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Alameda County  
Environmental Health

July 22, 2009

Mr. Steven Plunkett  
Division of Environmental Protection  
Department of Environmental Health  
Alameda County Health Agency  
1131 Harbor Bay Parkway  
Alameda, California 94502-6577

**Re: First Quarter 2008 Groundwater Monitoring at Former Celis' Alliance Fuel Station Site, 4000 San Pablo Avenue, Emeryville, California**

Dear Mr. Chan,

On behalf of the City of Emeryville Redevelopment Agency (the City), URS Corporation (URS) is pleased to submit this *First Quarter 2008 Groundwater Monitoring Report* for the evaluation of petroleum hydrocarbon contamination from the former Celis' Alliance Fuel Station. The former Celis Alliance Fuel Station is located at the 40<sup>th</sup> Street Right-of-Way between San Pablo Avenue and Adeline Street. The work was performed in general accordance with the URS *Monitoring Well Installation Work Plan* dated December 15, 2006.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Please feel free to contact us at (510) 874-3080 if you have any questions or comments.

Sincerely,

**URS Corporation**

Jacob Henry, P.G.  
Senior Geologist



George Muehleck, P.G.  
Project Manager/Senior Hydrogeologist



July 22, 2009

Mr. Steven Plunkett  
Division of Environmental Protection  
Department of Environmental Health  
Alameda County Health Agency  
1131 Harbor Bay Parkway  
Alameda, California 94502-6577

**Reference: Alameda County Fuel Leak Case RO0000453**

**Subject: First Quarter 2008 Groundwater Monitoring  
Former Celis Alliance Service Station  
4000 San Pablo Avenue, Emeryville, California**

Dear Mr. Plunkett:

On behalf of the City of Emeryville Redevelopment Agency (the City), URS Corporation (URS) is pleased to submit this *First Quarter 2008 Groundwater Monitoring Report* to Alameda County Environmental Health (ACEH) for the Former Celis Alliance Service Station, located at the intersection of San Pablo Avenue and 40<sup>th</sup> Street in Emeryville, California (the site; Figure 1). The work described herein was performed in general accordance with the December 15, 2006, *Monitoring Well Installation Work Plan* (Work Plan; URS, 2006) prepared in response to an October 12, 2006, ACEH letter to the City (ACEH, 2006).

## **BACKGROUND**

As described in the August 29, 2007, *Monitoring Well Installation* report (URS, 2007), five groundwater monitoring wells (URS-MW-1 through URS-MW-5; Figure 2) were installed at the site in June and July 2007 to evaluate the upgradient and downgradient areal extent of petroleum hydrocarbons originating from the former leaking underground storage tanks (USTs) located at the site (Figure 2). The existing downgradient monitoring well LF-MW-4 (Figure 2) also was included in the URS monitoring program. An initial groundwater monitoring event was performed on July 10, 2007. This was followed by a monitoring event on October 31, 2007 and this January 18, 2008 monitoring event summarized herein. The existing on-site URS well WCEW-1 will be included in the adjacent Oak Walk Redevelopment groundwater monitoring program, and has not been monitored since 2004. The URS monitoring program was to be coordinated with the adjacent Oak Walk and SNK site monitoring programs, but these have been delayed due to current redevelopment and are not anticipated to begin until 2009. Celis' site monitoring well construction and groundwater elevation data are included in Table 1.

## **GROUNDWATER MONITORING PROGRAM**

The groundwater monitoring program consists of groundwater sample collection from the five newly installed wells (URS-MW-1 through URS-MW-5) and one existing well (LF-MW-4). At the time of this sampling event future groundwater monitoring activities were to be coordinated with those at the adjacent SNK and Oak Walk sites as well as with the former Dunne Paint Company (also know as Green City Development), and the former ONE site, as possible, when those programs were to commence. Specific details of the groundwater monitoring program scope of work are outlined below:

- Prior to purging, static groundwater levels are measured to the nearest 0.01 foot in each well.
- The volume of water in each well is calculated, and a minimum of three casing volumes of water are removed from each well. The purged water is monitored for pH, temperature, specific conductance, and dissolved oxygen, which are recorded on field logs. The wells are allowed to recover to within 80 percent of the initial static water level whenever possible prior to sampling. All purge and sampling equipment used at each well is new and disposable, thereby requiring no decontamination prior to use.
- Purge and decontamination water is stored in 55-gallon DOT drums, which are labeled and transported off site to the City of Emeryville Corporation Yard for temporary storage pending final disposal option selection.
- Sample bottles are labeled, packaged, and stored in an ice-chilled cooler with a trip blank and delivered under chain-of-custody protocol to a state-certified analytical laboratory for analysis for benzene, toluene, ethylbenzene, and total xylenes (BTEX); fuel oxygenates (methyl tertiary butyl ether [MTBE], tert-butyl alcohol [TBA], di-isopropyl ether [DIPE], ethyl tert-butyl ether [ETBE], and tert-amyl methyl ether [TAME]); total volatile hydrocarbons quantified as gasoline (TVH-g); total volatile hydrocarbons quantified as mineral spirits (TVH-ms); and total extractable hydrocarbons quantified as diesel (TEH-d).

## **FIELD ACTIVITIES**

The first quarter 2008 groundwater monitoring event was performed on January 18, 2008, by URS subcontractor Blaine Tech Services, Inc. (BTS). Depth to water and groundwater elevation measurements are included in Table 1. Light nonaqueous phase liquid hydrocarbons (LNAPL) were not encountered in any well. Three casing volumes of water were purged from each well without dewatering, and sampling was conducted after recovery to 80 percent of initial static water level. Groundwater monitoring field logs are included in Attachment A. Samples were transported to Curtis & Tompkins, Ltd., of Berkeley, California. The chain-of-custody document is included in Attachment B.

## **RESULTS AND DISCUSSION**

The following section of this report includes a summary of hydrogeologic conditions from water level monitoring data, analytical results, and the quality assurance/quality control evaluation for the analytical results.

### **Hydrogeologic Conditions**

Static depth to groundwater in the monitoring wells ranged from 5.54 to 8.80 feet below top-of-casing (TOC). Water levels were slightly higher than in the previous October 2007 monitoring event, with the exception of URS-MW-4. Groundwater elevation data indicate that the direction of groundwater flow is to the west-southwest at a gradient of 0.017 foot per foot, which is consistent with the previous monitoring event. A groundwater elevation contour map is presented as Figure 3. Depth to groundwater was slightly higher in the Fourth Quarter 2007 monitoring event than during the initial Third Quarter 2007 event with the exception of well URS-MW-4; groundwater gradient and flow direction were generally consistent.

### **Analytical Results**

Analytical results are summarized below. Table 2 includes a summary of analytical results for all of the compounds analyzed. Laboratory reports are included in Attachment B.

#### ***Total Petroleum Hydrocarbons***

TVH-g were detected above the laboratory reporting limits (RLs) in groundwater samples collected from wells URS-MW-1, URS-MW-5, and LF-MW-4 at 150 micrograms per liter ( $\mu\text{g/L}$ ), 1,000  $\mu\text{g/L}$ , and 970  $\mu\text{g/L}$ , respectively. TVH-ms were detected above the RLs in groundwater samples collected from wells URS-MW-1, URS-MW-5 and LF-MW-4 at 79  $\mu\text{g/L}$ , 540  $\mu\text{g/L}$  and 500  $\mu\text{g/L}$ , respectively. TEH-d were detected above the RLs in groundwater samples collected from wells URS-MW-1, URS-MW-2, URS-MW-4, URS-MW-5 and LF-MW-4 at 220  $\mu\text{g/L}$ , 170  $\mu\text{g/L}$ , 110  $\mu\text{g/L}$ , 2,000  $\mu\text{g/L}$  and 1,000  $\mu\text{g/L}$ , respectively. Laboratory chromatographic patterns did not match standards for gasoline, mineral spirits, and diesel, respectively, for detections of TVH-g in URS-MW-1, TVH-ms in URS-MW-5, and TEH-d in all wells sampled except LF-MW-4. Groundwater isoconcentration contour maps depicting TVH-g, TVH-ms, and TEH-d concentrations are presented as Figures 4, 5, and 6, respectively. Since monitoring has not yet been coordinated with adjacent sites, data in these maps has been updated only for the Celis site.

Generally, petroleum hydrocarbon concentrations have remained relatively stable or declined since the previous quarterly event in all wells. Two of the analytes detected in groundwater samples exceeded San Francisco Bay Regional Water Quality Control Board (RWQCB) environmental screening levels (ESLs) for residential sites where groundwater is not a potential drinking water resource (RWQCB, 2005; Tables B and D). The ESL of 500  $\mu\text{g/L}$  for TVH-g was exceeded by samples from URS-MW-5 (1,000  $\mu\text{g/L}$ ) and LF-MW-4 (970  $\mu\text{g/L}$ ). The ESL of 640  $\mu\text{g/L}$  for TEH-d was exceeded by samples from URS-MW-5 (2,000  $\mu\text{g/L}$ ), and LF-MW-4 (1,000  $\mu\text{g/L}$ ).

Analytical results of the groundwater samples collected during this event, compared with the previous Fourth Quarter 2007 event, indicated an increase in TVH-g concentrations in samples collected from well LF-MW-4, and a decrease in TVHg concentrations in samples collected from wells URS-MW-1 and URS-MW-5. TVH-ms concentrations increased slightly in samples from well LF-MW-4, and decreased in samples from wells URS-MW-1 and URS-MW-5. TEH-d concentrations increased in samples from well URS-MW-5 during this event, and decreased in samples from wells URS-MW-1, URS-MW-2, URS-MW-3, URS-MW-4, and LF-MW-4.

### ***BTEX***

The only BTEX compounds detected above the RLs were in groundwater samples from URS-MW-5 (benzene at 3.3 µg/L and ethylbenzene at 110 µg/L) and LF-MW-4 (benzene at 4.1 µg/L, ethylbenzene at 17 µg/L and total xylenes at 0.8 µg/L).

Benzene concentrations increased in samples from well LF-MW-4 and decreased in URS-MW-5. Toluene concentrations decreased to below detection limits in samples from well URS-MW-2, and were not detected in samples from any other well during this event. Ethylbenzene concentrations increased in samples from well LF-MW-4 and decreased in URS-MW-5. Total xylene concentrations decreased in samples from wells URS-MW-2 and LF-MW-4. MTBE concentrations increased in samples from well URS-MW-5, decreased in wells URS-MW-1, URS-MW-4 and LF-MW-4, and remained the same in well URS-MW-2. A groundwater iso-concentration contour map depicting benzene concentrations is presented as Figure 7. Since monitoring has yet been coordinated with adjacent sites, data in this map has been updated only for the site.

### ***Fuel Oxygenates***

MTBE was detected above the RLs in groundwater samples from wells URS-MW-1 (1.1 µg/L), URS-MW-2 (160 µg/L), URS-MW-4 (3.9 µg/L), URS-MW-5 (49 µg/L) and LF-MW-4 (5.0 µg/L). MTBE was not detected above the RLs in groundwater samples from well URS-MW-3. No other fuel oxygenate compounds were detected above the RLs in any groundwater samples analyzed. A groundwater iso-concentration contour map depicting MTBE concentrations is presented as Figures 8. Since monitoring has yet been coordinated with adjacent sites, data in this map has been updated only for the site. Other fuel oxygenates were not detected in any samples collected during this event.

### ***Quality Assurance/Quality Control***

The analytical results were subject to a quality assurance/quality control (QA/QC) evaluation that included review of sample hold times, trip blanks, method blanks, laboratory control spikes (LCS) and laboratory control spike duplicates (LCSD), matrix spikes (MS) and matrix spike duplicates (MSD), blank spikes and blank spike duplicates, and surrogate spikes. All reported



method blanks, LCS/LCSD recoveries, MS/MSD recoveries, and surrogate spike recoveries were within laboratory quality control limits, except for the following: Low surrogate recovery was observed for bromofluorobenzene in LF-MW-4 due to interference from co-eluting hydrocarbon peaks. No other analytical QA/QC problems were encountered. Chain-of-custody documentation was found to be complete and consistent. All samples were analyzed within the method specified holding time. Based on the data quality evaluation, no systematic problems were detected and the overall data objectives for sample contamination, precision, accuracy, and sample integrity were met. These analytical data are of acceptable quality and may be used for their intended purposes.

### RECOMMENDATIONS

URS proposes to continue the Celis monitoring program when monitoring programs for other sites underway. When possible to coordinate monitoring events with the adjacent sites, the groundwater monitoring reports will integrate data from the Celis site, the Former San Francisco Bread Company site, the SNK site, and the Oak Walk site to produce localized groundwater flow and contaminant distribution figures. Groundwater monitoring data and monitoring reports will be shared with those responsible for the adjacent SNK and Oak Walk sites.

Please feel free to contact George Muehleck at (510) 874-3080 if you have any questions or comments.

Sincerely,

**URS Corporation**



Jacob Henry, PG  
Senior Geologist



George Muehleck, PG  
Project Manager/Senior Hydrogeologist



cc: Helen Bean, City of Emeryville  
Xinggong Tong, OTG EnviroEngineering Solutions, Inc.  
Dai Watkins, San Joaquin Company

**REFERENCES**

- Alameda County Environmental Health Department, 2006, Letter to City of Emeryville, Fuel Leak Case RO0000453, Former Celis Alliance Service Station, 4000 San Pablo Avenue, Emeryville, California, October 12, 2006 (ACEH, 2006).
- Regional Water Quality Control Board, 2005, San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Interim Final, February 2005 (RWQCB,2005).
- URS Corporation, Monitoring Well Installation Work Plan, 2006, Alameda County Fuel Leak Case RO0000453, Former Celis Alliance Service Station, 4000 San Pablo Avenue, Emeryville, California, December 15, 2006 (URS, 2006).
- URS Corporation, Monitoring Well Installation Report, 2007, Alameda County Fuel Leak Case RO0000453, Former Celis Alliance Service Station, 4000 San Pablo Avenue, Emeryville, California, August 29, 2007 (URS, 2007).

**ATTACHMENTS****Tables:**

- Table 1 Well Construction and Groundwater Analytical Data  
Table 2 Groundwater Analytical Results

**Figures:**

- Figure 1 Site Location Map  
Figure 2 Monitoring Well Locations  
Figure 3 Groundwater Elevation Contour Map, January 18, 2008  
Figure 4 Distribution of Gasoline-Range Petroleum Hydrocarbons in Shallow Groundwater on January 18, 2008  
Figure 5 Distribution of Mineral Spirit Petroleum Hydrocarbons in Shallow Groundwater on January 18, 2008  
Figure 6 Distribution of Diesel-Range Range Petroleum Hydrocarbons in Shallow Groundwater on January 18, 2008  
Figure 7 Distribution of Benzene in Shallow Groundwater on January 18, 2008  
Figure 8 Distribution of MTBE in Shallow Groundwater on January 18, 2008

**Appendices:**

- Appendix A Groundwater Monitoring Field Logs  
Appendix B Laboratory Analytical Reports and Chain-of-Custody Documentation

## **TABLES**



Table 1  
Well Construction and Groundwater Elevation Data  
Former Celis-Alliance Fuel Station, Emeryville, California

Well ID	Casing Type	Casing Diameter (inches)	Total Depth (feet bgs)	Screened Interval (feet bgs)	Sand Pack Interval (feet bgs)	Ground Surface Elevation* (feet MSL)	TOC Elevation (feet MSL)	Monitoring Date	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation (feet MSL)
URS-MW-1	sch 40 PVC	2	20	5-20	4-20	42.40	42.21	7/10/2007	---	---	8.90	33.31
								10/31/2007	---	---	8.86	33.35
								1/18/2008	---	---	7.90	34.31
URS-MW-2	sch 40 PVC	2	20	5-20	4-20	41.18	40.83	7/10/2007	---	---	7.89	32.94
								10/31/2007	---	---	7.70	33.13
								1/18/2008	---	---	7.25	33.58
URS-MW-3	sch 40 PVC	2	20	8-20	7-20	40.86	40.54	7/10/2007	---	---	8.16	32.38
								10/31/2007	---	---	7.36	33.18
								1/18/2008	---	---	7.22	33.32
URS-MW-4	sch 40 PVC	2	20	5-20	4-20	41.72	41.41	7/10/2007	---	---	8.58	32.83
								10/31/2007	---	---	8.35	33.06
								1/18/2008	---	---	8.80	32.61
URS-MW-5	sch 40 PVC	2	20	5-20	4-20	44.30	43.93	7/10/2007	---	---	6.00	37.93
								10/31/2007	---	---	6.20	37.73
								1/18/2008	---	---	5.54	38.39
LF-MW-4	sch 40 PVC	2	18	NA	NA	41.46	40.76	7/10/2007	---	---	8.30	32.46
								10/31/2007	---	---	8.17	32.59
								1/18/2008	---	---	7.26	33.50

**Notes:**

bgs: Below Ground Surface

\*: Surveyed at vault box lid

MSL: Mean Sea Level as surveyed to NAVD 88 datum

TOC: Top of PVC Casing

---: Not detected or measured

Table 2  
Groundwater Analytical Results  
Former Celis-Alliance Fuel Station, Emeryville, California

Sample ID	Date	Analytical Results (µg/L)							
		TVH-g	TVH-ms	TEH-d	Benzene	Toluene	Ethylbenzene	Xylenes	Oxygenates
URS-MW-1	7/10/2007	<b>960 H Y</b>	<b>550</b>	<b>580 H L Y</b>	<0.5	<0.5	<0.5	<0.5	<b>1.7 MTBE</b>
	10/31/2007	<b>270 Y</b>	<b>150</b>	<b>670 Y</b>	<0.5	<0.5	<0.5	<0.5	<b>1.3 MTBE</b>
	1/18/2008	<b>150 Y</b>	<b>79</b>	<b>220 Y</b>	<0.5	<0.5	<0.5	<0.5	<b>1.1 MTBE</b>
URS-MW-2	7/10/2007	<50	<50	<b>240 H Y</b>	<0.5	<0.5	<0.5	<0.5	<b>18 TBA, 140 MTBE</b>
	10/31/2007	<50	<50	<b>180 Y</b>	<1.3	<b>4.4</b>	<1.3	<b>5.1</b>	<b>160 MTBE</b>
	1/18/2008	<50	<50	<b>170 Y</b>	<1.3	<1.3	<1.3	<1.3	<b>160 MTBE</b>
URS-MW-3	7/10/2007	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	<b>1.3 MTBE</b>
	10/31/2007	<50	<50	<b>50 Y</b>	<0.5	<0.5	<0.5	<0.5	<b>ND</b>
	1/18/2008	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	<b>ND</b>
URS-MW-4	7/10/2007	<50	<50	<b>110 Y</b>	<0.5	<0.5	<0.5	<0.5	<b>82 MTBE</b>
	10/31/2007	<50	<50	<b>170 Y</b>	<0.5	<0.5	<0.5	<0.5	<b>7.2 MTBE</b>
	1/18/2008	<50	<50	<b>110 Y</b>	<0.5	<0.5	<0.5	<0.5	<b>3.9 MTBE</b>
URS-MW-5	7/10/2007	<b>270</b>	<b>160 Y</b>	<b>820 H Y</b>	<b>0.6</b>	<0.5	<b>22</b>	<0.5	<b>11 TBA, 99 MTBE</b>
	10/31/2007	<b>2,500</b>	<b>1,400</b>	<b>1,400 Y</b>	<b>3.9</b>	<2.0	<b>270</b>	<2.0	<b>47 MTBE</b>
	1/18/2008	<b>1,000</b>	<b>540 Y</b>	<b>2,000 Y</b>	<b>3.3</b>	<1.0	<b>110</b>	<1.0	<b>49 MTBE</b>
LF-MW-4	7/10/2007	<b>450</b>	<b>260 Y</b>	<b>620 L Y</b>	<b>3.5</b>	<0.5	<b>11</b>	<b>1.8</b>	<b>6.2 MTBE</b>
	10/31/2007	<b>780</b>	<b>450</b>	<b>3,400 Y</b>	<b>1.3</b>	<0.5	<b>15</b>	<b>1.1</b>	<b>5.7 MTBE</b>
	1/18/2008	<b>970</b>	<b>500</b>	<b>1,000</b>	<b>4.1</b>	<0.5	<b>17</b>	<b>0.8</b>	<b>5.0 MTBE</b>
RWQCB ESLs (residential) <sup>1</sup>		500	640	640	46	130	290	100	18,000 TBA, 1,800 MTBE

**Notes:**

µg/L: micrograms per liter

TVH-g: Total Volatile Hydrocarbons as Gasoline, range C7-C12, by EPA 8015B

TVH-ms: Total Volatile Hydrocarbons as Mineral Spirits, range C7-C12, by EPA 8015B

TEH-d: Total Extractable Hydrocarbons as Diesel, range C10-C24, by EPA 8015B

BTEX (benzene, toluene, ethylbenzene and total xylenes) by EPA 8260B

Oxygenates: Includes Methyl tert-Butyl Ether (MTBE), tert-Butyl Alcohol (TBA), Isopropyl Ether (DIPE), Ethyl tert-Butyl Ether (ETBE), Methyl tert-Amyl Ether (TAME), 1,2-Dichloroethane (1,2-DCA), and 1,2-Dibromoethane (1,2-DBA), by EPA 8260B

<: Not Detected at listed reporting limit

ND: Not Detected at analyte-specific reporting limit; refer to laboratory analytical reports

H: Heavier hydrocarbons contributed to the quantitation

L: Lighter hydrocarbons contributed to the quantitation

Y: Sample exhibits chromatographic pattern which does not resemble standard

RWQCB ESLs: San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Interim Final - February 2005.

<sup>1</sup>Table B for residential land use where groundwater is not a potential drinking water resource.

Detections are in bold, ESL exceedences are shaded.

## **FIGURES**





0 .125 .25 .375 .5  
 1 IN. = 1900 FT.  
 MILES

1333 BROADWAY, SUITE 800  
 Oakland, Ca 94612  
 Tel: (510) 893-3600  
 Fax: (510) 874-3268



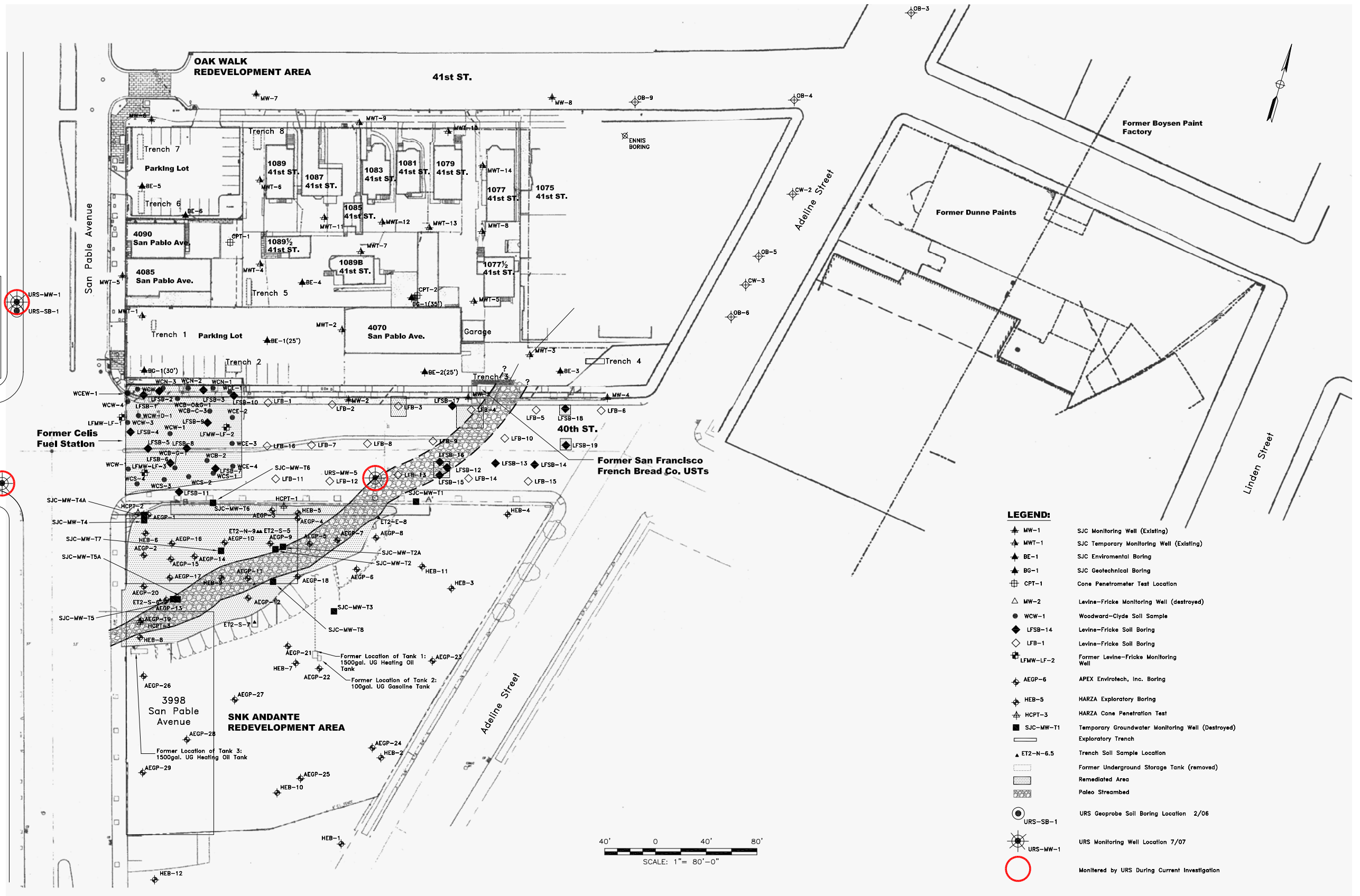
26814847  
 City of Emeryville Redevelopment Agency  
 1333 Park Avenue  
 Emeryville, CA 94608

SITE LOCATION MAP  
 Former Celis Alliance Fuel Station Site  
 4000 SAN PABLO AVENUE  
 EMERYVILLE, Ca

FIGURE  
 1



Dec 07, 2007 10:57am  
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Base Map From The San Joaquin Company, Inc. (Dec 2004)

REV	DESCRIPTION OF REVISION	BY	DATE

City of Emeryville Redevelopment Agency  
 1333 Park Avenue  
 Emeryville, CA 94608



1333 BROADWAY, SUITE 800  
 Oakland, CA 94612  
 Tel: (510) 893-3600  
 Fax: (510) 874-3268

DESIGNED	
DRAWN	MS
CHECKED	
PEER REVIEWED	
PROJECT MANAGER	
DATE	

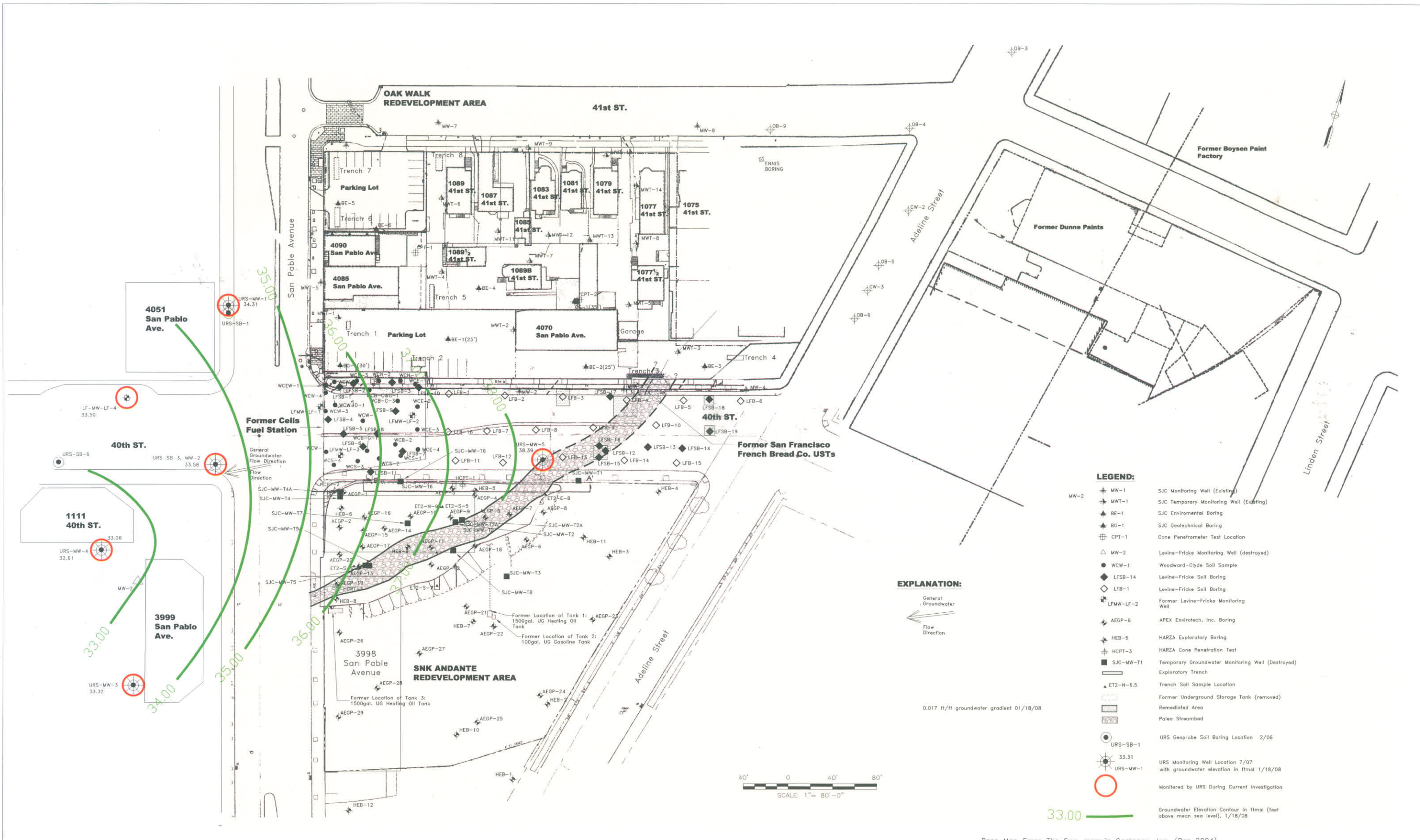
Monitoring Well Locations

VICINITY OF FORMER CELIS ALLIANCE  
 FUEL STATION SITE  
 4000 SAN PABLO AVE, EMERYVILLE, CA.

REVISION	1
PROJECT	26814847
FIGURE	2



Feb 19, 2008 - 2:37pm  
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Base Map From The San Joaquin Company, Inc. (Dec 2004)

REV	DESCRIPTION OF REVISION	BY	DATE

City of Emeryville Redevelopment Agency  
 1333 Park Avenue  
 Emeryville, CA 94608



1333 BROADWAY, SUITE 800  
 Oakland, CA 94612  
 Tel: (510) 893-3600  
 Fax: (510) 874-3268

DESIGNED	LN
DRAWN	AZJ
CHECKED	
PEER REVIEWED	
PROJECT MANAGER	
DATE	2-08-08

Groundwater Elevation Contour Map, January 18, 2008

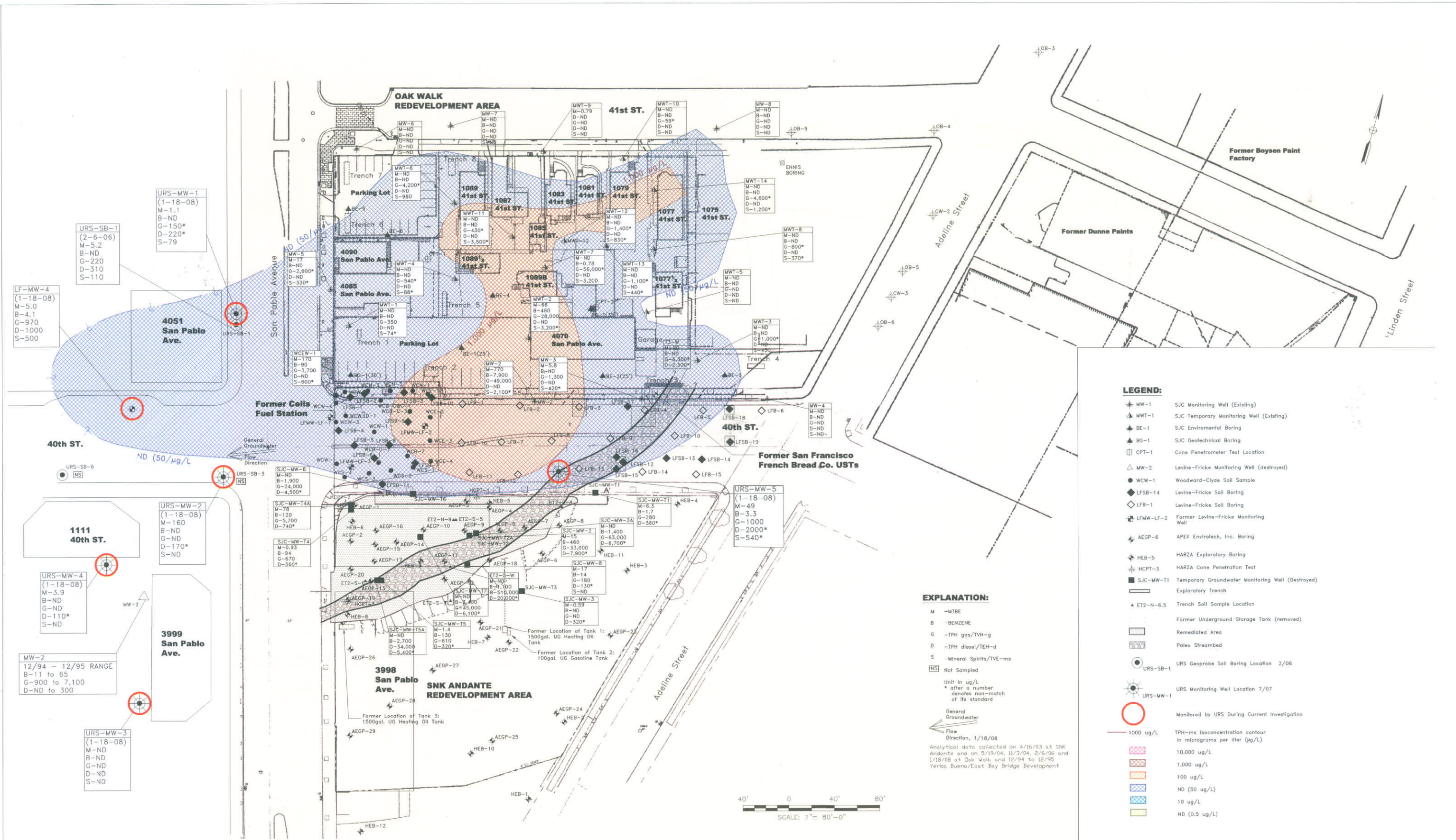
VICINITY OF FORMER CELIS ALLIANCE FUEL STATION SITE  
 4000 SAN PABLO AVE, EMERYVILLE, CA.

REVISION	
PROJECT	26814847
FIGURE	3









Base Map From The San Joaquin Company, Inc. (Dec 2004)

City of Emeryville Redevelopment Agency  
 1333 Park Avenue  
 Emeryville, Ca. 94608



1333 BROADWAY, SUITE 800  
 Oakland, CA 94612  
 Tel: (510) 893-3600  
 Fax: (510) 874-3268

DESIGNED	
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PEER REVIEWED	
PROJECT MANAGER	
DATE	

Distribution of Mineral Spirit Range Petroleum Hydrocarbons  
 in Shallow Groundwater  
 on January 18, 2008

VICINITY OF FORMER CELIS ALLIANCE  
 FUEL STATION SITE  
 4000 SAN PABLO AVE, EMERYVILLE, CA.

REVISION	1
PROJECT	26814847
FIGURE	5

REV	DESCRIPTION OF REVISION	BY	DATE

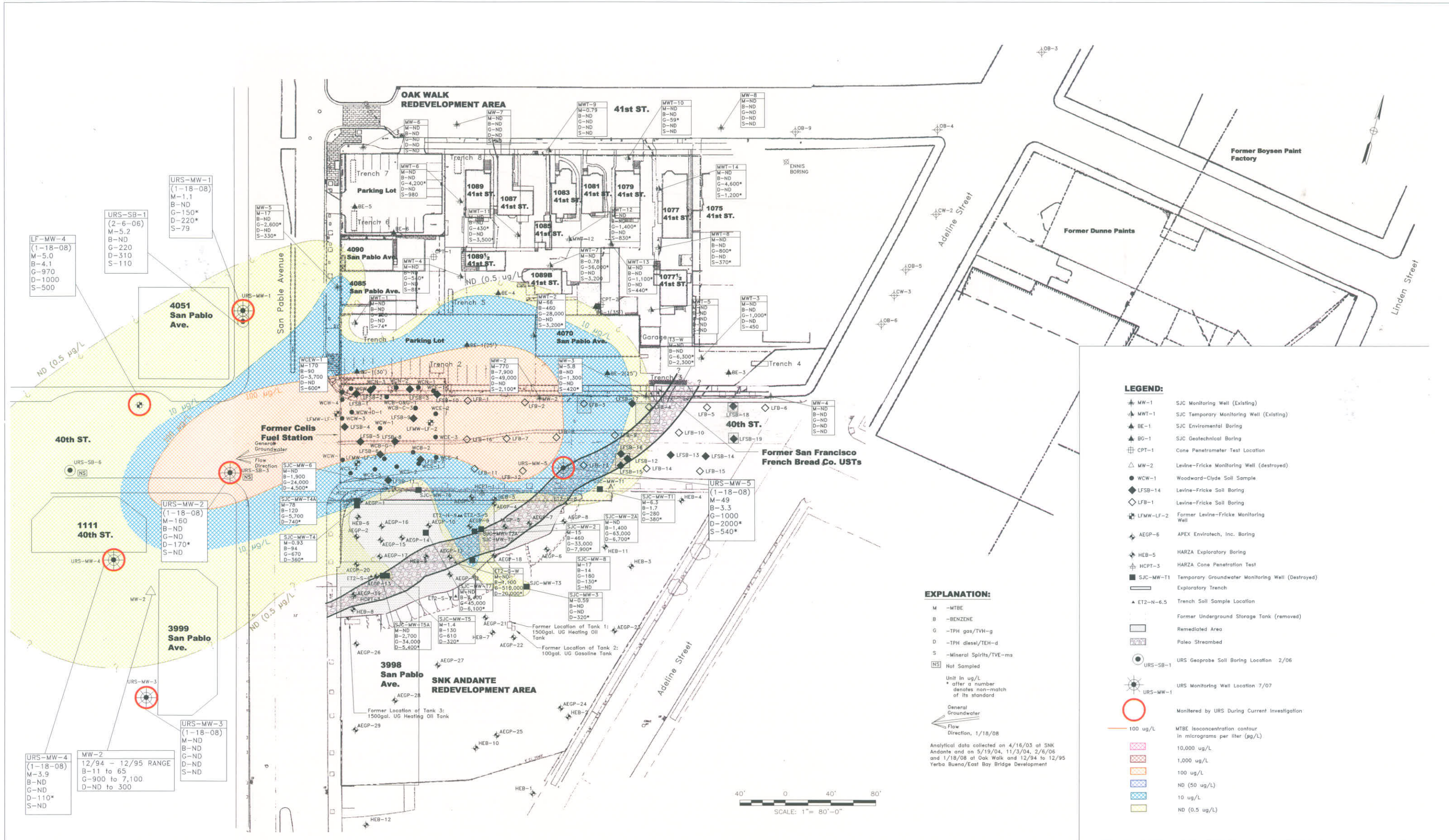












- LEGEND:**
- MW-1 SJC Monitoring Well (Existing)
  - MWT-1 SJC Temporary Monitoring Well (Existing)
  - BE-1 SJC Environmental Boring
  - BC-1 SJC Geotechnical Boring
  - CPT-1 Cone Penetrometer Test Location
  - MW-2 Levine-Fricke Monitoring Well (destroyed)
  - WCW-1 Woodward-Clyde Soil Sample
  - LFSB-14 Levine-Fricke Soil Boring
  - LFB-1 Levine-Fricke Soil Boring
  - LFMW-LF-2 Former Levine-Fricke Monitoring Well
  - AEGP-6 APEX Envirotech, Inc. Boring
  - HEB-5 HARZA Exploratory Boring
  - HCPT-3 HARZA Cone Penetration Test
  - SJC-MW-T1 Temporary Groundwater Monitoring Well (Destroyed)
  - Exploratory Trench
  - ET2-N-6.5 Trench Soil Sample Location
  - Former Underground Storage Tank (removed)
  - Remediated Area
  - Paleo Streambed
  - URS-SB-1 URS Geoprobe Soil Boring Location 2/06
  - URS-MW-1 URS Monitoring Well Location 7/07
  - Monitored by URS During Current Investigation
  - 100 ug/L MTBE Isoconcentration contour  
In micrograms per liter (ug/L)
  - 10,000 ug/L
  - 1,000 ug/L
  - 100 ug/L
  - ND (50 ug/L)
  - 10 ug/L
  - ND (0.5 ug/L)

- EXPLANATION:**
- M - MTBE
  - B - BENZENE
  - G - TPH gas/TVH-g
  - D - TPH diesel/TEH-d
  - S - Mineral Spirits/TVE-ms
  - NS - Not Sampled
  - URS-SB-1 URS Geoprobe Soil Boring Location 2/06
  - URS-MW-1 URS Monitoring Well Location 7/07
  - Monitored by URS During Current Investigation
  - 100 ug/L MTBE Isoconcentration contour  
In micrograms per liter (ug/L)
  - 10,000 ug/L
  - 1,000 ug/L
  - 100 ug/L
  - ND (50 ug/L)
  - 10 ug/L
  - ND (0.5 ug/L)
- Unit in ug/L  
\* after a number denotes non-match of its standard
- General Groundwater  
Flow Direction, 1/18/08
- Analytical data collected on 4/16/03 at SNK Andante and on 5/19/04, 11/3/04, 2/6/06 and 1/18/08 at Oak Walk and 12/94 to 12/95 Yerba Buena/East Bay Bridge Development



Base Map From The San Joaquin Company, Inc. (Dec 2004)

REV	DESCRIPTION OF REVISION	BY	DATE

City of Emeryville Redevelopment Agency  
1333 Park Avenue  
Emeryville, Ca. 94608



1333 BROADWAY, SUITE 800  
Oakland, CA 94612  
Tel: (510) 893-3600  
Fax: (510) 874-3268

DESIGNED	
DRAWN	MS
CHECKED	
PEER REVIEWED	
PROJECT MANAGER	
DATE	

Distribution of MTBE  
in Shallow Groundwater  
on January 18, 2008

VICINITY OF FORMER CELIS ALLIANCE  
FUEL STATION SITE  
4000 SAN PABLO AVE, EMERYVILLE, CA.

REVISION	1
PROJECT	26814847
FIGURE	8

**ATTACHMENT A**

**Groundwater Monitoring Field Logs**



# SPH or Purge Water Drum Log

Client: URS

Site Address: 4000 San Pablo Ave, Emeryville

## STATUS OF DRUM(S) UPON ARRIVAL

Date	7/5/07	7/10/07	10/31/07	01/18/08		
Number of drum(s) empty:				-		
Number of drum(s) 1/4 full:				-		
Number of drum(s) 1/2 full:			1	-		
Number of drum(s) 3/4 full:				1		
Number of drum(s) full:	7	9	1	-		
Total drum(s) on site:	7	9	2 Non BTS	4 (3) <del>total</del>		
Are the drum(s) properly labeled?	Y	X	Y	Y		
Drum ID & Contents:	Soil from install	purge soil	Purge H <sub>2</sub> O	Purge H <sub>2</sub> O		
If any drum(s) are partially or totally filled, what is the first use date:						

- If you add any SPH to an empty or partially filled drum, drum must have at least 20 gals. of Purgewater or DI Water.

-If drum contains SPH, the drum MUST be steel AND labeled with the appropriate label.

-All BTS drums MUST be labeled appropriately.

## STATUS OF DRUM(S) UPON DEPARTURE

Date	7/5/07	7/10/07	10/31/07	01/18/08		
Number of drums empty:				-		
Number of drum(s) 1/4 full:				-		
Number of drum(s) 1/2 full:			2	-		
Number of drum(s) 3/4 full:		1		1		
Number of drum(s) full:	9	9	1	-		
Total drum(s) on site:	9	10	3 (BTS)	4		
Are the drum(s) properly labeled?	Y	Y	Y	Y		
Drum ID & Contents:	Soil & water	Soil & water	Purge H <sub>2</sub> O	Purge H <sub>2</sub> O		

## LOCATION OF DRUM(S)

Describe location of drum(s): Corp yard - City of Emeryville

## FINAL STATUS

Number of new drum(s) left on site this event	2	1	1	0		
Date of inspection:	7/5/07	7/10/07	10/31/07	01/14/08		
Drum(s) labelled properly:	Y	Y	Y	Y		
Logged by BTS Field Tech:	PC	SV	JR	PC		
Office reviewed by:	N	AB	PC	PC		









## WELL MONITORING DATA SHEET

Project #: <b>08D118-M01</b>	Client: <b>URS - 900 San Pablo, Emeryville</b>
Sampler: <b>MD</b>	Date: <b>01/18/08</b>
Well I.D.: <b>URS-MW-1</b>	Well Diameter: <b>2</b> 3 4 6 8
Total Well Depth (TD): <b>19.52</b>	Depth to Water (DTW): <b>07.90</b>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <b>PVC</b> Grade	D.O. Meter (if req'd): <b>YSI</b> HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <b>10.22</b>	

Purge Method: <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Positive Air Displacement <input type="checkbox"/> Electric Submersible	Waterra <input type="checkbox"/> Peristaltic <input type="checkbox"/> Extraction Pump Other _____	Sampling Method: <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Extraction Port <input type="checkbox"/> Dedicated Tubing Other: _____
---	--	--

**1.9** (Gals.) X **3** = **5.7** Gals.  
 1 Case Volume      Specified Volumes      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
<del>2"</del>	<del>0.16</del>	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1007	15.8	7.39	679	71000	1.9	Cloudy
1012	16.7	7.34	658	71000	3.8	"
1015	16.4	7.39	642	71000	5.7	"

Did well dewater? Yes  No  Gallons actually evacuated: **5.7**

Sampling Date: **01/18/08** Sampling Time: **1031** Depth to Water: **8.31**

Sample I.D.: **URS-MW-1** Laboratory: Kiff CalScience Other **CAP**

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: **See COC**

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	<del>Post-purge:</del>	<b>0.10</b> mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

*1/2 tabs B...*

# WELL MONITORING DATA SHEET

Project #: <b>080118-MDI</b>	Client: <b>URS-4000 San Pablo, Emeryville Co</b>
Sampler: <b>MD</b>	Date: <b>01/18/08</b>
Well I.D.: <b>URS-MW-2</b>	Well Diameter: <b>(2)</b> 3 4 6 8
Total Well Depth (TD): <b>19.53</b>	Depth to Water (DTW): <b>07.25</b>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <b>PVC</b> Grade	D.O. Meter (if req'd): <b>YSI</b> HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <b>09.71</b>	

Purge Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Other: _____
--	--	---

$2.0 \text{ (Gals.)} \times 3 = 6.0 \text{ Gals.}$   
 1 Case Volume      Specified Volumes      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
<b>2"</b>	<b>0.16</b>	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0912	16.8	7.91	1258	7100	2.0	cloudy
0915	17.9	6.92	1200	7100	2.0	"
0918	17.8	6.80	1187	871	6.0	"

Did well dewater?    Yes     No    Gallons actually evacuated: **6.0**

Sampling Date: **01/18/08**    Sampling Time: **0931**    Depth to Water: **08.93**

Sample I.D.: **URS-MW-2**    Laboratory:    Kiff    CalScience    Other: **(C+T)**

Analyzed for:    TPH-G    BTEX    MTBE    TPH-D    Oxygenates (5)    Other: **See COC**

EB I.D. (if applicable):    @    Time    Duplicate I.D. (if applicable):

Analyzed for:    TPH-G    BTEX    MTBE    TPH-D    Oxygenates (5)    Other:

D.O. (if req'd):	Pre-purge:	mg/L	<b>(Post-purge)</b>	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV



## WELL MONITORING DATA SHEET

Project #: <b>080118-MD1</b>	Client: <b>URS-4000 San Pablo, Emeryville, Ca</b>
Sampler: <b>MD</b>	Date: <b>01/18/08</b>
Well I.D.: <b>URS-MW-4</b>	Well Diameter: <b>(2)</b> 3 4 6 8
Total Well Depth (TD): <b>19.70</b>	Depth to Water (DTW): <b>8.80</b>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <b>(PVC)</b> Grade	D.O. Meter (if req'd): <b>(YSI)</b> HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <b>10.98</b>	

Purge Method: Bailer <input checked="" type="radio"/> Disposable Bailer Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: Bailer <input checked="" type="radio"/> Disposable Bailer Extraction Port Dedicated Tubing Other: _____
---	--	--

$$1.7 \text{ (Gals.)} \times 3 = 5.1 \text{ Gals.}$$
 1 Case Volume                      Specified Volumes                      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
<del>2"</del>	<del>0.16</del>	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1229	18.5	7.33	571	7100	1.7	Cloudy
1230	18.6	6.90	566	7100	3.9	"
1238	18.5	6.99	557	7100	5.1	"

Did well dewater?    Yes     No                      Gallons actually evacuated: **5.1**

Sampling Date: **01/18/08**    Sampling Time: **1231**    Depth to Water: **9.17**

Sample I.D.: **URS-MW-4**                      Laboratory:    Kiff    CalScience    Other: **(CFE)**

Analyzed for:    TPH-G    BTEX    MTBE    TPH-D    Oxygenates (5)    Other: **See COC**

EB I.D. (if applicable):                      @                      Duplicate I.D. (if applicable):

Analyzed for:    TPH-G    BTEX    MTBE    TPH-D    Oxygenates (5)    Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	0.9	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV



## WELL MONITORING DATA SHEET

Project #: <b>080118-MD1</b>	Client: <b>URS - 4000 San Pablo, Emeryville Ca</b>
Sampler: <b>MD</b>	Date: <b>01/18/08</b>
Well I.D.: <b>URS-MW-5</b>	Well Diameter: <b>(2)</b> 3 4 6 8 _____
Total Well Depth (TD): <b>19.50</b>	Depth to Water (DTW): <b>06.54</b>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <b>(PVC)</b> Grade	D.O. Meter (if req'd): <b>(YSI)</b> HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <b>08.33</b>	

Purge Method:  Bailer  Disposable Bailer  Positive Air Displacement  Electric Submersible

Waterra  Peristaltic  Extraction Pump  Other \_\_\_\_\_

Sampling Method:  Bailer  Disposable Bailer  Extraction Port  Dedicated Tubing

Other: \_\_\_\_\_

<b>2.2</b> (Gals.) X	<b>3</b>	=	<b>6.6</b> Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
937	14.0	7.02	1482	7(00)	2.2	Cloudy
0740	15.5	6.83	1492	7(00)	4.4	"
0943	15.9	6.70	1488	7(000)	6.6	"

Did well dewater? Yes  No  Gallons actually evacuated: **6.6**

Sampling Date: **01/18/08** Sampling Time: **0955** Depth to Water: **07.12**

Sample I.D.: **URS-MW-5** Laboratory: Kiff CalScience Other **(C+T)**

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: **Exp Coc**

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	<b>1.3</b> mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

## WELL MONITORING DATA SHEET

Project #: <b>080118-MD1</b>	Client: <b>UNIS 400 San Pablo, Emergency with Co</b>
Sampler: <b>MD</b>	Date: <b>01/18/08</b>
Well I.D.: <b>LF-MW-4</b>	Well Diameter: <b>2</b> 3 4 6 8 _____
Total Well Depth (TD): <b>17.80</b>	Depth to Water (DTW): <b>07.26</b>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <b>PVC</b> Grade	D.O. Meter (if req'd): <b>YSI</b> HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <b>09.37</b>	

Purge Method: <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Positive Air Displacement <input type="checkbox"/> Electric Submersible	Waterra <input type="checkbox"/> Peristaltic <input type="checkbox"/> Extraction Pump Other: _____	Sampling Method: <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Extraction Port <input type="checkbox"/> Dedicated Tubing Other: _____
---	---	--

1.7 (Gals.) X	<del>5.1</del> <b>3</b>	5.1 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
<b>2"</b>	<b>0.16</b>	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1040	16.0	7.00	690	421	1.7	Cloudy
1044	16.7	6.77	674	414	3.4	
1047	16.9	6.78	672	339	5.1	

Did well dewater? Yes  No  Gallons actually evacuated: **5.1**

Sampling Date: **01/18/08** Sampling Time: **1101** Depth to Water: **0831**

Sample I.D.: **LF-MW-4** Laboratory: Kiff CalScience Other: **CAP**

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: **See Coe**

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

**ATTACHMENT B**

**Laboratory Analytical Reports  
and  
Chain of Custody Document**





Total Volatile Hydrocarbons			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	26814847.06000	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	01/18/08
Units:	ug/L	Received:	01/18/08
Diln Fac:	1.000	Analyzed:	01/21/08
Batch#:	133959		

Field ID: URS-MW-5  
Type: SAMPLE

Lab ID: 200620-005

Analyte	Result	RL
Gasoline C7-C12	1,000	50
Mineral Spirits C7-C12	540 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	73-134
Bromofluorobenzene (FID)	107	77-140

Field ID: LF-MW-4  
Type: SAMPLE

Lab ID: 200620-006

Analyte	Result	RL
Gasoline C7-C12	970	50
Mineral Spirits C7-C12	500	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	141 *	73-134
Bromofluorobenzene (FID)	151 *	77-140

Type: BLANK

Lab ID: QC424861

Analyte	Result	RL
Gasoline C7-C12	ND	50
Mineral Spirits C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	110	73-134
Bromofluorobenzene (FID)	100	77-140

\*= Value outside of QC limits; see narrative

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

## Batch QC Report

Total Volatile Hydrocarbons			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	26814847.06000	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC424862	Batch#:	133959
Matrix:	Water	Analyzed:	01/21/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	896.9	90	79-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	119	73-134
Bromofluorobenzene (FID)	113	77-140

## Batch QC Report

Total Volatile Hydrocarbons			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	26814847.06000	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	133959
MSS Lab ID:	200624-001	Sampled:	01/17/08
Matrix:	Water	Received:	01/18/08
Units:	ug/L	Analyzed:	01/22/08
Diln Fac:	1.000		

Type: MS Lab ID: QC424866

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	26.57	2,000	1,855	91	72-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	129	73-134
Bromofluorobenzene (FID)	127	77-140

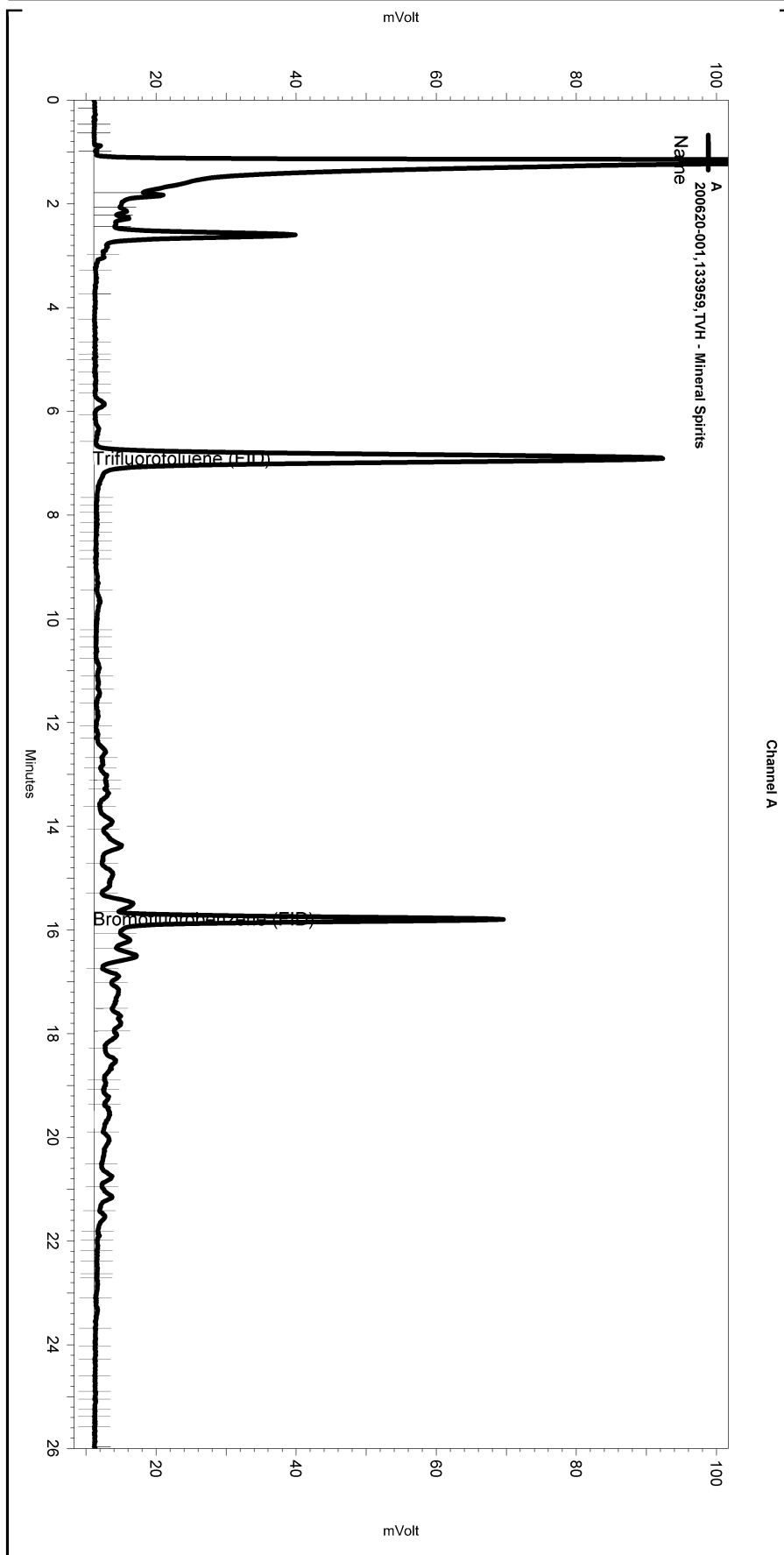
Type: MSD Lab ID: QC424867

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,970	97	72-120	6	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	127	73-134
Bromofluorobenzene (FID)	124	77-140

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC19\Sequence\021.seq  
 Sample Name: 200620-001,133959,TVH - Mineral Spirits  
 Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\021\_012  
 Instrument: GC19 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)  
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC19\Method\lvhbtxe015.met

Software Version 3.1.7  
 Run Date: 1/21/2008 8:06:24 PM  
 Analysis Date: 1/22/2008 7:51:38 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: b1.3



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

Manual Integration Fixes

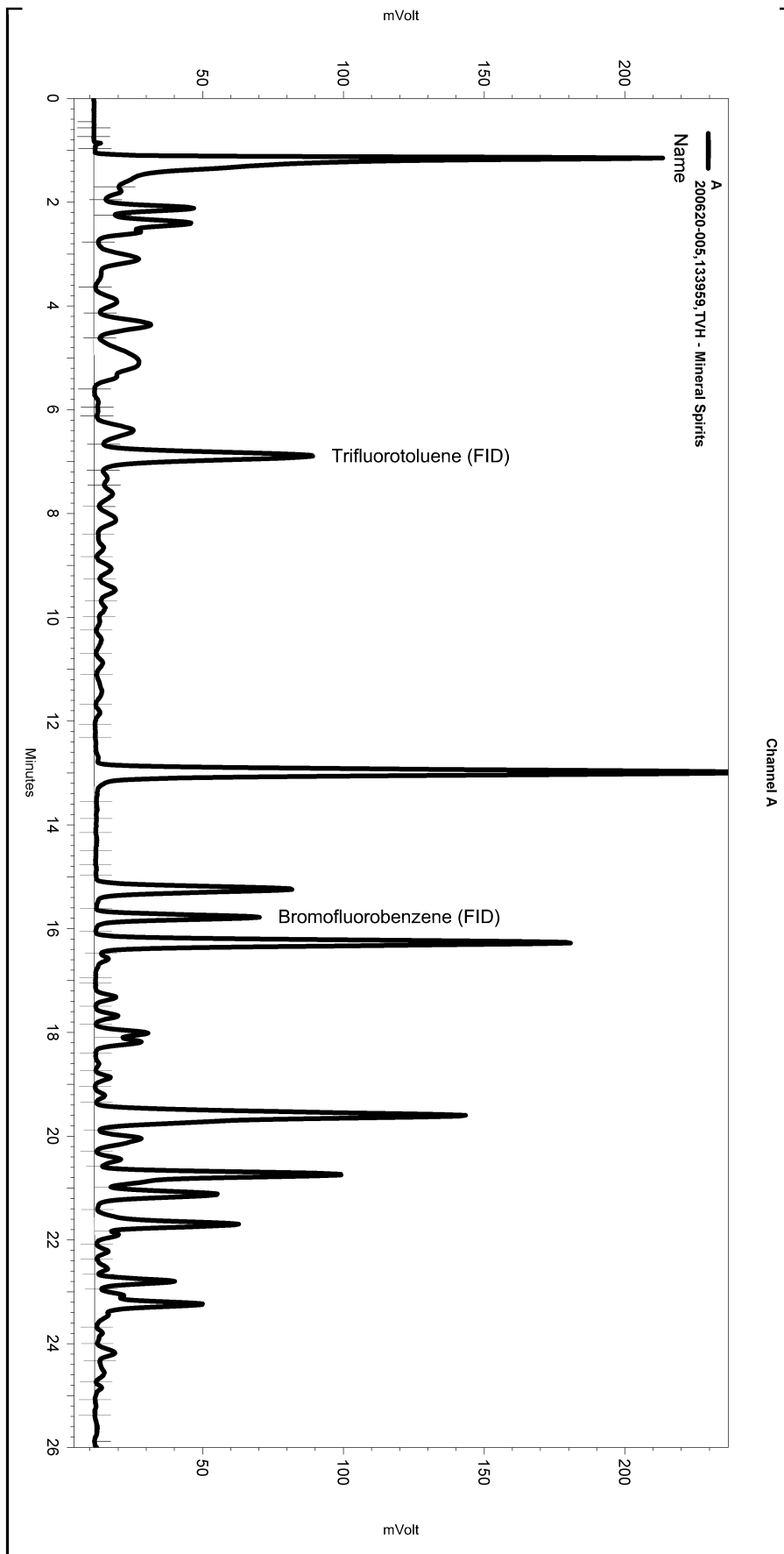
Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\021\_012

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				



Sequence File: \\Lims\gdrive\ezchrom\Projects\GC19\Sequence\021.seq  
 Sample Name: 200620-005,133959,TVH - Mineral Spirits  
 Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\021\_016  
 Instrument: GC19 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)  
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC19\Method\lvhbtxe015.met

Software Version 3.1.7  
 Run Date: 1/21/2008 10:36:37 PM  
 Analysis Date: 1/22/2008 7:51:54 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: c1.3



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

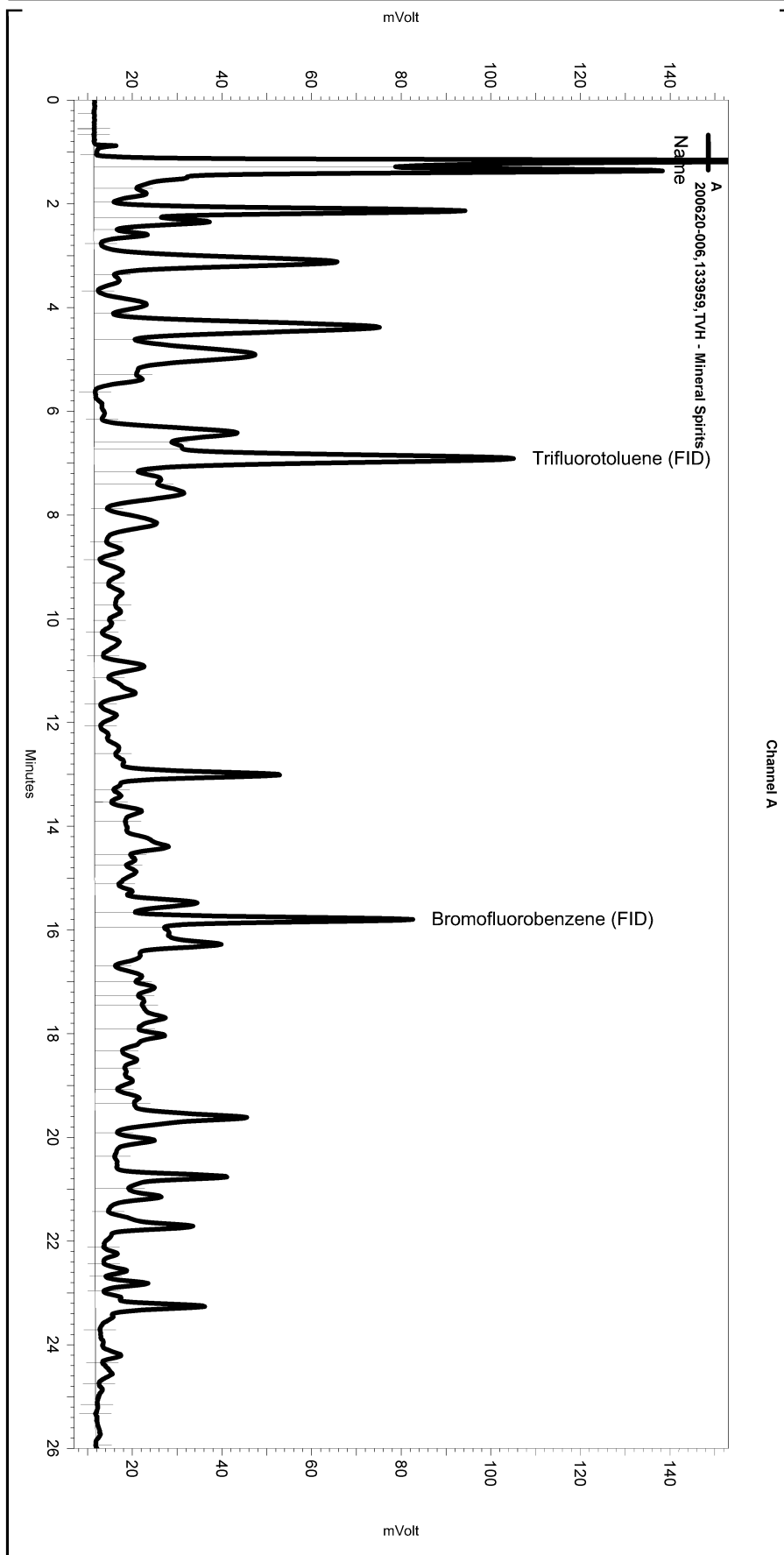
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\021\_016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC19\Sequence\021.seq  
 Sample Name: 200620-006,133959,TVH - Mineral Spirits  
 Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\021\_017  
 Instrument: GC19 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)  
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC19\Method\tvhbtxe015.met

Software Version 3.1.7  
 Run Date: 1/21/2008 11:14:06 PM  
 Analysis Date: 1/22/2008 8:29:21 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: b1.3



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

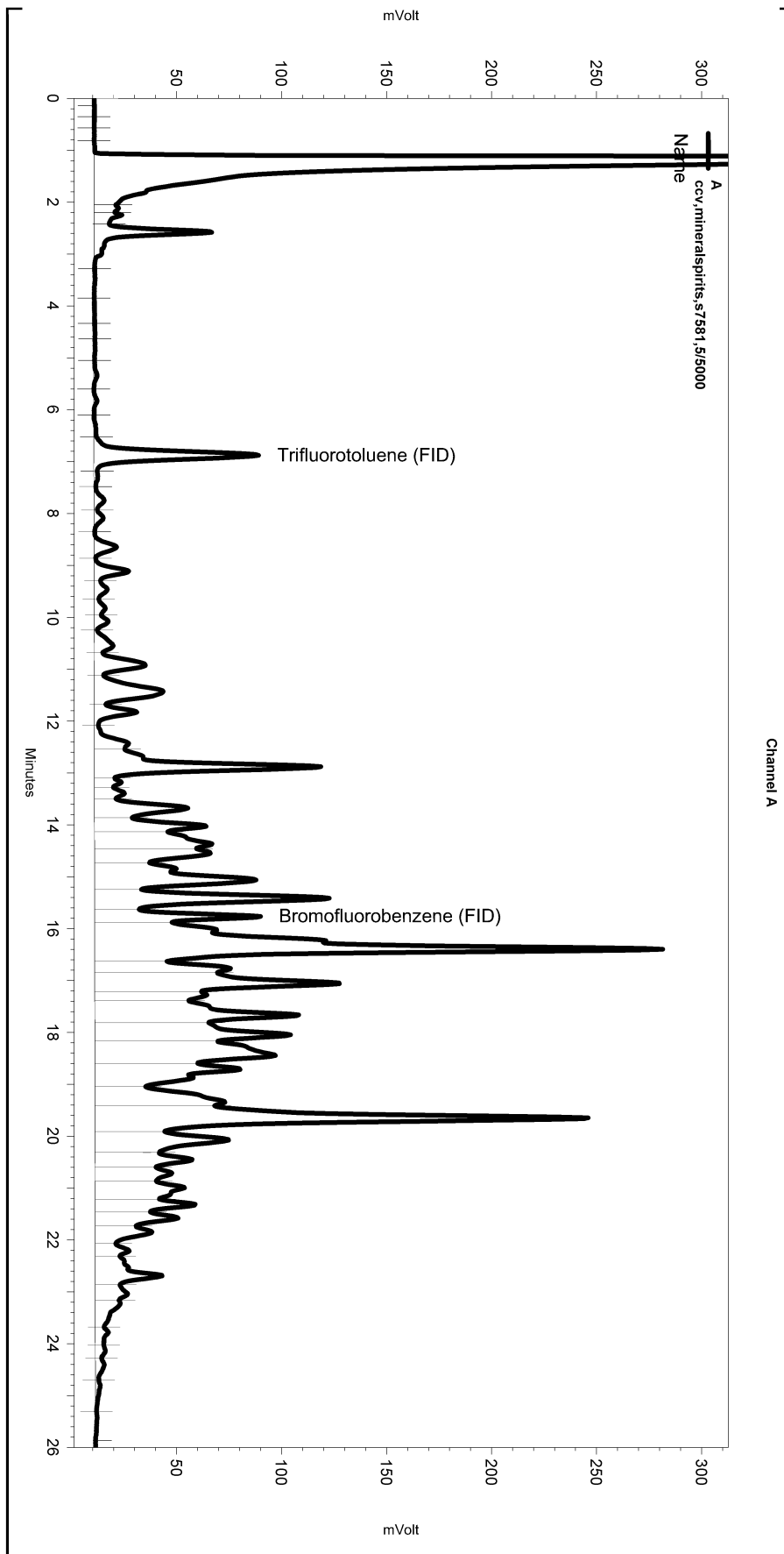
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\021\_017

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	6.725	0	0

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC19\Sequence\021.seq  
 Sample Name: ccv,mineralspirits,s7581,5/5000  
 Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\021\_009  
 Instrument: GC19 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)  
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC19\Method\tvhbtxe015.met

Software Version 3.1.7  
 Run Date: 1/21/2008 4:57:46 PM  
 Analysis Date: 1/22/2008 8:26:18 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: {Data Description}



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

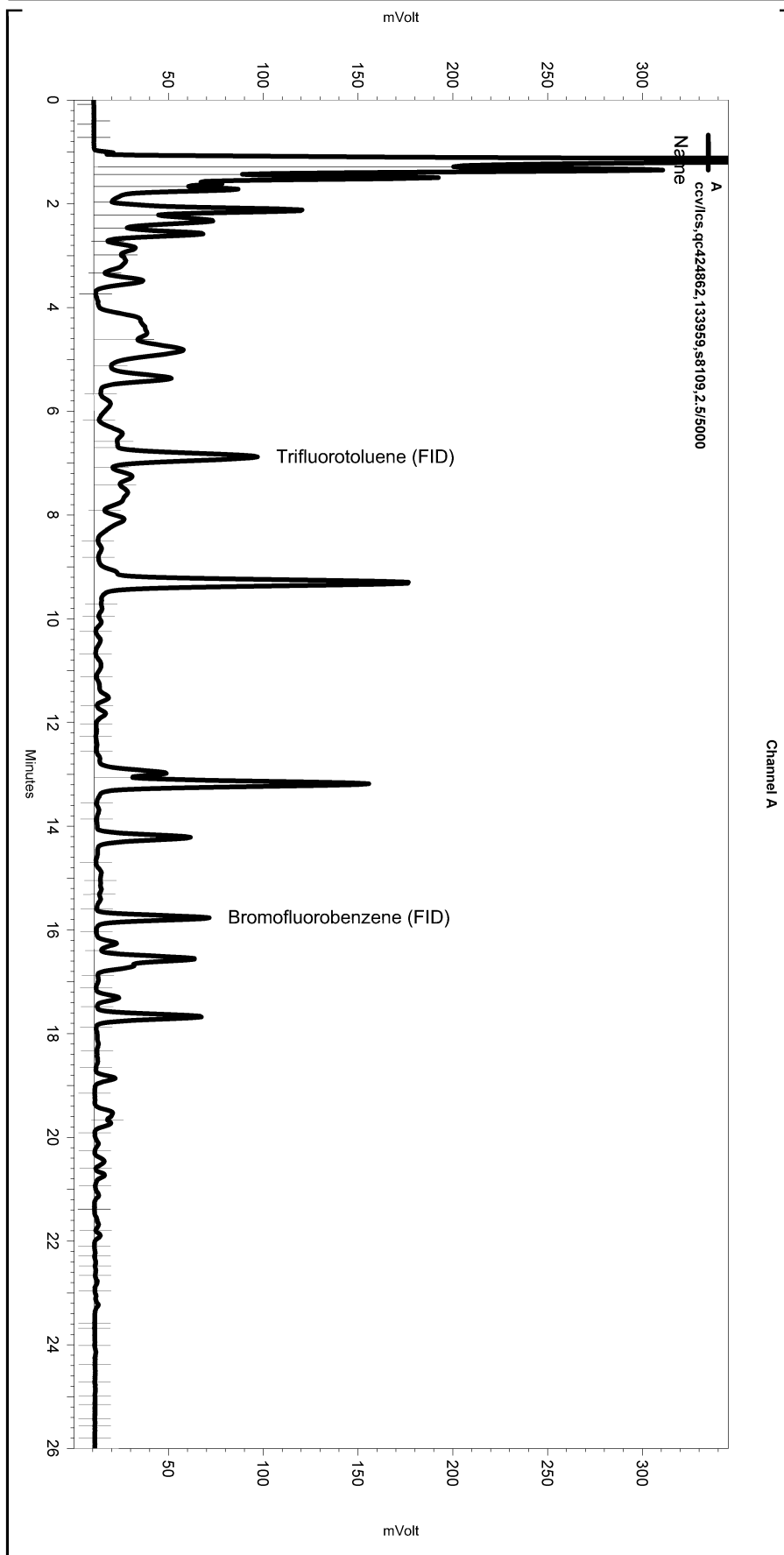
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\021\_009

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	6.514	0	0

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC19\Sequence\021.seq  
 Sample Name: ccv/lcs,qc424862,133959,s8109,2.5/5000  
 Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\021\_005  
 Instrument: GC19 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)  
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC19\Method\lvhbtxe015.met

Software Version 3.1.7  
 Run Date: 1/21/2008 12:47:36 PM  
 Analysis Date: 1/22/2008 8:22:21 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: {Data Description}



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\021\_005

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	6.693	0	0







## Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 3520C
Project#:	26814847.06000	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC424713	Batch#:	133922
Matrix:	Water	Prepared:	01/19/08
Units:	ug/L	Analyzed:	01/21/08

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,730	109	58-128

Surrogate	%REC	Limits
Hexacosane	132	61-133

## Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 3520C
Project#:	26814847.06000	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	133922
MSS Lab ID:	200626-005	Sampled:	01/17/08
Matrix:	Water	Received:	01/18/08
Units:	ug/L	Prepared:	01/19/08
Diln Fac:	1.000	Analyzed:	01/22/08

Type: MS Lab ID: QC424714

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	14,650	2,500	12,920	-69 NM	58-129

Surrogate	%REC	Limits
Hexacosane	103	61-133

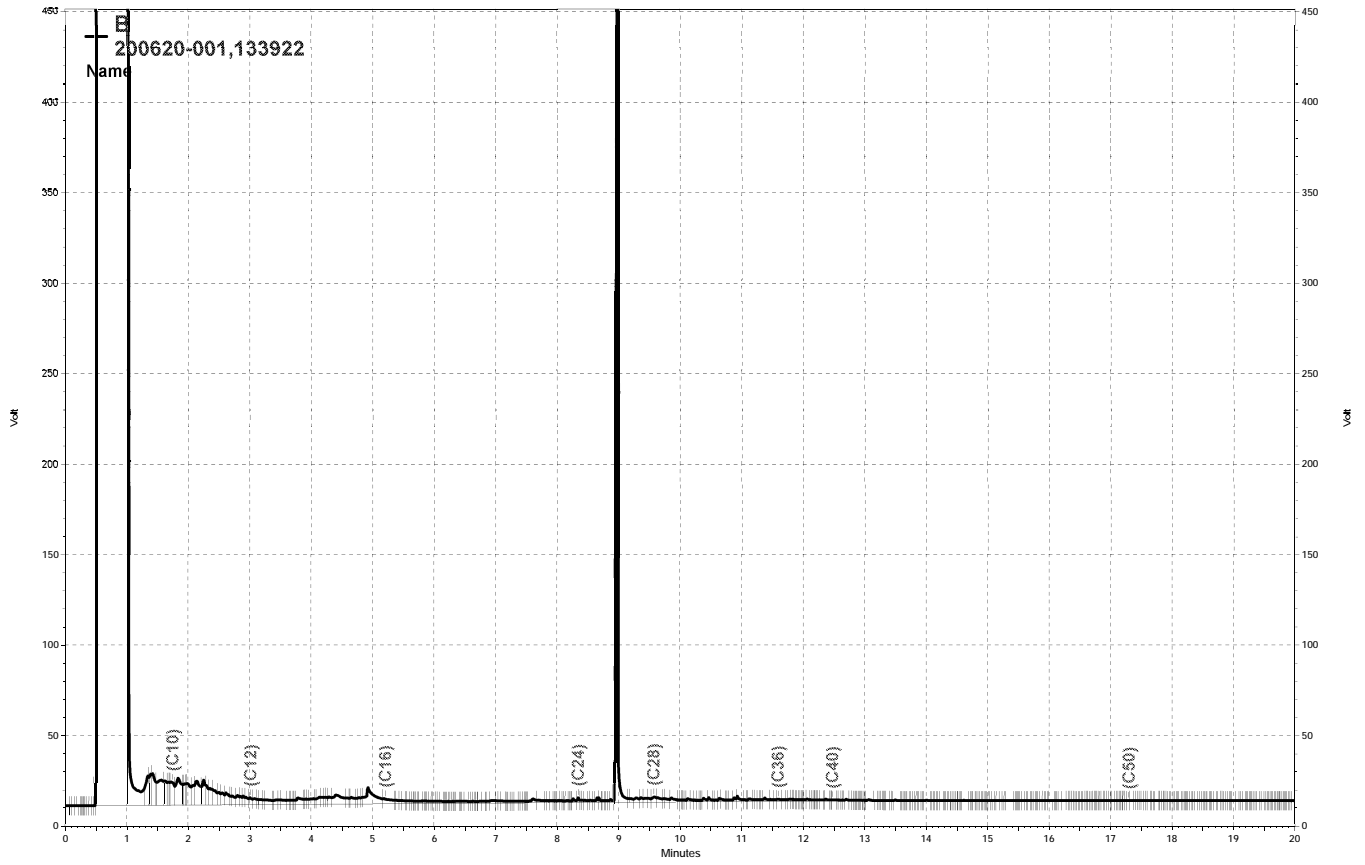
Type: MSD Lab ID: QC424715

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	10,570	-163 NM	58-129	20	27

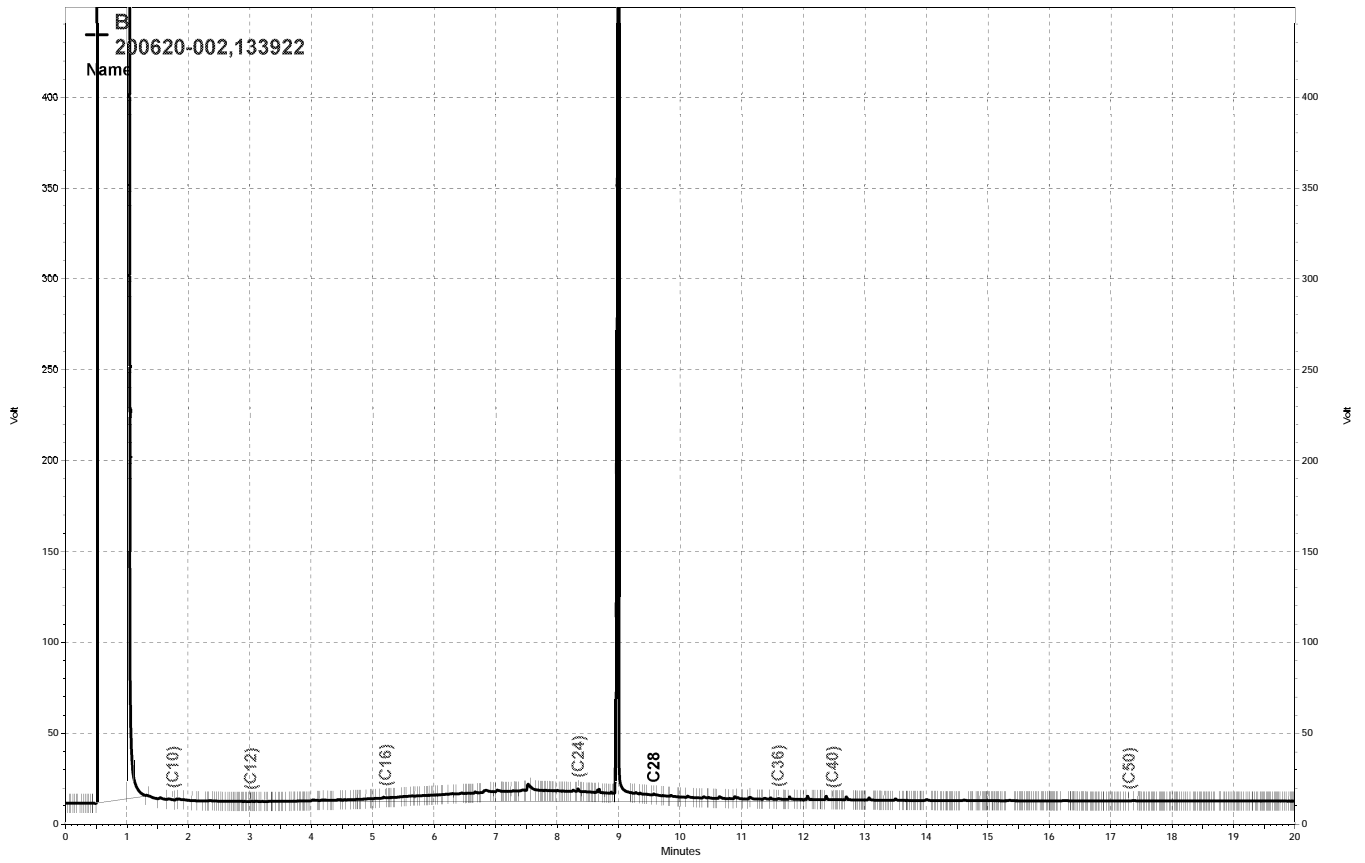
Surrogate	%REC	Limits
Hexacosane	105	61-133

 NM= Not Meaningful: Sample concentration > 4X spike concentration  
 RPD= Relative Percent Difference

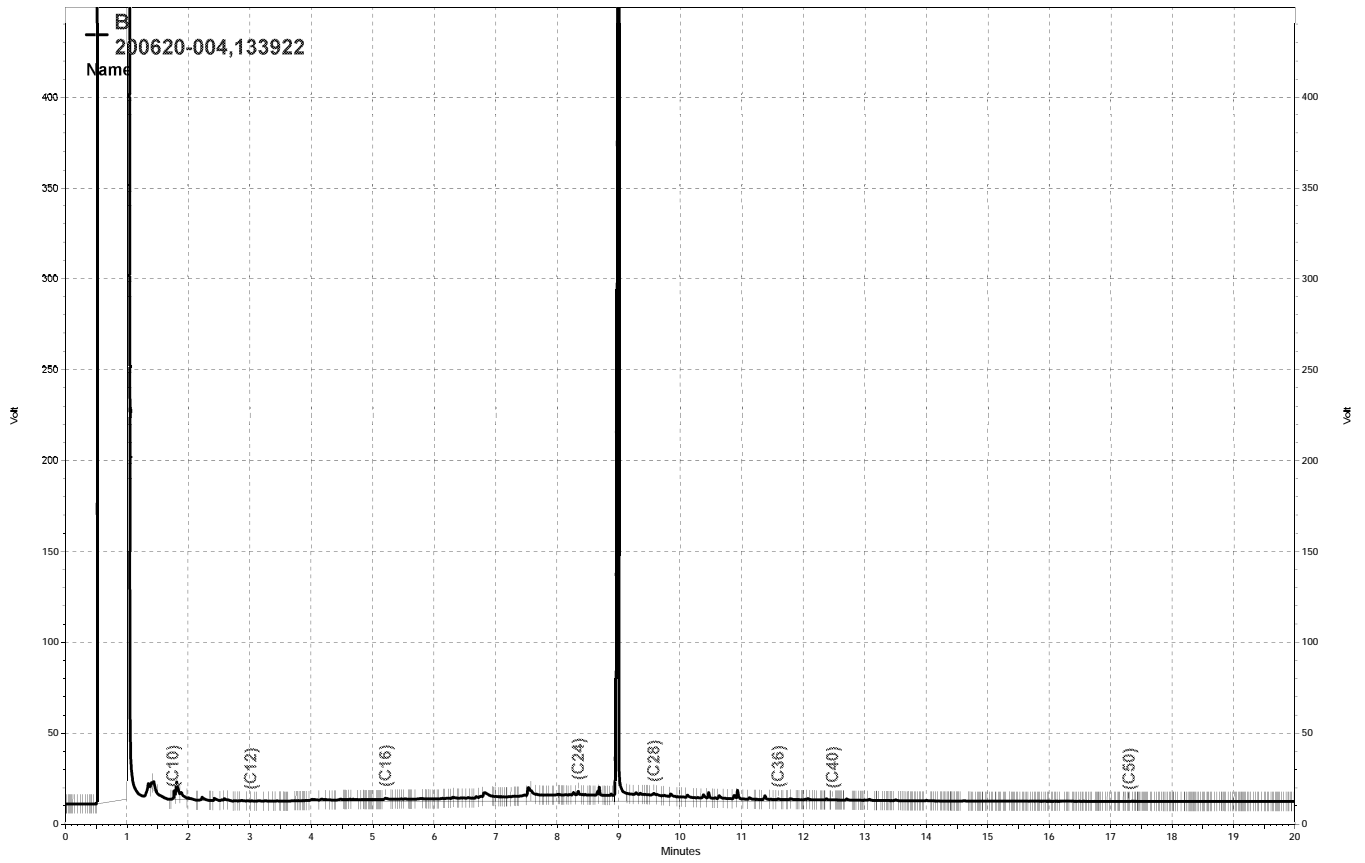




— \\Lims\gdrive\ezchrom\Projects\GC15B\Data\022b007, B

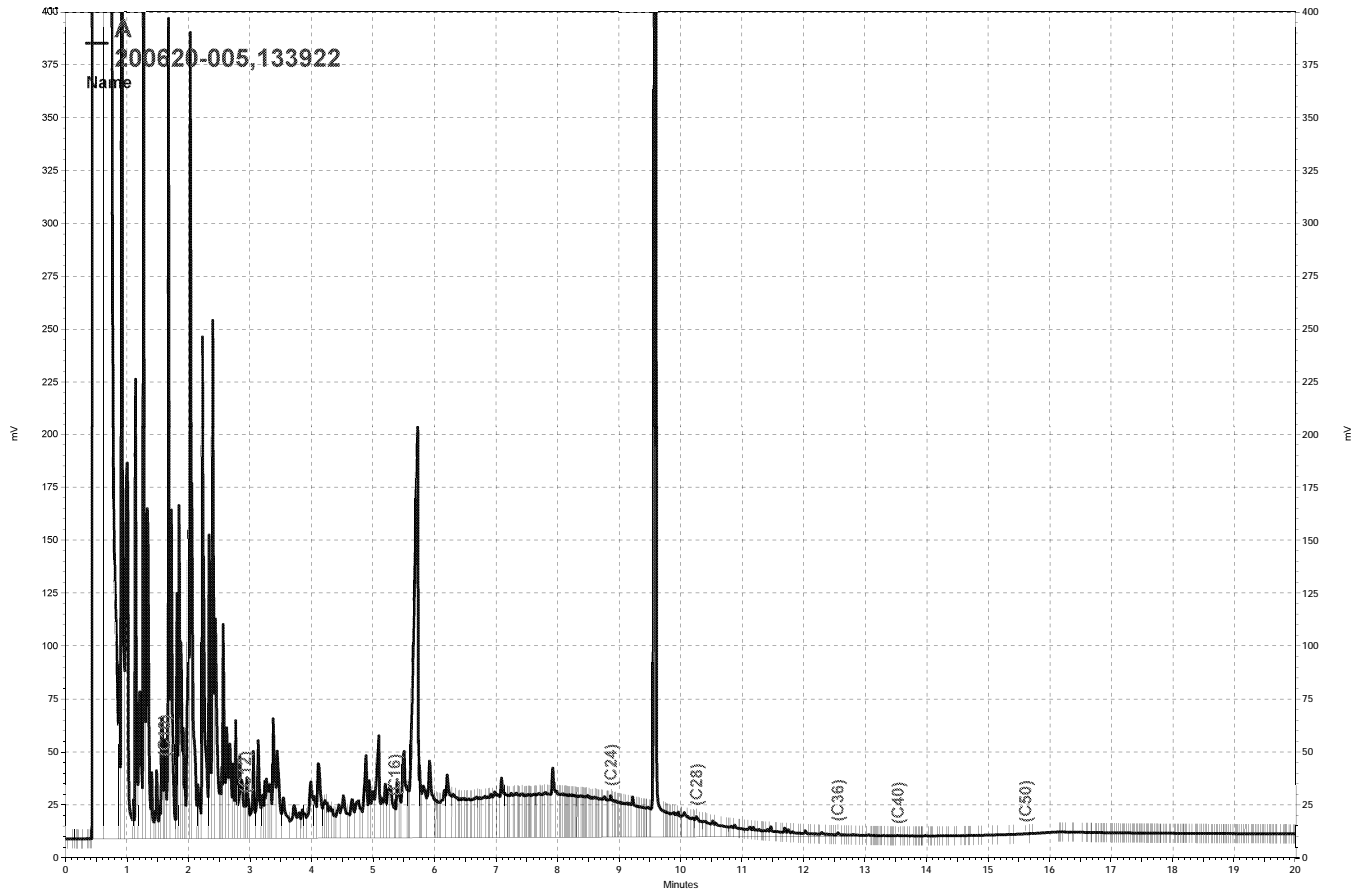


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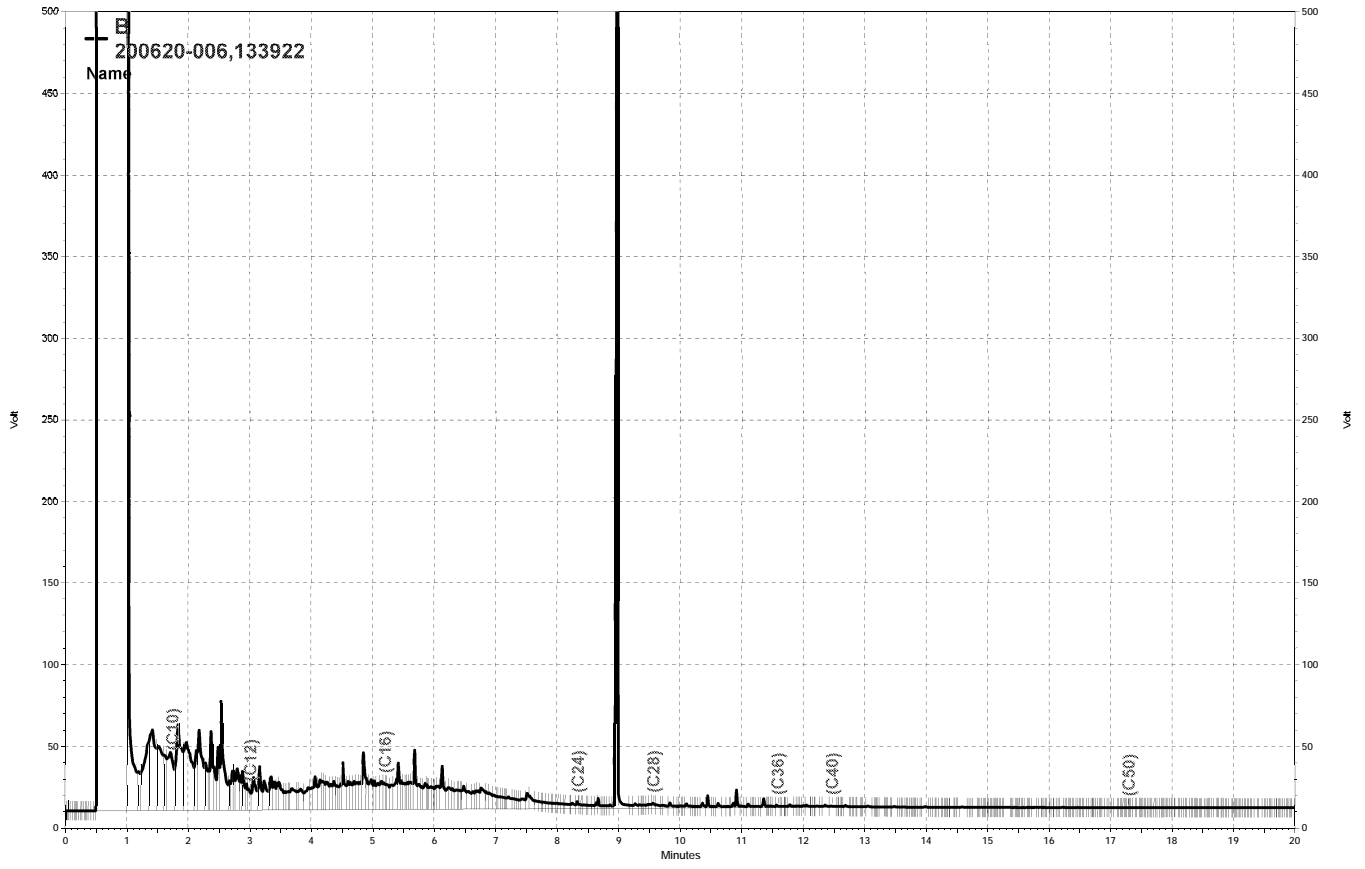


\\Lims\gdrive\ezchrom\Projects\GC15B\Data\022b010, B

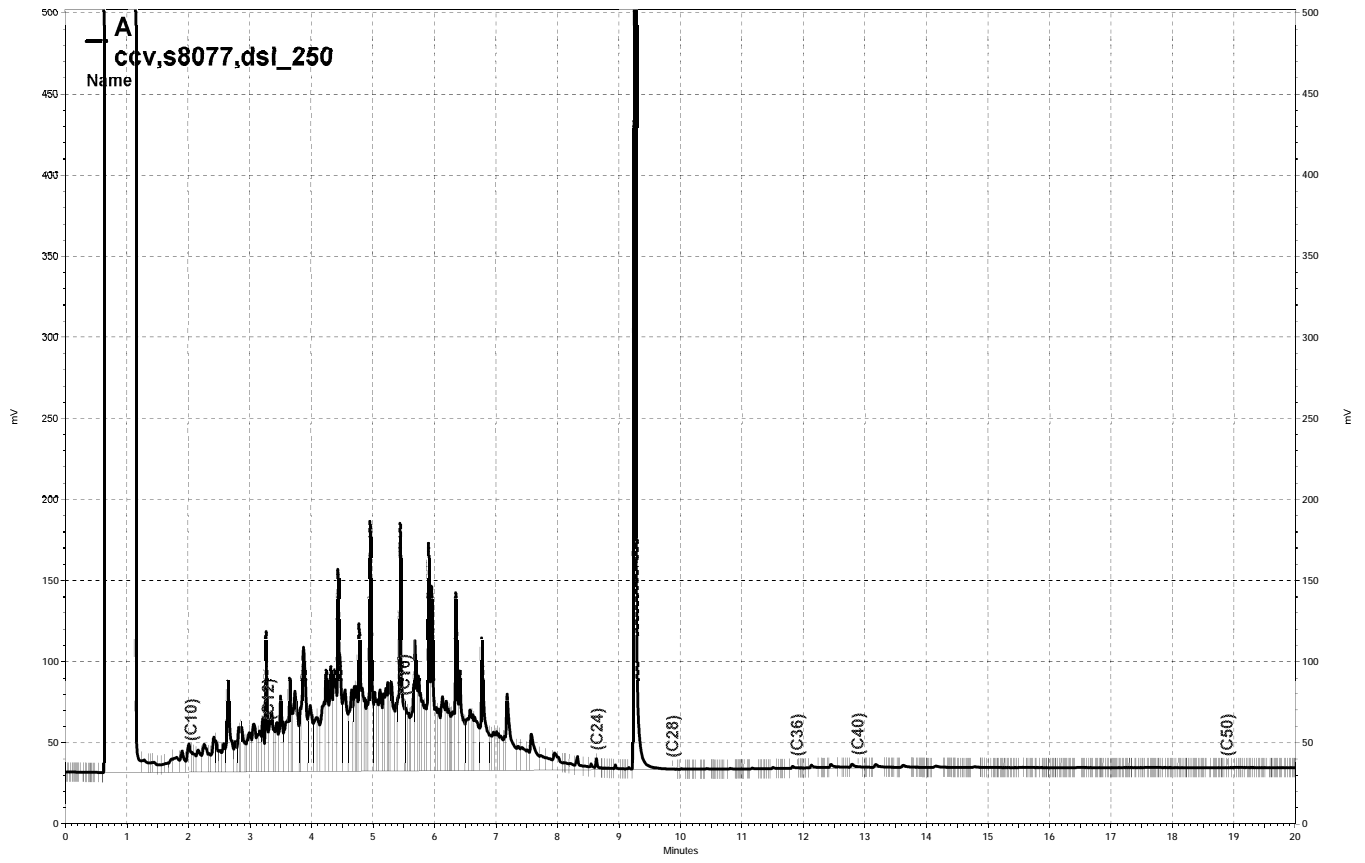




\\Lims\gdrive\ezchrom\Projects\GC26\Data\022a038, A



— \\Lims\gdrive\ezchrom\Projects\GC15B\Data\022b016, B



\\Lims\gdrive\ezchrom\Projects\GC11A\Data\022a004, A

<b>BTXE &amp; Oxygenates</b>			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	26814847.06000	Analysis:	EPA 8260B
Field ID:	URS-MW-1	Batch#:	133931
Lab ID:	200620-001	Sampled:	01/18/08
Matrix:	Water	Received:	01/18/08
Units:	ug/L	Analyzed:	01/20/08
Diln Fac:	1.000		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
tert-Butyl Alcohol (TBA)	ND	10
MTBE	1.1	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
Toluene	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	106	80-122
1,2-Dichloroethane-d4	108	74-137
Toluene-d8	100	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected  
 RL= Reporting Limit



<b>BTXE &amp; Oxygenates</b>			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	26814847.06000	Analysis:	EPA 8260B
Field ID:	URS-MW-2	Batch#:	133931
Lab ID:	200620-002	Sampled:	01/18/08
Matrix:	Water	Received:	01/18/08
Units:	ug/L	Analyzed:	01/21/08
Diln Fac:	2.500		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
tert-Butyl Alcohol (TBA)	ND	25
MTBE	160	1.3
Isopropyl Ether (DIPE)	ND	1.3
Ethyl tert-Butyl Ether (ETBE)	ND	1.3
1,2-Dichloroethane	ND	1.3
Benzene	ND	1.3
Methyl tert-Amyl Ether (TAME)	ND	1.3
Toluene	ND	1.3
1,2-Dibromoethane	ND	1.3
Ethylbenzene	ND	1.3
m,p-Xylenes	ND	1.3
o-Xylene	ND	1.3

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	104	80-122
1,2-Dichloroethane-d4	109	74-137
Toluene-d8	99	80-120
Bromofluorobenzene	98	80-120

ND= Not Detected  
 RL= Reporting Limit

<b>BTXE &amp; Oxygenates</b>			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	26814847.06000	Analysis:	EPA 8260B
Field ID:	URS-MW-3	Batch#:	133931
Lab ID:	200620-003	Sampled:	01/18/08
Matrix:	Water	Received:	01/18/08
Units:	ug/L	Analyzed:	01/20/08
Diln Fac:	1.000		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
tert-Butyl Alcohol (TBA)	ND	10
MTBE	ND	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
Toluene	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	104	80-122
1,2-Dichloroethane-d4	108	74-137
Toluene-d8	101	80-120
Bromofluorobenzene	99	80-120

ND= Not Detected  
 RL= Reporting Limit

<b>BTXE &amp; Oxygenates</b>			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	26814847.06000	Analysis:	EPA 8260B
Field ID:	URS-MW-4	Batch#:	133931
Lab ID:	200620-004	Sampled:	01/18/08
Matrix:	Water	Received:	01/18/08
Units:	ug/L	Analyzed:	01/20/08
Diln Fac:	1.000		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
tert-Butyl Alcohol (TBA)	ND	10
MTBE	3.9	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
Toluene	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	105	80-122
1,2-Dichloroethane-d4	110	74-137
Toluene-d8	97	80-120
Bromofluorobenzene	97	80-120

ND= Not Detected  
 RL= Reporting Limit

<b>BTXE &amp; Oxygenates</b>			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	26814847.06000	Analysis:	EPA 8260B
Field ID:	URS-MW-5	Batch#:	133931
Lab ID:	200620-005	Sampled:	01/18/08
Matrix:	Water	Received:	01/18/08
Units:	ug/L	Analyzed:	01/21/08
Diln Fac:	2.000		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
tert-Butyl Alcohol (TBA)	ND	20
MTBE	49	1.0
Isopropyl Ether (DIPE)	ND	1.0
Ethyl tert-Butyl Ether (ETBE)	ND	1.0
1,2-Dichloroethane	ND	1.0
Benzene	3.3	1.0
Methyl tert-Amyl Ether (TAME)	ND	1.0
Toluene	ND	1.0
1,2-Dibromoethane	ND	1.0
Ethylbenzene	110	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	106	80-122
1,2-Dichloroethane-d4	112	74-137
Toluene-d8	101	80-120
Bromofluorobenzene	97	80-120

ND= Not Detected  
 RL= Reporting Limit



<b>BTXE &amp; Oxygenates</b>			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	26814847.06000	Analysis:	EPA 8260B
Field ID:	LF-MW-4	Batch#:	133931
Lab ID:	200620-006	Sampled:	01/18/08
Matrix:	Water	Received:	01/18/08
Units:	ug/L	Analyzed:	01/20/08
Diln Fac:	1.000		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
tert-Butyl Alcohol (TBA)	ND	10
MTBE	5.0	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	4.1	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
Toluene	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethylbenzene	17	0.5
m,p-Xylenes	0.8	0.5
o-Xylene	ND	0.5

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	104	80-122
1,2-Dichloroethane-d4	111	74-137
Toluene-d8	100	80-120
Bromofluorobenzene	100	80-120

ND= Not Detected  
 RL= Reporting Limit

**Batch QC Report**

<b>BTXE &amp; Oxygenates</b>			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	26814847.06000	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC424741	Batch#:	133931
Matrix:	Water	Analyzed:	01/20/08
Units:	ug/L		

<b>Analyte</b>	<b>Result</b>	<b>RL</b>
tert-Butyl Alcohol (TBA)	ND	10
MTBE	ND	0.5
Isopropyl Ether (DIPE)	ND	0.5
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Methyl tert-Amyl Ether (TAME)	ND	0.5
Toluene	ND	0.5
1,2-Dibromoethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

<b>Surrogate</b>	<b>%REC</b>	<b>Limits</b>
Dibromofluoromethane	103	80-122
1,2-Dichloroethane-d4	106	74-137
Toluene-d8	99	80-120
Bromofluorobenzene	97	80-120

ND= Not Detected

RL= Reporting Limit

**Batch QC Report**

<b>BTXE &amp; Oxygenates</b>			
Lab #:	200620	Location:	Celis-Emeryville
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	26814847.06000	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	133931
Units:	ug/L	Analyzed:	01/20/08
Diln Fac:	1.000		

Type: BS Lab ID: QC424742

Analyte	Spiked	Result	%REC	Limits
tert-Butyl Alcohol (TBA)	93.75	90.29	96	59-149
MTBE	18.75	16.98	91	60-130
Isopropyl Ether (DIPE)	18.75	17.25	92	59-120
Ethyl tert-Butyl Ether (ETBE)	18.75	17.08	91	65-134
1,2-Dichloroethane	18.75	17.45	93	76-121
Benzene	18.75	16.92	90	80-120
Methyl tert-Amyl Ether (TAME)	18.75	17.52	93	67-132
Toluene	18.75	17.01	91	80-122
1,2-Dibromoethane	18.75	16.39	87	80-120
Ethylbenzene	18.75	17.06	91	80-127
m,p-Xylenes	37.50	34.31	91	80-130
o-Xylene	18.75	16.91	90	80-126

Surrogate	%REC	Limits
Dibromofluoromethane	106	80-122
1,2-Dichloroethane-d4	105	74-137
Toluene-d8	102	80-120
Bromofluorobenzene	95	80-120

Type: BSD Lab ID: QC424743

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	93.75	95.24	102	59-149	5	20
MTBE	18.75	17.34	92	60-130	2	20
Isopropyl Ether (DIPE)	18.75	16.62	89	59-120	4	20
Ethyl tert-Butyl Ether (ETBE)	18.75	16.87	90	65-134	1	20
1,2-Dichloroethane	18.75	17.65	94	76-121	1	20
Benzene	18.75	16.93	90	80-120	0	20
Methyl tert-Amyl Ether (TAME)	18.75	17.59	94	67-132	0	20
Toluene	18.75	16.75	89	80-122	2	20
1,2-Dibromoethane	18.75	16.97	90	80-120	3	20
Ethylbenzene	18.75	17.45	93	80-127	2	20
m,p-Xylenes	37.50	34.16	91	80-130	0	20
o-Xylene	18.75	16.80	90	80-126	1	20

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-122
1,2-Dichloroethane-d4	109	74-137
Toluene-d8	101	80-120
Bromofluorobenzene	97	80-120

RPD= Relative Percent Difference

# BLAINE

TECH SERVICES, INC.

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

LAB 200620 Curtis & Tompkins | DHS #  
ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION  
LIMITS SET BY CALIFORNIA DHS AND  
 EPA  RWQCB REGION  
 LIA  OTHER

CHAIN OF CUSTODY

CLIENT: URS Corporation

SITE: 4000 San Pablo Ave.  
Emeryville, CA

C = COMPOSITE ALL CONTAINERS

SAMPLE I.D.	DATE	TIME	CONTAINERS	
			MATRIX	TOTAL
1 URS-MW-1	01/16	1031	W	7
2 URS-MW-2		0931		
3 URS-MW-3		1211		
4 URS-MW-4		1251		
5 URS-MW-5		0955		
6 LF-MW-4	01/16	1101	W	7

CONDUCT ANALYSIS TO DETECT	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
TVH-g (GRO) (8260) 8015 part				
TVH-ms (MSRO) (8260) 8015 part				
BTEX + 5 Olys (8260)				
THE-d (DRO) (8015M)				

SPECIAL INSTRUCTIONS

Invoice and Report to : URS Corp.  
Attn: Leonard Niles  
Project # 26814847.06000

RESULTS NEEDED NO LATER THAN

Standard TAT

DATE: 01/16/08 TIME: 1300  
DATE: 01/16/08 TIME: 1355  
DATE: 01/16/08 TIME: 1355

RECEIVED BY: [Signature]

RECEIVED BY: [Signature]

RECEIVED BY: [Signature]

PERFORMED BY: **MR. PLENCE**

DATE SENT: [ ] TIME SENT: [ ] COOLER #: [ ]

SHIPPED VIA: [ ]

on ice, intact