	ug/Kg	10/23/2002 16:28	
Toluene	ND	500	ug/Kg	10/23/2002 16:28	
Ethyl benzene	ND	500	ug/Kg	10/23/2002 16:28	
Total xylenes	ND	500	ug/Kg	10/23/2002 16:28	
Methyl tert-butyl ether (MTBE)	ND	500	ug/Kg	10/23/2002 16:28	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	120.0	70-121	%	10/23/2002 16:28	
Toluene-d8	114.6	81-117	%	10/23/2002 16:28	



Submission #: 2002-10-0400

Gas/BTEX Fuel Oxygenates by 8260B (High Level)

Sutton Group

Attn.: John Sutton

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Phone: (925) 284-4208 Fax: (925) 284-4189

Project: 3022.10

Oro Loma San. Dist

Received: 10/17/2002 17:35

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CA DHS ELAP# 2496

Batch QC Report

Prep(s): 5030B

Test(s): 8260B

Laboratory Control Spike

Soil

QC Batch # 2002/10/23-02.27

LCS 2002/10/23-02.27-006

Extracted: 10/23/2002

Analyzed: 10/23/2002 12:23

LCSD 2002/10/23-02.27-007

Extracted: 10/23/2002

Analyzed: 10/23/2002 12:45

Compound	Conc. ug/Kg		Exp. Conc.	Recovery		RPD %	Ctrl. Limits %		Flags	
	LCS	LCSD		LCS	LCSD		Rec.	RPD	LCS	LCSD
Benzene	9790	10000	10000	97.9	100.0	2.1	69-129	20		
Toluene	10200	10000	10000	102.0	100.0	2.0	70-130	20		
Methyl tert-butyl ether (MTBE)	11100	11200	10000.0	111.0	112.0	0.9	65-165	20		
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	291	302	250	116.4	120.8		70-121			
Toluene-d8	261	260	250	104.4	104.0		81-117			

Submission #: 2002-10-0400

Gas/BTEX Fuel Oxygenates by 8260B (High Level)

Sutton Group

Attn.: John Sutton

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Phone: (925) 284-4208 Fax: (925) 284-4189

Project: 3022.10

Oro Loma San. Dist

Received: 10/17/2002 17:35

SEVERN

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www.chromalab.com

CA DHS ELAP# 2496

---

Legend and Notes

---

**Analysis Flag**

o

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

# CHROMALAB, INC.

Environmental Services (SDB) (DOHS 1094)

1220 Quarry Lane • Pleasanton, California 94566-4756  
 510/481-1919 • Fax 510/481-1086

**2002-10-0400**

## Chain of Custody

DATE 10/16/02 PAGE 1 OF 1

69614

PROJ MGI JOHN R. SUTTON, PE  
 COMPAN **THE SUTTON GROUP**  
 3708 Mount Diablo Blvd., Suite 215  
 Lafayette, CA, 94549  
 ADDRESS: (925) 284-4208, FAX (925) 284-4189

SAMPLERS SIGNATURE: [Signature] (PHONE NO.)  
 (FAX NO.)

SAMPLE ID	DATE	TIME	MATRIX	PRESERV.	ANALYSIS REPORT													NUMBER OF CONTAINERS						
					TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020) *	TPH - Diesel, TEPH (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, 8+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)	MTBE *	LUFT METALS: Cd, Cr, Pb, Zn, Ni		CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)		
MW4-1	10/16		Soil	N/A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	1
MW4-2	10/16				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	1
MW5-1	10/16				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	1
MW5-2	10/16				/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	1
																		4						

\* Analysis of BTEX, MTBE by P260

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NAME <u>ORO LOMA SAN. DIST</u>	TOTAL NO OF CONTAINERS <u>4</u>	HEAD SPACE <u>N/A</u>	REC'D GOOD CONDITION/COLD
PROJECT NUMBER <u>3022110</u>	CONFORMS TO RECORD		
P.O. #	TAT	STANDARD 5-DAY	24 48 72 OTHER

RELINQUISHED BY <u>[Signature]</u> JOHN R SUTTON The Sutton Group 10/17/02	RELINQUISHED BY <u>[Signature]</u> 10/17/02	RELINQUISHED BY <u>[Signature]</u> 1735 B. Maxwell 10/17/02 STC-SF
RECEIVED BY <u>[Signature]</u> 1000 B. Maxwell 10/17/02 STC-SF	RECEIVED BY <u>[Signature]</u> 1735 D. Harrington 10/17/02 STC-SF	RECEIVED BY (LABORATORY) <u>[Signature]</u> 1735 D. Harrington 10/17/02 STC-SF

SPECIAL INSTRUCTIONS/COMMENTS:  
 Fax to: John Sutton  
 Phone: See Above  
 3.0°C



STL San Francisco

### Sample Receipt Checklist

Submission #: 2002- 10 - 0400

Checklist completed by: (initials) CR Date: 10, 18 /02

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° C ± 2)?

Temp: 3.0 °C 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<sub>3</sub>  HCl  H<sub>2</sub>SO<sub>4</sub>  NaOH  ZnOAc

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: \_\_\_\_\_ / \_\_\_\_\_ /02

Client contacted:  Yes  No

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

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

Submission#: 2002-10-0486

November 12, 2002

SEVERN

TRENT

LABORATORY

**Sutton Group**

3780 Mount Diablo BLVD suite 215  
Lafayette, CA 94549

Attn.: John Sutton  
Site: 2600 GRANT AVE

STL San Francisco  
1220 Quarry Ln  
Pleasanton CA 94566

Tel.: (925) 484-1919  
Fax: (925) 484-1096  
www.stl-inc.com  
www.chromalab.com

CA DHS ELAP#:2496

Mr. Sutton

Attached is our report for your samples received on 10/22/2002 18:15

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 12/06/2002 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@chromalab.com](mailto:vvancil@chromalab.com)

Sincerely,



Vincent Vancil  
Project Manager

Submission #: 2002-10-0486

Fuel Oxygenates by 8260B

Sutton Group

Attn.: John Sutton

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Phone: (925) 284-4208 Fax: (925) 284-4189

Project:

Received: 10/22/2002 18:15

Site: 2600 GRANT AVE

SEVERN

TRENT

LABORATORY

STL San Francisco  
1220 Quarry Lane  
Pleasanton, CA 94566

Tel: (925) 484-1919  
Fax: (925) 484-1096  
www.stl-inc.com  
www.chromalab.com

CA DHS ELAP# 2496

### Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW-4	10/21/2002 13:00	Water	1
MW-5	10/21/2002 13:30	Water	2

Submission #: 2002-10-0486

Fuel Oxygenates by 8260B

Sutton Group

Attn.: John Sutton

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Phone: (925) 284-4208 Fax: (925) 284-4189

Project:

Received: 10/22/2002 18:15

Site: 2600 GRANT AVE

**SEVERN**  
**TRENT**  
**LABORATORY**

STL San Francisco  
1220 Quarry Lane  
Pleasanton, CA 94566

Tel: (925) 484-1919  
Fax: (925) 484-1096  
www.stl-inc.com  
www.chromalab.com

CA DHS ELAP# 2496

Prep(s): 5030B Test(s): 8260B  
Sample ID: MW-4 Lab ID: 2002-10-0486 - 1  
Sampled: 10/21/2002 13:00 Extracted: 10/28/2002 12:49  
Matrix: Water QC Batch#: 2002/10/28-01.27  
Analysis Flag: o ( See Legend and Note Section )

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	64000	5000	ug/L	100.00	10/28/2002 12:49	
tert-Butyl alcohol (TBA)	ND	500	ug/L	100.00	10/28/2002 12:49	
Methyl tert-butyl ether (MTBE)	140	50	ug/L	100.00	10/28/2002 12:49	
Di-isopropyl Ether (DIPE)	ND	100	ug/L	100.00	10/28/2002 12:49	
Ethyl tert-butyl ether (ETBE)	ND	50	ug/L	100.00	10/28/2002 12:49	
tert-Amyl methyl ether (TAME)	ND	50	ug/L	100.00	10/28/2002 12:49	
1,2-DCA	ND	50	ug/L	100.00	10/28/2002 12:49	
EDB	ND	50	ug/L	100.00	10/28/2002 12:49	
Benzene	5800	50	ug/L	100.00	10/28/2002 12:49	
Toluene	6200	50	ug/L	100.00	10/28/2002 12:49	
Ethylbenzene	3500	50	ug/L	100.00	10/28/2002 12:49	
Total xylenes	18000	100	ug/L	100.00	10/28/2002 12:49	
Ethanol	ND	2500	ug/L	100.00	10/28/2002 12:49	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	100.9	76-114	%	100.00	10/28/2002 12:49	
Toluene-d8	101.7	88-110	%	100.00	10/28/2002 12:49	

Submission #: 2002-10-0486

Fuel Oxygenates by 8260B

Sutton Group

Attn.: John Sutton

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Lafayette, CA 94549

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Project:

Received: 10/22/2002 18:15

Site: 2600 GRANT AVE

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www.chromalab.com

CA DHS ELAP# 2496

Prep(s): 5030B Test(s): 8260B  
Sample ID: MW-5 Lab ID: 2002-10-0486 -2  
Sampled: 10/21/2002 13:30 Extracted: 10/28/2002 13:11  
Matrix: Water QC Batch#: 2002/10/28-01.27  
Analysis Flag: o ( See Legend and Note Section )

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	65000	10000	ug/L	200.00	10/28/2002 13:11	
tert-Butyl alcohol (TBA)	ND	1000	ug/L	200.00	10/28/2002 13:11	
Methyl tert-butyl ether (MTBE)	ND	100	ug/L	200.00	10/28/2002 13:11	
Di-isopropyl Ether (DIPE)	ND	200	ug/L	200.00	10/28/2002 13:11	
Ethyl tert-butyl ether (ETBE)	ND	100	ug/L	200.00	10/28/2002 13:11	
tert-Amyl methyl ether (TAME)	ND	100	ug/L	200.00	10/28/2002 13:11	
1,2-DCA	ND	100	ug/L	200.00	10/28/2002 13:11	
EDB	ND	100	ug/L	200.00	10/28/2002 13:11	
Benzene	12000	100	ug/L	200.00	10/28/2002 13:11	
Toluene	20000	100	ug/L	200.00	10/28/2002 13:11	
Ethylbenzene	1600	100	ug/L	200.00	10/28/2002 13:11	
Total xylenes	7100	200	ug/L	200.00	10/28/2002 13:11	
Ethanol	ND	5000	ug/L	200.00	10/28/2002 13:11	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	101.0	76-114	%	200.00	10/28/2002 13:11	
Toluene-d8	103.8	88-110	%	200.00	10/28/2002 13:11	



Submission #: 2002-10-0486

Fuel Oxygenates by 8260B

Sutton Group

Attn.: John Sutton

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Phone: (925) 284-4208 Fax: (925) 284-4189

Project:

Received: 10/22/2002 18:15

Site: 2600 GRANT AVE

SEVERN

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Tel: (925) 484-1919  
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www.stl-inc.com  
www.chromalab.com

CA DHS ELAP# 2496

Batch QC Report

Prep(s): 5030B

Method Blank

MB: 2002/10/28-01.27-006

Water

Test(s): 8260B

QC Batch # 2002/10/28-01.27

Date Extracted: 10/28/2002 12:04

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	10/28/2002 12:04	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	10/28/2002 12:04	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	10/28/2002 12:04	
Di-isopropyl Ether (DIPE)	ND	1.0	ug/L	10/28/2002 12:04	
Ethyl tert-butyl ether (ETBE)	ND	0.5	ug/L	10/28/2002 12:04	
tert-Amyl methyl ether (TAME)	ND	0.5	ug/L	10/28/2002 12:04	
1,2-DCA	ND	0.5	ug/L	10/28/2002 12:04	
EDB	ND	0.5	ug/L	10/28/2002 12:04	
Benzene	ND	0.5	ug/L	10/28/2002 12:04	
Toluene	ND	0.5	ug/L	10/28/2002 12:04	
Ethylbenzene	ND	0.5	ug/L	10/28/2002 12:04	
Total xylenes	ND	1.0	ug/L	10/28/2002 12:04	
Ethanol	ND	25	ug/L	10/28/2002 12:04	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	103.2	76-114	%	10/28/2002 12:04	
Toluene-d8	104.1	88-110	%	10/28/2002 12:04	

Submission #: 2002-10-0486

Fuel Oxygenates by 8260B

Sutton Group

Attn.: John Sutton

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Phone: (925) 284-4208 Fax: (925) 284-4189

Project:

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Site: 2600 GRANT AVE

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www.chromalab.com

CA DHS ELAP# 2496

Batch QC Report

Prep(s): 5030B

Test(s): 8260B

Laboratory Control Spike

Water

QC Batch # 2002/10/28-01.27

LCS 2002/10/28-01.27-004

Extracted: 10/28/2002

Analyzed: 10/28/2002 11:16

LCSD 2002/10/28-01.27-005

Extracted: 10/28/2002

Analyzed: 10/28/2002 11:42

Compound	Conc. ug/L		Exp. Conc.	Recovery		RPD	Ctrl. Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Methyl tert-butyl ether (MTBE)	24.0	23.7	25.0	96.0	94.8	1.3	65-165	20		
Benzene	20.6	21.4	25.0	82.4	85.6	3.8	69-129	20		
Toluene	21.9	22.3	25.0	87.6	89.2	1.8	70-130	20		
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	488	497	500	97.6	99.4		76-114			
Toluene-d8	513	515	500	102.6	103.0		88-110			

Submission #: 2002-10-0486

Fuel Oxygenates by 8260B

Sutton Group

Attn.: John Sutton

3780 Mount Diablo BLVD suite 215

Lafayette, CA 94549

Phone: (925) 284-4208 Fax: (925) 284-4189

Project:

Received: 10/22/2002 18:15

Site: 2600 GRANT AVE

SEVERN

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www.chromalab.com

CA DHS ELAP# 2496

---

**Legend and Notes**

---

**Analysis Flag**

o

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

# BLAINE

TECH SERVICES, INC.

1680 ROGERS AVENUE  
 SAN JOSE, CALIFORNIA 95112-1105  
 FAX (408) 573-7771  
 PHONE (408) 573-0555

CONDUCT ANALYSIS TO DETECT

**2002-10-07/06**

LAB STL San Francisco DHS # \_\_\_\_\_  
 ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION  
 LIMITS SET BY CALIFORNIA DHS AND  
 EPA  RWQCB REGION \_\_\_\_\_  
 LIA  
 OTHER

69699

CHAIN OF CUSTODY  
 BTS # 021021-SS1  
 CLIENT The Sutton Group  
 SITE 2600 Grant Ave.  
San Lorenzo, CA

C = COMPOSITE ALL CONTAINERS

TPH-G / BTEX / MTBE (8260)

(7) OXYGENATES (8260)

SPECIAL INSTRUCTIONS  
 Invoice and Report to : The Sutton Group  
 Attn: John Sutton  
 (7) Oxygenates: TAME, TBA, DIPE, EDB, 1,2 DCA,  
 ETHANOL, ETBE

SAMPLE I.D.	DATE	TIME	MATRIX	CONTAINERS	C	TPH-G / BTEX / MTBE (8260)	(7) OXYGENATES (8260)									ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #		
			S= SOIL W=H <sub>2</sub> O	TOTAL																	
MW-4	10/21/02	1300	W	6		X	X														
MW-5	"	1330	"	"		X	X														

SAMPLING COMPLETED 10/21/02 DATE 10/21/02 TIME 1300 SAMPLING PERFORMED BY SUTTON SUNG RESULTS NEEDED NO LATER THAN Standard TAT 3.9°C

RELEASED BY <u>[Signature]</u>	DATE <u>10/21/02</u>	TIME	RECEIVED BY <u>[Signature]</u>	DATE <u>10/22/02</u>	TIME <u>1340</u>
RELEASED BY <u>[Signature]</u>	DATE <u>10/22/02</u>	TIME <u>1815</u>	RECEIVED BY <u>Denise Harrington</u>	DATE <u>10/22/02</u>	TIME <u>1815</u>
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPED VIA \_\_\_\_\_ DATE SENT \_\_\_\_\_ TIME SENT \_\_\_\_\_ COOLER # \_\_\_\_\_

### Sample Receipt Checklist

Submission #: 2002- 10 - 0486

Checklist completed by: (initials) CR Date: 10, 23 2002

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° C ± 2)? Temp: 3.9°C 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 - ⊙), M (medium - ○) or L (large - ○))

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

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

Comments: samples rec'd w/headspace

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

Project Manager: (initials) \_\_\_\_\_ Date: \_\_\_\_\_/\_\_\_\_\_/02

Client contacted:  Yes  No

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

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