

20453

**REPORT**

**REVIEW OF INVESTIGATION  
AND REMEDIATION RESULTS  
AND WORKPLAN FOR  
ADDITIONAL INVESTIGATION  
AT FORMER CELIS' ALLIANCE  
SERVICE STATION**

**4000 SAN PABLO AVENUE  
EMERYVILLE, CALIFORNIA.**

*Prepared for*  
City of Emeryville Redevelopment Agency  
1333 Park Avenue  
Emeryville, CA 94608

**Alameda County**

**MAY 25 2005**

**Environmental Health**

**April 2005**

**URS**

URS Corporation  
1333 Broadway, Suite 800  
Oakland, CA 94612-1924  
Tel: 510.893.3600

26814847.02000

**Chan, Barney, Env. Health**

10453

To: Xinggang Tong  
Cc: idayrit@ci.emeryville.ca.us  
Subject: RE: former Celis Gas Station site in Emeryville

Xinggang and Ignacio:

The rationale for the request for a transect of borings downgradient and perpendicular to the anticipated plume is not to chase the buried streambed or to generate cross sections, which you correctly stated can be done with existing data. The requested data will help determine the likely extent and shape of the petroleum plume, laterally and vertically. By installing the two wells as proposed, we cannot generate this type of information. The proposed URS-MW-1 is south of the assumed gravel channel and may be biased since the channel may serve to limit the southerly migration of dissolved contaminants. It is anticipated that the strength of the residual plume is actually within 40th St., where no downgradient data exists. It is a big assumption to think that the groundwater data from LFMW-4 indicates that the entire plume has attenuated to these levels. So I believe that to close this site, we need to verify the shape and size of the plume and have data points along the down-gradient path of the plume which show natural attenuation. I don't think this can be done with the two MWs proposed.

Sincerely,

Barney Chan  
510-567-6765

-----Original Message-----

From: Xinggang Tong [mailto:xtong@otgenviroengineering.com]  
Sent: Monday, July 11, 2005 1:56 PM  
To: Chan, Barney, Env. Health  
Cc: idayrit@ci.emeryville.ca.us  
Subject: Re: former Celis Gas Station site in Emeryville

Barney,

Thank you for your review letter dated June 29, 2005 for the former Celis site. I am preparing a work plan addendum as you requested for the additional investigation.

I can take the two-step approach to the additional investigation as you suggested, i.e. put a series of borings along a transect perpendicular to the plume and then decide the best locations and depths for the wells based on the boring results. However, the site has been investigated several times and we had many borings and wells both on site and off site. We understand the area general soil stratigraphy reasonably well, except locations of the old streambed channels. As demonstrated by the San Joaquin company (SJC), we can hit or miss the old streambed channel through soil borings by as little as a few inches. Our purpose of the additional investigation is not to chase the old streambed channel, but to define the downgradient area of the groundwater plume through the two new proposed wells, URS-MW-1 and URS-MW-2. We have enough wells/borings to allow reasonably good cross-section drawings in the west-east direction along the 40th Street (Using wells LFMW-4, WCEW-1, MW-2, MW-3 and MW-4, all are active wells) and in the north-south direction along the San Pablo Avenue (Using wells MW-5, WCEW-1, JSC-MW-T4A and borings HEB-6, AEGP-2, AEGP-20, HEB-8 and AEGP-26). If we prepare these two cross-section drawings for your further review, do you think we still need to do a series of borings before deciding the two new wells (locations and well details)?

Regards,

Xinggang Tong  
OTG EnviroEngineering  
(510) 465-8982

Chan, Barney, Env. Health writes:

> Xingang: I just wrote a letter, I have attached an unsigned copy. One  
> was sent to URS to your attention.  
> Barney  
>  
> -----Original Message-----  
> From: Xingang Tong [mailto:xtong@otgenvironengineering.com]  
> Sent: Wednesday, June 29, 2005 10:08 AM  
> To: Chan, Barney, Env. Health  
> Subject: former Celis Gas Station site in Emeryville  
>  
> Barney,  
>  
> When you send your comments/approval letter to Ignacio for the report  
> "Review of Investigation and Remediation Results and Workplan for  
> Additional Investigation at Former Celis' Alliance Service Station"  
> (URS, April 2005), can you please also send me a copy of your letter.  
> My address is:  
>  
> OTG EnviroEngineering Solutions, Inc.  
> Attention: Xingang Tong  
> 464 19th St., Suite 206  
> Oakland, CA 94612  
>  
> Thank you, Barney.  
>  
> Xingang  
> OTG  
> (510) 874-3060



April 22, 2005  
Project #26814847

Mr. Barney Chan  
Division of Environmental Protection  
Department of Environmental Health  
Alameda County Health Agency  
1131 Harbor Bay Parkway, 2<sup>nd</sup> Floor  
Alameda, CA 94502

Reference: Alameda County Fuel Leak Case RO0000453

Subject: Review of Investigation and Remediation Results and Workplan for  
Additional Investigation at Former Celis' Alliance Service Station Site  
4000 San Pablo Avenue, Emeryville, California

Dear Mr. Chan:

On behalf of the City of Emeryville Redevelopment Agency (the City), URS Corporation is pleased to submit its review comments on investigation and remediation results from sites surrounding the former Celis' Alliance Service Station, specifically the SNK Andante Redevelopment Area on the south and the proposed Oak Walk Redevelopment Area on the north of the Celis Site. A Workplan is also included for additional site characterization of the Celis Site, which was formerly located at 4000 San Pablo Avenue in the City of Emeryville. This report is prepared in response to your request in a letter to the City dated October 6, 2004.

Please feel free to call me at (510) 465-8982 or Mr. Ignacio Dayrit of the City at (510) 596-4356 for questions or comments.

Sincerely,  
URS Corporation

Xinggang Tong, Ph.D., P.E.  
Project Manager



Enclosures.

cc: Ignacio Dayrit, City of Emeryville

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1333 Broadway, Suite 800  
Oakland, CA 94612-1924  
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- Appendix B Results from SNK Andante Site Investigation and Remediation
- Appendix C Results from Oak Walk Redevelopment Area Investigation

This report presents a review of environmental investigation and remediation activities conducted since 1993 at the 40<sup>th</sup> Street Right-of-Way between San Pablo Avenue and Adeline Street, the SNK Andante Redevelopment Area and the Oak Walk Redevelopment Area in the City of Emeryville, California. Their locations are shown on Figure 1. The main purpose of this review is to identify potential sources that may have contributed to the regional petroleum hydrocarbon contamination. A workplan is also presented for further investigation of petroleum hydrocarbon contaminations resulted from the removed leaking underground fuel storage tanks (USTs) located at the former Celis' Alliance Service Station (Celis Site).

## **1.1 40<sup>TH</sup> STREET RIGHT-OF-WAY**

Prior to 1995, 40<sup>th</sup> Street did not exist beyond the west of the Adeline Street. As reported by Levine-Fricke in its "Phase I Environmental Site Assessment, 40<sup>th</sup> Street Right-of-Way, Emeryville, California" (Levine-Fricke 1993), the Right-of-Way section between Adeline Street and San Pablo Avenue was occupied by a gas station (fronting San Pablo Avenue), a carpet warehouse, and railroad tracks. The gas station, owned by a succession of petroleum companies and independent owners, operated from approximately 1936 until the construction of the 40<sup>th</sup> Street extension in 1995. At the time of the road construction, the gas station had the name of Celis' Alliance Service Station. The carpet warehouse was once occupied by the San Francisco Bread Company.

### **1.1.1 Celis Alliance Service Station Site**

The Levine-Fricke's Phase I assessment (Levine-Fricke 1993) reported the following six underground storage tanks (USTs) at the Celis Site:

- One 7,000-gallon diesel UST;
- One 6,000-gallon regular gasoline UST;
- One 4,000-gallon unleaded gasoline UST;
- One 2,000-gallon unleaded gasoline UST;
- One 3,500-gallon super unleaded gasoline UST;
- One 550-gallon waste oil UST.

The service station building, fuel dispenser island, USTs and associated piping were removed in May 1994 (Levine-Fricke 1994b). All six USTs were made of welded steel and single-walled. Holes were noted in the 2,000-gallon unleaded gasoline tank and the 550-gallon waste oil tank, but not in the other four tanks. Holes were also noted in a previously abandoned product piping that appeared to have been connected to the 6,000-gallon regular gasoline tank.

Through several phases of investigations, five groundwater monitoring wells were installed, LF-MW-1 through LF-MW-3 in August 1993, LF-MW-4 in January 1994, and WCEW-1 in March 1997 (Levine-Fricke 1993b & 1994a, Woodward-Clyde 1997). LF-MW-1 through -3 were installed on the Celis Site and were only sampled once in August 1993 before been destroyed in May 1994 in preparation for the UST removal. LF-MW-4 and WCEW-1 still exist as of this date. Free-phase petroleum product was once identified in LF-MW-1 and WCEW-1.



Soil and groundwater samples collected throughout the 40<sup>th</sup> Street Right-of-Way between Adeline Street and San Pablo Avenue indicated extensive petroleum hydrocarbon contaminations within the Celis site and at many areas outside the Celis site. Sampling locations are plotted on Figure 1. At the direction of the Alameda County Department of Environmental Health (ACDEH) and the Emeryville Redevelopment Agency (ERDA), Woodward-Clyde removed soil from surface to just above the shallow groundwater table (approximately 9.5 feet below surface) over the entire Celis site (Woodward-Clyde 1996) and Levine-Fricke removed affected soil from isolated areas outside the Celis site (Levine-Fricke 1997). Removed soils were transported to offsite waste management facilities and clean fill was imported to backfill the area. 40<sup>th</sup> Street Right-of-Way was constructed in 1995 following completion of the soil remediation.

Confirmation soil samples collected from sidewalls and the floor of the Celis site excavation pit indicated that significant petroleum hydrocarbon contaminations still remained on site and have migrated offsite in all four directions. Confirmation sampling results are included in Appendix A.

To remove floating product that had been observed on the water table, a recovery well (WCEW-1) was installed in March 1997 in the northwestern corner of the property after the road construction was completed. Groundwater extraction from the well started in June 1997 and stopped in December 1997 when the floating product was reduced to sheen only. The extracted liquid was transported to an offsite facility for treatment and disposal.

### **1.1.2 San Francisco Bread Company Site**

The San Francisco Bread Company (SFBC) site once was a truck maintenance facility and had two USTs:

- One 10,000-gallon gasoline UST;
- One 10,000-gallon diesel UST.

As shown on Figure 1, approximately half of the two USTs is located under now the 40<sup>th</sup> Street Right-of-Way and the other half is within the Oak Walk Redevelopment Area. The USTs were removed in May 1989 when SFBC still owned the property. At the time they were removed, they were found to have leaked. Some limited amount of soil was excavated and disposed of offsite during the UST removal.

At the direction of ACDEH, a groundwater monitoring well (SMW-1) was installed a short distance down-gradient from the UST in September 1992. The well water was sampled quarterly from September 1992 through March 1994 and was found to contain TPH gas up to 5,800 ug/L and benzene up to 1,700 ug/L. The well was destroyed in late 1994 in preparation for the road construction. Soil affected by high levels of TPH gas, diesel and BTEX were excavated from a 20 x 20 x 10 f deep area in the 40<sup>th</sup> Street Right-of-Way to the south of and adjacent to the former USTs. There are no other documented remediation activities directly linked to the USTs.

## **1.2 SNK ANDANTE REDEVELOPMENT AREA**

The SNK Andante Redevelopment Area (SNK site) is located next to and south of the 40<sup>th</sup> Street Right-of-Way (Figure 1). The redevelopment, which was completed by the end of 2004, established mixed use of commercial and multi-family units on the site. Prior to the

redevelopment, the southwestern corner of the property was occupied by the King Midas Club, the Key Club and the Key Hotel. The remainder of the site was used as parking area. Details of the site history were presented in a Phase I site assessment (The San Joaquin Company 2002).

The redevelopment activities began with the installation of exploratory borings, trenches and temporary wells to assess potential environmental concerns, conducted by The San Joaquin Company from February through June 2003. Locations of wells and borings are shown on Figure 2. Extensive petroleum hydrocarbon contaminations were identified on the northwestern portion of the site (The San Joaquin Company 2003). Investigation data is included in Appendix B. Under the ACDEH's supervision, soil was excavated from surface to between 8 to 13 feet below ground surface (BGS) in the petroleum hydrocarbon contaminated area (northwestern portion of the site). A total of 8,877 tons of contaminated soil was disposed of offsite. Clean, engineered fill was imported to backfill the area. Area of excavation is shown on Figure 2.

The most significant discovery during the soil excavation is the paleo streambed channel located within the shallow groundwater zone. It runs along a curved path that trends in a generally southwesterly direction as it passes through the SNK site from its northern boundary at 40<sup>th</sup> Street to its western boundary at San Pablo Avenue, as illustrated on Figure 1. The channel contains coarse sand and gravels. Groundwater samples collected within the channel were found to contain benzene up to 2,700 ug/L, TPH gas up to 510,000 ug/L, and diesel range TPH, but not-standard diesel, up to 20,000 ug/L. The streambed materials were removed and backfilled with clean, engineered filled. A clay plug were installed at both ends of the paleo streambed channel entering and existing the redevelopment area to prevent the channel serving as preferential pathways for further migration of offsite contaminants.

Three old-age USTs (two 1,500-gallon heating oil tanks and one 100-gallon gas tank) were found within the site, but outside the soil excavation area, during earthwork. Their locations are shown on Figure 1. They were removed under permit and oversight of ACDEH and the Emeryville Fire Department. Soil samples recovered from the bottom of the USTs indicated that they were not the source(s) of petroleum hydrocarbon contaminations on the site.

### **1.3 OAK WALK REDEVELOPMENT AREA**

The Oak Walk Redevelopment Area (Oak Walk site) is located next to and north of the 40<sup>th</sup> Street Right-of-Way (Figure 1). The area is currently occupied by a mixture of single family houses, commercial buildings, and parking lots. The buildings (commercial and residential are mostly vacant and in poor conditions.

Since November 2003, The San Joaquin Company (SJC) has been conducting environmental investigations at the Oak Walk site, including the installation of eight exploratory trenches, eight soil borings, 14 temporary groundwater monitoring wells (MWT-series wells), and seven permanent groundwater monitoring wells (MW-series wells). Their locations are shown on Figure 1. Numerous soil and groundwater samples were collected and analyzed for petroleum hydrocarbons, volatile organic compounds (VOCs), polynuclear aromatics (PNAs), and heavy metals. Investigation results are included in Appendix C. Extensive petroleum hydrocarbon contamination was found beneath the site. The distribution and potential source(s) of the identified contaminants are discussed under Section 2.

Exploratory trench 3 excavated next to the SFBC USTs revealed the same type of coarse sand and gravels as the paleo streambed deposits discovered at the SNK site. The paleo streambed channel likely continued beneath the 40<sup>th</sup> Street Right-of-Way and passed through the southeastern portion of the Oak Walk site as depicted on Figure 1.

#### **1.4 FORMER DUNNE PAINTS AND BOYSEN PAINT SITES**

Two former paint manufacturing and distribution facilities (Dunne Paints and Boysen Paint Factory) are located upgradient and across the Adeline Street from the Oak Walk site. Their locations are illustrated on Figure 1. The two sites are currently under the ACDEH's supervision for investigation and remediation of paint-related petroleum hydrocarbons (paint thinner, Stoddard solvent, and mineral spirits etc.) and other chemicals. The impact of petroleum hydrocarbons originating from these two sources on the Oak Walk site, the 40<sup>th</sup> Street Right-of-Way, and the SNK site is discussed below.

The former Celis Alliance Service Station is a known source of petroleum hydrocarbon (TPH) contamination in the area. Even though the contaminated, unsaturated soil on the Celis site was excavated and disposed of offsite, confirmation samples collected on excavation side walls and the floor have shown that its TPH has migrated to the south impacting the SNK site and to the north impacting the Oak Walk site. However, the Celis site is not the only source of TPH in the area, other potential sources as discussed above are the SFBC site and the upgradient former Dunne Paints site (Dunne site) and the former Boysen Paint Factory site (Boysen site). This section presents a review of contributions from each of these potential sources.

The following information should facilitate the review:

- The Federal Clean Air Act Amendments (1990) required gasoline to be sold after 1991 to contain a certain level of fuel oxygenate (up to 2.7% oxygen by weight). Methyl tertiary butyl ether (MTBE) was the top choice as the fuel oxygenate blended in gasoline. The SFBC USTs were removed in 1989, and thus the petroleum hydrocarbons released from its USTs unlikely contained any significant amount of MTBE. Paint solvents (mineral spirits, Stoddard solvent, and paint thinner etc.) also do not contain MTBE. The Celis Alliance Service Station was in full service until the early 1994 and the gasoline it dispensed after 1991 likely contained MTBE. Therefore, MTBE represents a marker for contamination originating from the Celis site.
- MTBE is the most water soluble and mobile constituent in gasoline. Its extent of spread in groundwater represents the limit of petroleum hydrocarbon impact originating from the Celis site.
- Paint solvents typically do not contain benzene. When benzene is detected, it is likely associated with gasoline, either from the Celis site and/or the SFBC site.
- Floating product and dissolved petroleum hydrocarbons move with groundwater. Groundwater moves faster and freer in permeable media than in clayey materials. The identified paleo streambed channel contains highly permeable coarse sand and gravels and it thus serves as a preferential pathway for groundwater movement. Petroleum hydrocarbons can be transported much further through such a preferential pathway. Underground utility trenches are usually backfilled first with sand and/or pea gravels, and thus also serve as preferential pathways for contaminant movement.
- As the petroleum hydrocarbon moves with groundwater away from its source area, it partitions (absorbs) into soil at the new place. Its amount absorbed by the soil (measured as concentration in mg/kg) is highly dependent on the physical and chemical nature of the soil, such as organic content and particle sizes. It is known that sand and gravels with no organic materials absorb very little petroleum hydrocarbons, whereas clayey soil with high organic content absorbs large quantities of petroleum hydrocarbons. Therefore, the petroleum hydrocarbon concentration measured in soil in an investigation can vary widely depending on the type of soil collected at each sampling point, which makes it difficult to study the source based on the soil data. In contrast, groundwater moves continuously and its petroleum hydrocarbon concentration is much less dependent on the type of soil at each sampling location, but more related to its movement. We will thus use groundwater data to study sources of petroleum hydrocarbons.
- Benzene is a known carcinogen and typically drives the remediation cost of UST sites.

Early work conducted by Levine-Fricke and Woodward-Clyde from 1993 through 1995 did not include the analysis of fuel oxygenates as their analyses were not required by regulatory agencies. There were also no efforts made to identify other groups of petroleum hydrocarbons, such as paint solvents. Whatever showed up in the gasoline range during the gas chromatographic (GC) analysis was reported as TPHg and whatever showed up in the diesel range was reported as TPHd. Therefore, the early reported TPHg and TPHd data, especially in the areas near Adeline Street by Levine-Fricke, may not represent true gasoline and diesel. Paint solvents could have been misidentified as gasoline and/or diesel.

When the extraction well WCEW-1 was installed in 1997 for the removal of floating product from Celis site, MTBE was analyzed and was reported in the range of 340 and 570 µg/L. Groundwater sampling conducted by SJC in May 2004 again confirmed the presence of MTBE (170 µg/L).

When the investigation and remediation were performed at the SNK site in 2003, no effort was made to identify petroleum hydrocarbon groups other than TPHg (gasoline) and TPHd (diesel). However, the laboratory did compare the GC pattern of each sample with standard gas or diesel GC pattern. When there was a match, it was reported as TPHg or TPHd without any qualifiers. When the sample GC pattern did not match the standard gas or diesel GC pattern, it was still reported as TPHg or TPHd, but with a qualifier stating that the detected hydrocarbon was in the range of, but did not match the standard gas or diesel. It could be either weathered gas/diesel or paint solvents.

When the investigation was conducted at Oak Walk site in 2004, it was apparent that the release of paint solvents from the upgradient paint sites could impact the Oak Walk site. The suite of analyses for samples collected from this site included mineral spirits, which is one of many groups of petroleum hydrocarbons used as paint solvents.

## **2.1 SHALLOW GROUNDWATER CONTOURS AND PERMEABLE AREAS**

Figure 2 presents the interpreted shallow groundwater contours and flow directions based on groundwater elevations measured at Oak Walk site on November 8, 2004, at SNK site on April 21, 2003, and historical flow directions at the Celis site. The former Dunne Paints site and the former Boysen Paint Factory site are at upgradient locations. Two main features are discussed below.

There is a broad band of relatively permeable zone across the Oak Walk site in an east-west direction, as highlighted on Figure 2. It may continue across the Adeline Street to the former Dunne Paints site. This relatively permeable zone provides preferential path for the migration of the paint solvents. Details of paint solvents detections are discussed in Section 2.2.

The paleo streambed channel is another preferential path for contamination migration. The SFBC USTs, if not partially located within the channel, was right next to the channel. The streambed channel might continue northeastwards and could be connected with the permeable zone that exists across the Oak Walk site. This may explain the very high concentrations of benzene, TPHg, and diesel-range TPH (reported as non-standard diesel) detected in groundwater samples collected within the streambed channel. Details are discussed in the next section.

## 2.2 DISTRIBUTION OF PETROLEUM HYDROCARBONS

Groundwater concentrations of MTBE (M), benzene (B), gasoline (G), diesel (D), and mineral spirits (S) at individual sampling points are shown on Figure 3. Groundwater samples for the analysis were collected from the Oak Walk site on May 19, 2004 (MW-wells and MWT-1 through MWT-10) and on November 6, 2004 (MWT-11 through MWT-14) and from the SNK site on April 17, 2003. SJC-MW-8 was installed on the SNK site in August 2004 as a post-remediation monitoring well. The data shown on Figure 3 for this well was the sample collected on March 9, 2005. The data for LFMW-4 (located on 40<sup>th</sup> Street west of San Pablo Avenue) was the sample collected on June 2, 1998, which was the last time it was sampled. These are the available groundwater results for interpretation.

There are enough data points to allow approximate interpretation of 100 ppb MTBE, 50 ppb benzene, and ND (0.5 ppb) MTBE & benzene contours, all are plotted on Figure 3. The shape of the contours is of interests. Underground utilities may exist near the eastern-side pedestrian lane of the San Pablo Avenue that serve as a preferential pathway for the north-south directional migration along the San Pablo Avenue.

It appears that the MTBE and benzene originating from the Celis site moved more upgradient than downgradient. This can happen if there is a preferential path connecting the Celis site to the upgradient area and the groundwater gradient is relatively flat or periodical reversal. Prior to the 40<sup>th</sup> Street construction, there was a carpet warehouse located between the Celis site and the SFBC USTs. Some utilities in the warehouse may be connected underground to the utility lines under San Pablo Avenue, which may have served as preferential path for the eastward migration. The existence of such underground utility lines should be reviewed.

It is apparent that MTBE and benzene from the Celis site have impacted the area that required excavation at the SNK site. However, Petroleum hydrocarbons from Celis site may not be the only source of what was detected in the paleo channel on the SNK site. Very high benzene and gasoline concentrations, but no or little MTBE, were found in several water samples collected within the paleo channel (SJC-MW-T5A, ET2-G-W, and SJC-MW-2A). Since the gasoline stored in the SFBC's UST did not contain MTBE and since the UST were located either partially in or just outside the paleo channel, gasoline released from the SFBC's UST could migrate relatively easy within the channel to the SNK site. On the other hand, since the Celis site had been a fuel service station for decades, the gasoline found within the paleo channel could come from the pre-MTBE-containing gasoline released from the Celis site. It may not be possible to separate which part of the gasoline came from which source. Overall, because the paleo channel is a small portion of the total remediated area on the SNK site, the Celis site may have the majority responsibility for the investigation and remediation conducted on the SNK site.

Figure 3 also demonstrates that MTBE and benzene from the Celis site impacted only a narrow strip of the area on the Oak Walk site located next to the 40<sup>th</sup> Street Right-of-Way. The rest of the area on the Oak Walk site has been impacted by petroleum hydrocarbons that do not contain MTBE and benzene. The Celis site and the SFBC site are highly unlikely to be the source of the TPH that does not contain MTBE and benzene. If the reported mineral spirits, non-standard gasoline and non-standard diesel are grouped into and plotted as a single parameter – non-gas non-diesel TPH as shown on Figure 3, it points to upgradient source(s), possibly the former Dunne Paints site and/or the former Boysen Paint Factory site. It also indicates that the shallow groundwater beneath all buildings at the Oak Walk site, both commercial and residential

## **SECTION TWO**

### **Distribution and Sources of Petroleum Hydrocarbons**

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buildings, has been contaminated by the non-gas non-diesel petroleum hydrocarbons (possibly one or more of the many varieties of paint solvents) at the concentration above 1,000 ppb.

## **SECTION THREE Workplan for Additional Investigation for Former Celis Site**

### **3.1 CONDUIT STUDY**

The shape of the MTBE and benzene plumes shown on Figure 3 suggests the existence of preferential pathways along the San Pablo Avenue and the 40<sup>th</sup> Street. Under this task, underground utility lines will be identified for their depths, sizes, backfill materials if known, and their distances from the former Celis site. Utilities to be reviewed will include: storm drains, sewers, water mains, and gas and electrical lines. A map will be provided showing the locations and depths of those identified utilities. Wells within a quarter-mile radius of the former Celis site will also be identified.

As part of this study, available historic Sanborn maps, USGS maps, and aerial photos will be reviewed for identification of potential preferential pathways, such as natural stream beds and man-made conduits (trenches and building foundations).

### **3.2 ADDITIONAL PLUME CHARACTERIZATION**

Investigations conducted at the SNK and the Oak Walk sites have generated adequate data for upgradient and cross-gradient characterization. Additional investigation is only needed in the downgradient area. Two new monitoring wells in the downgradient area are proposed: URS-MW-1 and URS-MW-2. Their locations are shown on Figure 3.

Specific details of the groundwater investigation program are outlined below:

- Pre-drilling details include: developing a site health and safety plan; obtaining well construction permit from Alameda County Public Works Agency; underground utility clearance (obtaining facility as build, contacting Underground Service Alert [USA], contracting to an independent utility locator to clear proposed locations and hand augering to 5 feet bgs prior to drilling).
- The well borings will be drilled with a hollow stem auger rig (8-inch diameter) from which continuous cores (using a 5 foot long core barrel) of the soil column will be obtained and logged by an onsite geologist.
- The soil cores will be screened with a PID to evaluate the presence or absence of TPH.
- Three soil samples from each boring (5', 10', and 15' bgs or as selected by the site geologist based on field observations) will be selected and submitted to an State of California certified environmental analytical laboratory under chain-of-custody protocol for analysis of BTEX, five fuel oxygenates, TPHg, TPHd and paint solvent related TPH.
- The well borings will extend at least 8 feet beyond first encountered groundwater. The goal is to have the screened interval of the well extend both above and below the water table (covering for seasonal water level fluctuations). It is expected that the well borings will have a total depth of 20 feet.
- The wells will be constructed and finished in typical fashion in accordance with local and state well regulations. The wells will be constructed with flush treaded 2-inch diameter Schedule 80 PVC casing and factory slotted screen. The screen slot size is expected to be 0.02-inch with a Lonestar 2/16 (or equivalent) sand pack. The sand pack will extend one foot above the top of the uppermost screen slots, followed by one foot of hydrated bentonite chips



## **SECTION THREE Workplan for Additional Investigation for Former Cells Site**

followed by neat cement bentonite grout to land surface. The wells will be completed to grade with lockable wellheads in traffic rated bolted well boxes..

- After a minimum of 72 hours of completion the monitoring wells will be developed with surge blocks and bailers, followed by pumping until the well water clears and water quality parameters of pH, conductivity, temperature and turbidity stabilize.
- All wells will be surveyed with respect to northing and easting location, and elevation msl (land surface, flush mounted traffic box rim and top of PVC well casing [i.e., measuring point]).
- Initial well sampling will be done no earlier than 48-hours after completion of well development. At that time the wells will be sampled and submitted to a state certified analytical laboratory for the analysis of BTEX, five fuel oxygenates, TPHg, TPHd and paint solvent related TPH. The groundwater monitoring events will be preceded with a water level survey to establish depth to water, water surface elevation (flow direction and gradient), seasonal water level fluctuations and calculation of the wetted well casing volume that will need to be removed (typically 3 to 5 wetted casing volumes) prior to collecting a representative groundwater sample.
- Soil cuttings, decontamination, well development water and quarterly well purge water will be stored in a central on-site location in properly labeled DOT approved 55 gallon drums awaiting final disposal option selection.

A letter report will be prepared outlining investigation findings and recommendations for additional work as necessary. The text of the report will be supported with summary tables and figures along with hard copies of geotechnical and chemical analyses results.

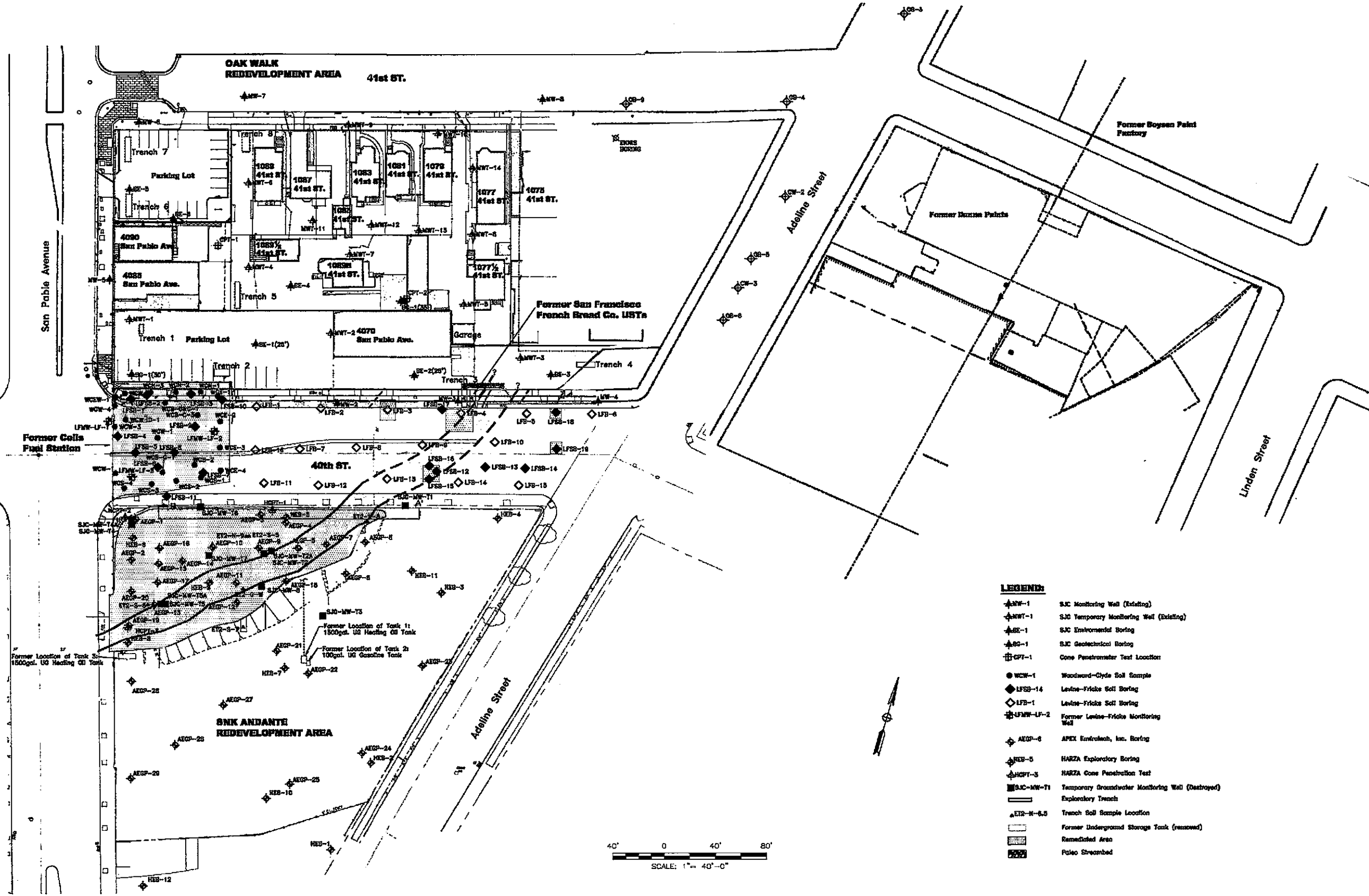
The groundwater monitoring program will include semi-annual sampling and reporting for one year of the two newly installed wells (URS-MW-1 and URS-MW-2) and the two existing wells (LFMW-4 and WCEW-1). Prior to purging, static groundwater levels will be measured to the nearest 0.01 feet in each of the four wells. The volume of water in each well will be calculated, and a minimum of three casing volumes of water will be removed from each well. The purged water will be measured for pH, temperature, specific conductance, and dissolved oxygen, which will be recorded in field logs. The wells will be 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 will be either dedicated (well specific) or new and disposable requiring no decontamination prior to use. Purge and decontamination water will be stored in 55-gallon DOT drums, which will be labeled and left on site, pending final disposal option selection.

Filled sample bottles will be labeled, packaged, and stored in an iced-cooler with a trip blank and will be delivered under chain-of-custody protocol to a state certified analytical laboratory for the analysis of BTEX, five fuel oxygenates, TPHg, TPHd and paint solvent related TPH.

A progress report will be prepared following each sampling event to present sampling results, groundwater contours, findings and recommendations.

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- Science and Engineering Analysis Corporation (SECOR) (1994), Letter Report: Quarterly Groundwater Monitoring Report, 4070 San Pablo Avenue, Emeryville, California. Report to Thomas Peacock, Hazardous Materials Division, Alameda Department of Environmental Health. March 25, 1994.
- Woodward-Clyde Consultants (1997), 3<sup>rd</sup> Quarter 1997 Groundwater Monitoring Results and Well Construction Report for Extraction Well EW-1, Former Celi's Alliance Gas Station Site, Emeryville, California. Dated November 13, 1997.
- Woodward-Clyde Consultants (1997a), Development of Site-specific Target Levels for Soil and Groundwater: 40th Street Right-of-Way, Emeryville, California. Prepared for City of Emeryville Redevelopment Agency. Dated April 1997.
- Woodward-Clyde Consultants (1997b), Proposed Approach for Development of Site-Specific Target Levels for Soil and Groundwater - 40th Street Right-of-Way, Emeryville, California. Prepared for City of Emeryville Redevelopment Agency. Dated February 5, 1997.
- Woodward-Clyde Consultants (1995), Report on Soil Remediation at the Former Celis Alliance Fueling Station, 4000 San Pablo Avenue, Emeryville, California. Prepared for City of Emeryville Redevelopment Agency. Dated January 6, 1995.
- Woodward-Clyde International Americas (1994), Workplan for Additional Site Investigation and Limited Soil Excavation - Former Celis Alliance Fuel Station at 4000 San Pablo Avenue, Emeryville California. Emeryville, California. Prepared for the City of Emeryville Redevelopment Agency. Dated June 17, 1994.

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

REV	DESCRIPTION OF REVISION	BY	DATE

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 STREET ADDRESS  
 CITY, STATE



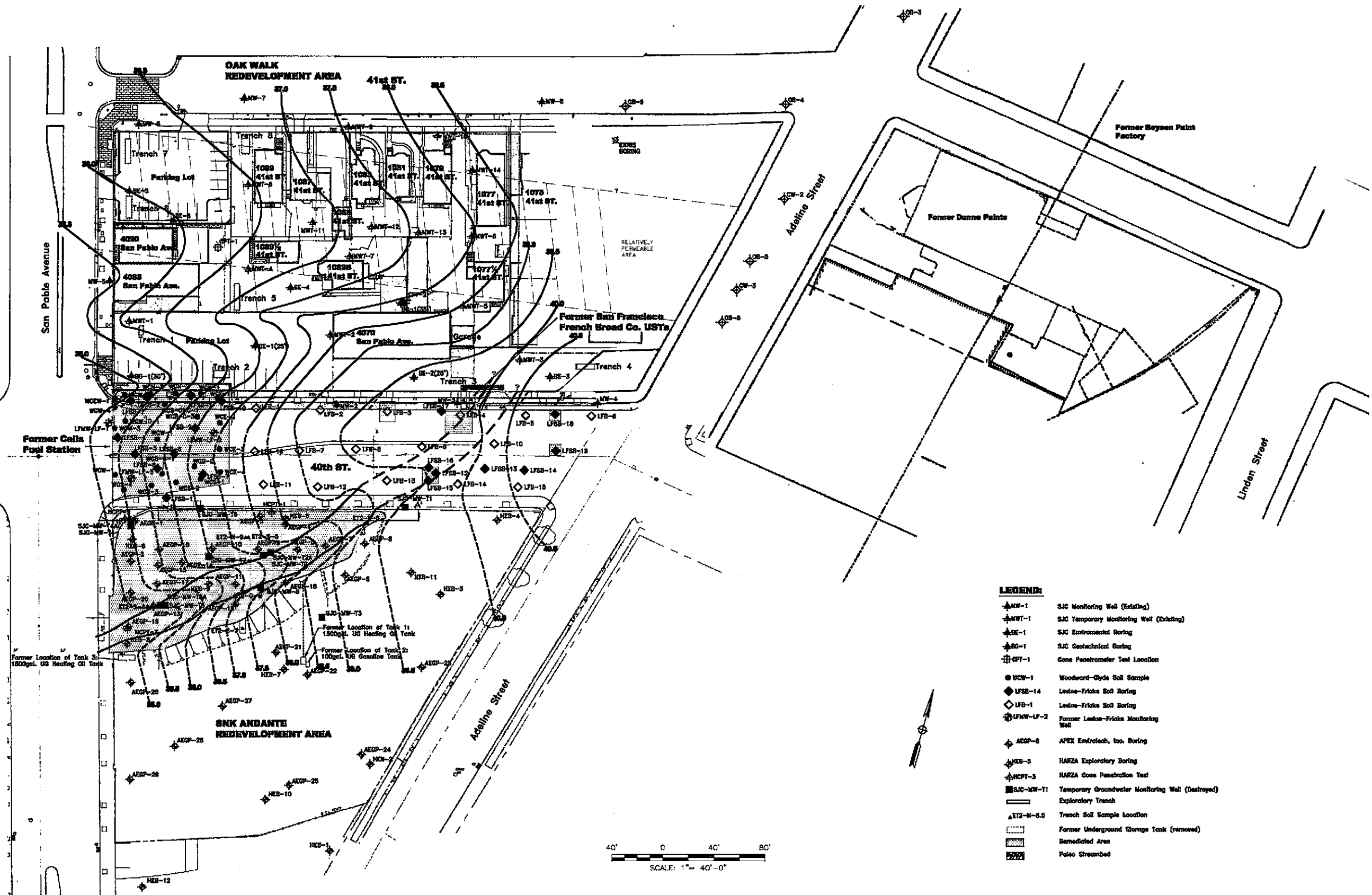
1333 BROADWAY, SUITE 800  
 Oakland, CA 94612  
 Tel: (510) 883-3600  
 Fax: (510) 874-3268

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DRAWN	
CHECKED	
PEER REVIEWED	
PROJECT MANAGER	
DATE	

Locations of Wells and Borings Installed Since 1993  
 on the 40th St. Right Of Way, SNK Andante and  
 Oak Walk Redevelopment Areas.

**FORMER CELIS FUEL STATION SITE, SNK ANDANTE  
 REDEVELOPMENT AREA AND OAK WALK  
 REDEVELOPMENT AREA EMERYVILLE, CA.**

REVISION	
PROJECT	26814847
FIGURE	1



- LEGEND:**
- ▲ MW-1 SJC Monitoring Well (Existing)
  - ▲ MW-1 SJC Temporary Monitoring Well (Existing)
  - ▲ SE-1 SJC Environmental Boring
  - ▲ BC-1 SJC Geotechnical Boring
  - CPT-1 Cone Penetrometer Test Location
  - WCV-1 Woodward-Clyde Soil Sample
  - ◆ LFB-14 Levee-Frills Soil Boring
  - ◆ LFB-1 Levee-Frills Soil Boring
  - ◆ LFW-LF-2 Former Levee-Frills Monitoring Well
  - ◆ AEP-6 APEX Envirotech, Inc. Boring
  - ◆ HEB-5 HARZA Exploratory Boring
  - ◆ HCP-3 HARZA Cone Penetration Test
  - SJC-MW-T1 Temporary Groundwater Monitoring Well (Destroyed)
  - Exploratory Trench
  - ▲ T2-M-6.5 Trench Soil Sample Location
  - Former Underground Storage Tank (removed)
  - Remediated Area
  - ▨ Paleo Streambed

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

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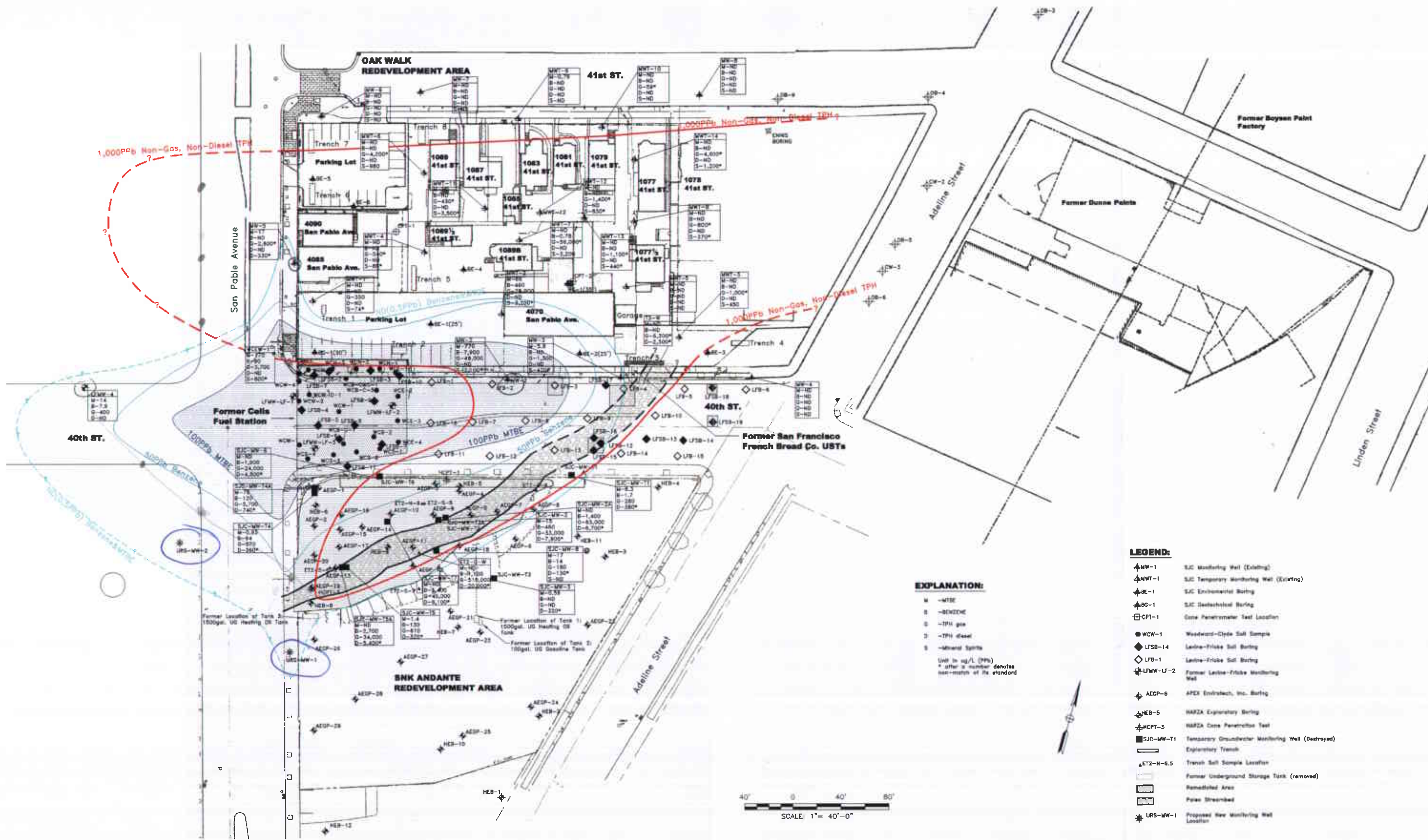
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CHECKED	
FIELD REVIEWED	
PROJECT MANAGER	
DATE	

Groundwater Contours (11/08/04)  
(As reported by The San Joaquin Company Inc.)  
**FORMER CELIS FUEL STATION SITE, SNK ANDANTE  
REDEVELOPMENT AREA AND OAK WALK  
REDEVELOPMENT AREA EMERYVILLE, CA.**

REVISION	▲
PROJECT	26B14847
FIGURE	2

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- LEGEND:**
- ▲ MW-1 SJC Monitoring Well (Existing)
  - ▲ WWT-1 SJC Temporary Monitoring Well (Existing)
  - ▲ BE-1 SJC Environmental Boring
  - ▲ BC-1 SJC Geotechnical Boring
  - ▲ CPT-1 Cone Penetrometer Test Location
  - WCW-1 Woodward-Clyde Soil Sample
  - ◆ LFSB-14 Leine-Friske Soil Boring
  - ◇ LFB-1 Leine-Friske Soil Boring
  - ◆ LFMW-U-2 Former Leine-Friske Monitoring Well
  - ◆ ACP-6 APEX Envirotech, Inc. Boring
  - ◆ HEB-5 HAZA Exploratory Boring
  - ▲ HCP-3 HAZA Cone Penetration Test
  - SJC-MW-T1 Temporary Groundwater Monitoring Well (Destroyed)
  - Exploratory Trench
  - ▲ ETZ-N-6.5 Trench Soil Sample Location
  - Former Underground Storage Tank (removed)
  - Remediated Area
  - ▨ Pole Streambed
  - ★ URS-MW-1 Proposed New Monitoring Well Location

**EXPLANATION:**

- M - MBE
- B - BENCH
- G - TPH gas
- D - TPH diesel
- S - Mineral Spirits

UW in ug/L (PPb)  
 \* after 2 number denotes non-match of its standard



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

REV	DESCRIPTION OF REVISION	BY	DATE

CLIENT  
 STREET ADDRESS  
 CITY, STATE



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

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Distribution of Petroleum Hydrocarbons in Shallow Groundwater on 4/16/03 at SNK Andante and on 5/19/04 & 11/3/04 at Oak Walk

**FORMER CELIS FUEL STATION SITE, SNK ANDANTE REDEVELOPMENT AREA AND OAK WALK REDEVELOPMENT AREA EMERYVILLE, CA.**

REVISION	▲
PROJECT	26814847
FIGURE	3

TABLE 1

RESULTS OF ANALYSES OF SOIL SAMPLES RECOVERED FROM 40TH STREET RIGHT-OF-WAY <sup>1</sup>

Sample ID	Date Sampled	Depth BGS ft.	TRPH <sup>2</sup>	TPHd Diesel	TPHg (gasoline)	TPHmo (motor oil)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Methylene Chloride	Aroclor <sup>®</sup> 1260	Naphthalene	2-Methylnaphthalene	4-Methylphenol
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
LFSB1-7.0	08/08/93	7	290	240	850	27	5.4	ND <sup>4</sup>	25	42	n/a <sup>3</sup>	n/a	n/a	n/a	n/a
LFSB1-9.5	08/08/93	9.5	130	220	180	ND	0.89	1.1	4.3	18	n/a	n/a	n/a	n/a	n/a
LFSB1-14.5	08/08/93	14.5	60	ND	7.4	ND	0.44	0.44	0.14	0.61	n/a	n/a	n/a	n/a	n/a
LFSB2-7.0	08/08/93	7	160	790	780	57	8	ND	31	140	n/a	ND	n/a	n/a	n/a
LFSB2-9.5	08/08/93	9.5	210	200	720	ND	2.4	5.2	15	59	n/a	n/a	n/a	n/a	n/a
LFSB2-14.5	08/08/93	14.5	43	ND	1.0	12	0.2	0.21	0.021	0.12	n/a	ND	n/a	n/a	n/a
LFSB3-9.5	08/07/93	9.5	37	11	580	ND	9.7	50	15	90	n/a	ND	n/a	n/a	n/a
LFSB3-14.5	08/07/93	14.5	37	ND	0.9	ND	0.092	0.16	0.031	0.17	n/a	ND	n/a	n/a	n/a
LFSB4-7.0	08/08/93	7	70	13	380	ND	3	5.2	8.2	18	n/a	n/a	n/a	n/a	n/a
LFSB4-14.5	08/08/93	14.5	210	ND	ND	ND	0.026	0.005	0.019	0.023	n/a	n/a	n/a	n/a	n/a
LFSB5-7.0	08/08/93	7	37	15	410	ND	2.4	0.6	16	6.3	n/a	n/a	n/a	n/a	n/a
LFSB5-14.5	08/08/93	14.5	93	ND	ND	ND	0.011	ND	0.008	0.008	n/a	n/a	n/a	n/a	n/a
LFSB6-9.5	08/08/93	9.5	67	51	490	ND	2.7	ND	15	15	n/a	n/a	n/a	n/a	n/a
LFSB6-14.5	08/08/93	14.5	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LFSB7-9.5	08/07/93	9.5	170	52	750	66	2.5	8.5	22	93	n/a	n/a	n/a	n/a	n/a
LFSB7-14.5	08/07/93	14.5	ND	ND	2.8	ND	ND	ND	0.029	0.03	n/a	n/a	n/a	n/a	n/a
LFSB8-9.5	08/08/93	9.5	130	110	2,800	ND	22	9.5	82	280	n/a	n/a	n/a	n/a	n/a
LFSB8-14.5	08/08/93	14.5	37	ND	ND	11	0.009	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LFSB9-7.0	08/07/93	7	ND	14	210	ND	2.8	13	5.1	29	n/a	n/a	n/a	n/a	n/a
LFSB9-9.5	08/07/93	9.5	n/a	n/a	1,200	n/a	14	81	26	140	n/a	n/a	n/a	n/a	n/a
LFSB9-14.5	08/07/93	14.5	77	ND	ND	ND	0.079	0.059	0.011	0.041	n/a	n/a	n/a	n/a	n/a
LFSB10-7.0	08/07/93	7	n/a	n/a	73	n/a	2.6	4.7	1.6	7.7	n/a	n/a	n/a	n/a	n/a
LFSB10-9.5	08/07/93	9.5	40	ND	1,100	ND	ND	7.8	ND	22	n/a	n/a	n/a	n/a	n/a
LFSB10-14.5	08/07/93	14.5	ND	ND	8.6	ND	0.48	0.29	0.1	0.48	n/a	n/a	n/a	n/a	n/a

Oak Walk Redevelopment Project, Emeryville, CA

Sample ID	Date Sampled	Depth BGS	TRPH <sup>2</sup> mg/Kg	TPHd Diesel mg/Kg	TPHg (gasoline) mg/Kg	TPHmo (motor oil) mg/Kg	Benzene mg/Kg	Toluene mg/Kg	Ethylbenzene mg/Kg	Total Xylenes mg/Kg	Methylene Chloride mg/Kg	Aroclor <sup>®</sup> 1260 mg/Kg	Naphthalene mg/Kg	2-Methylnaphthalene mg/Kg	4-Methylphenol mg/Kg
		ft.													
LFSB11-14.5	08/09/93	14.5	40	ND	ND	11	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LFSB12-1.0	08/09/93	1	4,600	ND	ND	400	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LFSB12-3.0	08/09/93	3	420	560	6,500	64	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LFSB13-5.0	08/09/93	5	63	ND	23	ND	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LFSB13-6.5	08/09/93	6.5	37	ND	13	ND	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LFSB14-2.0	08/09/93	2	2,200	ND	42	480	n/a	n/a	n/a	n/a	n/a	0.22	n/a	n/a	n/a
LFSB14-4.5	08/09/93	4.5	47	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LFSB15-4.5	08/09/93	4.5	480	140	4,700	12	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LFSB15-6.0	08/09/93	6	120	59	3,700	14	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LFSB16-4.5	08/09/93	4.5	60	ND	9	ND	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LFSB16-6.0	08/09/93	6	53	ND	8	ND	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LFSB17-4.5	08/09/93	4.5	70	40	260	ND	ND	22	12	69	2.6	ND	1.6	1.8	0.4
LFSB17-6.0	08/09/93	7	50	70	440	ND	ND	27	8	43	2.0	ND	0.57	0.63	ND
LFSB17-12.0	08/09/93	12	47	130	500	190	190	9	4	23	0.660	ND	1.7	1.8	ND
LFSB18-1.0	08/09/93	1	2,200	ND	1	320	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LFSB18-3.0	08/09/93	3	1,100	ND	ND	390	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LFSB19-1.5	08/09/93	1.5	2,200	ND	ND	530	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LFSB19-3.0	08/09/93	3	3,800	ND	1	740	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	n/a
LF-1-4.5	08/07/93	4.5	77	220	550	16	0.84	1.2	5.6	2.7	n/a	n/a	n/a	n/a	n/a
LF-1-9.5	08/07/93	9.5	ND <sup>4</sup>	18	470	ND	0.97	ND	6.6	8.9	n/a	n/a	n/a	n/a	n/a
LF-1-14.5	08/07/93	14.5	60	16	8.4	ND	0.14	0.17	0.081	0.37	n/a	n/a	n/a	n/a	n/a
LF-2-9.5	08/07/93	9.5	30	14	740	ND	4.70	35	13	68	n/a	n/a	n/a	n/a	n/a
LF-2-14.5	08/07/93	14.5	ND	ND	ND	ND	0.009	0.012	ND	0.015	n/a	n/a	n/a	n/a	n/a
LF-3-9.5	08/07/93	9.5	37	ND	75	ND	0.062	0.28	1.1	1.1	n/a	n/a	n/a	n/a	n/a
LF-3-14.5	08/07/93	14.5	ND	ND	ND	ND	0.014	ND	0.01	0.007	n/a	n/a	n/a	n/a	n/a
LF-B1-2	08/30/94	2	ND	ND	0.8	n/a	0.008	ND	0.016	0.085	n/a	n/a	n/a	n/a	n/a
LF-B1-5	08/30/94	5	30	ND	110	n/a	0.840	0.520	3	12	n/a	n/a	n/a	n/a	n/a
LF-B1-10	08/30/94	10	30	ND	690	n/a	12	50	18	99	n/a	n/a	n/a	n/a	n/a
LF-B2-2	08/30/94	2	10	ND	110	n/a	0.6	2.9	3.3	16	n/a	n/a	n/a	n/a	n/a
LF-B2-5	08/30/94	5	10	1	66	n/a	0.37	0.8	0.79	3.5	n/a	n/a	n/a	n/a	n/a
LF-B2-10	08/30/94	10	30	ND	830	n/a	13	52	21	110	n/a	n/a	n/a	n/a	n/a
LF-B3-2	08/30/94	2	80	ND	440	n/a	8.5	36	12	58	n/a	n/a	n/a	n/a	n/a
LF-B3-5	08/30/94	5	200	8	810	n/a	14	62	22	100	n/a	n/a	n/a	n/a	n/a

Oak Walk Redevelopment Project, Emeryville, CA

Sample ID	Date Sampled	Depth BGS	TRPH <sup>2</sup>	TPHd Diesel	TPHg (gasoline)	TPHmo (motor oil)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Methylene Chloride	Aroclor <sup>®</sup> 1260	Naphthalene	2-Methylnaphthalene	4-Methylphenol
		ft.	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
LF-B3-10	08/30/94	10	50	ND	390	n/a	7.1	22	7.2	38	n/a	n/a	n/a	n/a	n/a
LF-B4-2	08/30/94	2	40	ND	49	n/a	0.14	0.12	2.3	11	n/a	n/a	n/a	n/a	n/a
LF-B4-5	08/30/94	5	1,300	28	8,800	n/a	6.8	7.3	190	870	n/a	n/a	n/a	n/a	n/a
LF-B4-10	08/30/94	10	110	3	510	n/a	1.1	0.96	3.4	13	n/a	n/a	n/a	n/a	n/a
LF-B5-2	08/30/94	2	10	ND	0.4	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B5-5	08/30/94	5	2,400	ND	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B5-10	08/30/94	10	ND	ND	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B6-2	08/30/94	2	20	ND	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B6-5	08/30/94	5	10	ND	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B6-10	08/30/94	10	ND	ND	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B7-2	08/30/94	2	10	ND	27	n/a	0.42	ND	0.75	0.05	n/a	n/a	n/a	n/a	n/a
LF-B7-5	08/30/94	5	ND	ND	16	n/a	0.67	ND	ND	0.025	n/a	n/a	n/a	n/a	n/a
LF-B7-10	08/30/94	10	20	ND	520	n/a	7.4	30	14	78	n/a	n/a	n/a	n/a	n/a
LF-B8-2	08/30/94	2	50	5	3.4	n/a	0.2	ND	0.56	0.02	n/a	n/a	n/a	n/a	n/a
LF-B8-5	08/30/94	5	ND	ND	14	n/a	0.3	0.01	0.26	ND	n/a	n/a	n/a	n/a	n/a
LF-B8-10	08/30/94	10	20	ND	140	n/a	2.1	5.8	4	21	n/a	n/a	n/a	n/a	n/a
LF-B9-2	08/30/94	2	20	ND	2.8	n/a	0.33	0.005	0.41	0.07	n/a	n/a	n/a	n/a	n/a
LF-B9-5	08/30/94	5	ND	ND	40	n/a	1.2	0.013	2.8	0.15	n/a	n/a	n/a	n/a	n/a
LF-B9-10	08/30/94	10	20	ND	190	n/a	4.3	11	5.5	28	n/a	n/a	n/a	n/a	n/a
LF-B10-2	08/30/94	2	150	ND	29	n/a	0.038	0.048	0.18	1.2	n/a	n/a	n/a	n/a	n/a
LF-B10-5	08/30/94	5	30	ND	13	n/a	ND	0.02	0.05	ND	n/a	n/a	n/a	n/a	n/a
LF-B10-10	08/30/94	10	ND	ND	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B11-2	08/30/94	2	20	ND	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B11-5	08/30/94	5	ND	ND	1	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B11-10	08/30/94	10	40	ND	250	n/a	1.1	0.35	4.4	21	n/a	n/a	n/a	n/a	n/a
LF-B12-5	08/30/94	2	30	ND	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B12-10	08/30/94	5	ND	ND	0.9	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B12-10	08/30/94	10	30	ND	160	n/a	0.97	0.19	4.1	20	n/a	n/a	n/a	n/a	n/a
LF-B13-2	08/30/94	2	600	220	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B13-5	08/30/94	5	40	10	4.2	n/a	ND	ND	0.02	ND	n/a	n/a	n/a	n/a	n/a
LF-B13-10	08/30/94	10	20	3	6.9	n/a	0.36	ND	0.45	0.13	n/a	n/a	n/a	n/a	n/a
LF-B14-2	08/30/94	2	410	ND	ND	n/a	ND	ND	ND	ND	0.670	n/a	n/a	n/a	n/a
LF-B14-5	08/30/94	5	ND	ND	1.6	n/a	0.01	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B14-10	08/30/94	10	ND	ND	2.9	n/a	0.006	ND	0.01	ND	1.1	n/a	n/a	n/a	n/a
LF-B15-2	08/30/94	2	420	ND	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a



Oak Walk Redevelopment Project, Emeryville, CA

Sample ID	Date Sampled	Depth BGS ft.	TRPH <sup>2</sup>	TPHd Diesel	TPHg (gasoline)	TPHmo (motor oil)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Methylene Chloride	Aroclor <sup>®</sup> 1260	Naphthalene	2-Methylnaphthalene	4-Methylphenol
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
LF-B15-5	08/30/94	5	ND	ND	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B15-10	08/30/94	10	20	ND	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B16-2	08/30/94	2	50	10	ND	n/a	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
LF-B16-5	08/30/94	5	ND	ND	28	n/a	0.16	ND	0.96	0.037	n/a	n/a	n/a	n/a	n/a
LF-B16-10	08/30/94	10	20	ND	130	n/a	2.5	5.4	2.6	15	n/a	n/a	n/a	n/a	n/a

Notes:

- (1) Data Source: Levine-Fricke (1994)
- (2) TRPH = Total Recoverable Petroleum Hydrocarbons
- (3) n/a = Not Analyzed
- (4) ND = Not Detected above the Method Detection Limit (MDL).
- (5) Concentrations in bold script exceed the 2005 San Francisco Bay Area RWQCB's Environmental Screening Levels at sites where groundwater is not a source of drinking water and soils are shallow (<3m bgs).

TABLE 2

RESULTS OF ANALYSES OF GROUNDWATER SAMPLES RECOVERED FROM  
40TH STREET RIGHT-OF-WAY <sup>1</sup>

Sample ID	Date Sampled	TRPH <sup>2</sup> µg/L	TPHd (diesel) µg/L	TPHg (gasoline) µg/L	TPHmo (motor oil) µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Total Xylenes µg/L	MTBE µg/L	PNA (Naphthalene) µg/L
SMW-1	09/11/92	n/a	n/a	1,400	n/a	470	45	43	100	n/a	n/a
	12/03/92	n/a	n/a	ND	n/a	ND	ND	1.6	ND	n/a	n/a
	03/04/93	n/a	n/a	700	n/a	1.1	ND	ND	1.1	n/a	n/a
	06/04/93	n/a	n/a	2,900	n/a	340	58	50	140	n/a	n/a
	09/02/93	n/a	n/a	1,500	n/a	340	ND	ND	140	n/a	n/a
	12/01/93	n/a	n/a	810	n/a	170	23	22	39	n/a	n/a
	03/08/94	n/a	n/a	5,800	n/a	1,700	430	230	490	n/a	n/a
LF-1AG	08/07/93	<b>11,000</b>	<b>41,000</b>	<b>100,000</b>	ND	<b>13,000</b>	<b>9,400</b>	<b>3,100</b>	<b>14,000</b>	n/a	n/a
LF-2AG	08/07/93	ND <sup>3</sup>	95	13,000	ND	2,400	2,900	500	2,000	n/a	n/a
LF-3AG	08/07/93	ND	780	11,000	ND	1,500	170	2,900	5,100	n/a	n/a
WCEW-1	09/26/97	n/a <sup>4</sup>	<b>41,000</b>	<b>180,000</b>	ND	<b>2,800</b>	<b>4,900</b>	<b>3,100</b>	<b>12,000</b>	ND	<b>120</b>
	12/05/97	n/a	95	4,700	ND	2,100	1,800	2,500	10,000	340	170
	03/13/98	n/a	780	7,700	ND	2,500	1,300	1,000	3,400	570	420
	06/02/98	n/a	780	3,400	550	2,100	460	910	2,990	350	1,000

Notes:

- (1) Data Sources: Levine-Fricke (1994), Woodward-Clyde (1998)
- (2) TRPH = Total Recoverable Petroleum Hydrocarbons
- (3) ND = Not Detected above the Method Detection Limit (MDL).
- (4) n/a = Not Analyzed.
- (5) Concentrations in bold script exceed the 2005 San Francisco Bay Area RWQCB's Environmental Screening Levels at site where groundwater is not a source of drinking water and soils are shallow (<3m bgs).

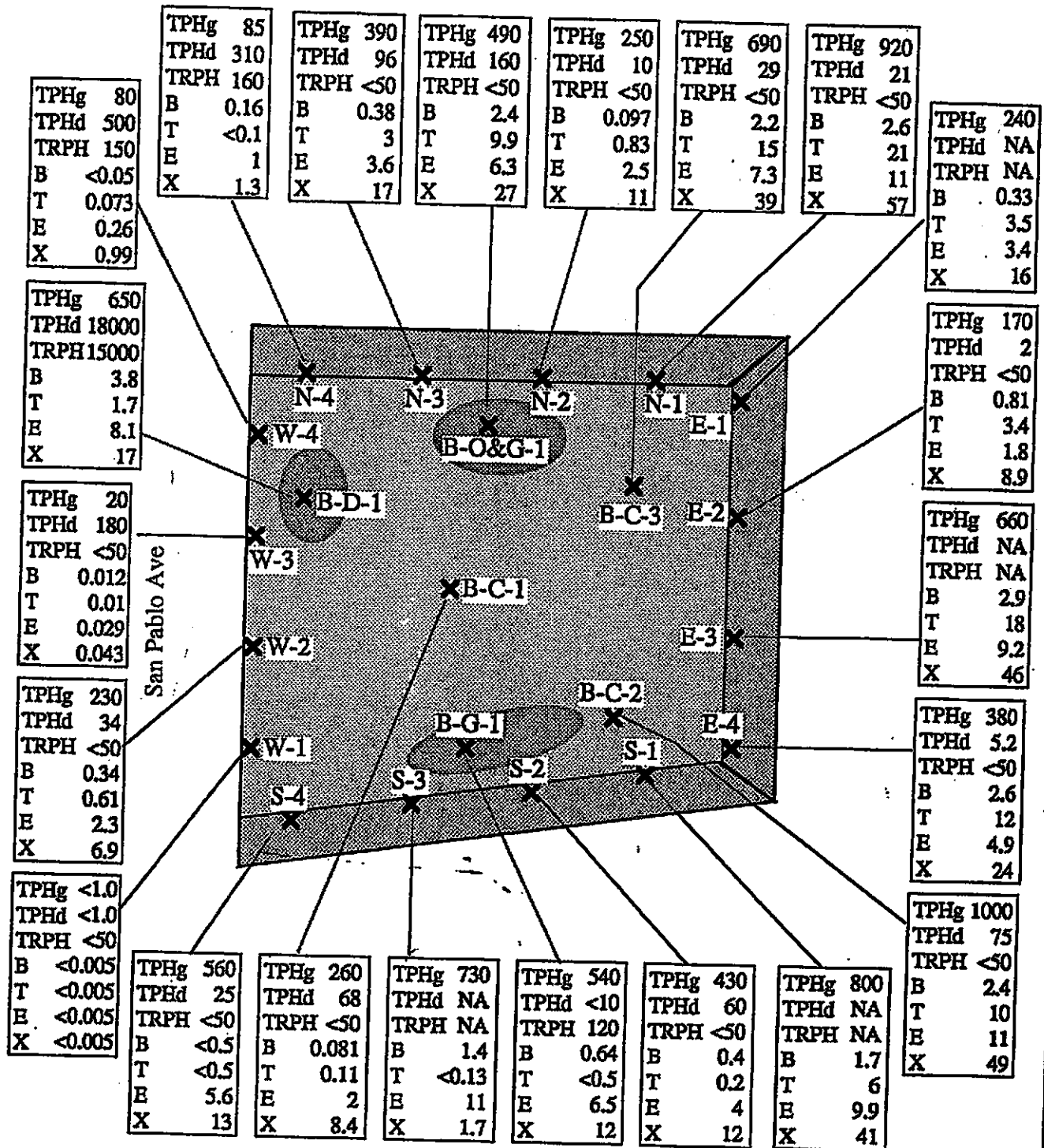
TABLE 3

RESULTS OF ANALYSES OF SOIL SAMPLES FROM REMEDIAL EXCAVATION  
AT FORMER CELIS' ALLIANCE SERVICE STATION  
4000 SAN PABLO AVENUE <sup>1</sup>

Sample ID	TRPH mg/Kg	TPHd (diesel) mg/Kg	TPHg (gasoline) mg/Kg	Benzene mg/Kg	Toluene mg/Kg	Ethyl- benzene mg/Kg	Total Xylenes mg/Kg
<i>Samples Recovered from Walls of Excavation <sup>3</sup></i>							
WC N-1	ND <sup>2</sup>	21	<b>920</b>	2.6	21	11	57
WC N-2	ND	10	<b>250</b>	0.097	0.83	2.5	11
WC N-3	ND	96	<b>390</b>	0.38	3	3.6	17
WC N-4	<b>160</b>	<b>310</b>	85	0.16	ND	1	1.3
WC W-1 <sup>5</sup>	ND	ND	ND	ND	ND	ND	ND
WC W-2	ND	34	<b>230</b>	0.34	0.61	2.3	6.9
WC W-3	ND	<b>180</b>	20	0.012	0.01	0.029	0.043
WC W-4	<b>150</b>	<b>500</b>	80	ND	0.073	0.26	0.99
WC S-1 <sup>5</sup>	n/a <sup>6</sup>	n/a	<b>800</b>	1.7	6	9.9	41
WC S-2 <sup>5</sup>	ND	60	<b>430</b>	0.4	0.2	4	12
WC S-3 <sup>5</sup>	n/a	n/a	<b>730</b>	1.4	ND	11	1.7
WC S-4 <sup>5</sup>	ND	25	<b>560</b>	ND	ND	5.6	13
WC E-1	n/a	n/a	<b>240</b>	0.33	3.5	3.4	16
WC E-2	ND	2	<b>170</b>	0.81	3.4	1.8	8.9
WC E-3	n/a	n/a	<b>660</b>	2.9	18	9.2	46
WC E-4 <sup>5</sup>	ND	5.2	<b>380</b>	2.6	12	4.9	24
<i>Samples Recovered From Floor of Excavation <sup>4</sup></i>							
WC B-C-1	ND	68	260	0.081	0.11	2	8.4
WC B-O&G-1	ND	160	<b>490</b>	2.4	<b>9.9</b>	6.3	27
WC B-D-1	<b>15,000</b>	<b>18,000</b>	<b>650</b>	3.8	1.7	8.1	17
WC B-G-1 <sup>5</sup>	120	ND	<b>540</b>	0.64	ND	6.5	12
WC B-C-2 <sup>5</sup>	ND	75	<b>1,000</b>	2.4	10	11	49
WC B-C-3	ND	29	<b>690</b>	2.2	15	7.3	39

## Notes:

- (1) Data: Woodward-Clyde Consultants, Remediation Report, January 1995, Figure 4.
- (2) ND = Not Detected above the Method Detection Limit (MDL).
- (3) Soil samples recovered from approx. 8 ft. B.G.S.
- (4) Floor of excavation approx. 9.5 ft. B.G.S.
- (5) Sampling location near property boundary shared with 3992 San Pablo Avenue.
- (6) n/a = Not Analyzed.
- (7) Concentrations in **bold script** exceed the 2005 San Francisco Bay Area RWQCB's Environmental Screening Levels in shallow soil (<3m bgs) and groundwater is not a source of drinking water.



TPHg = total petroleum hydrocarbons as gasoline  
 TPHd = total petroleum hydrocarbons as diesel  
 TRPH = total recoverable petroleum hydrocarbons

B = benzene  
 T = toluene  
 E = ethyl benzene  
 X = xylenes

Soil samples on side walls were collected 6-in above the bottom floor

Unit of Concentration: mg/kg

Project No. 941114NA	CITY OF EMERYVILLE REDEVELOPMENT AGENCY	SOIL SAMPLING LOCATIONS & ANALYTE CONCENTRATIONS	Figure 4
Woodward-Clyde Consultants	40th Street UST at 4000 San Pablo Avenue		

**TABLE 1**  
GROUNDWATER ELEVATION DATA for well **SJC-MW-8**

Date Measured	Casing Elevation ft. MSL	Depth to GW ft.	GW Elevation ft.
08/08/04	42.58	5.69	36.89
12/09/04		3.90	38.68

Note: All elevations in feet relative to mean sea level (MSL).

**TABLE 2**  
RESULTS OF ANALYSES OF SOIL SAMPLES for well **SJC-MW-8**

Sample ID	Sample Location	Date Sampled	Depth BGS ft.	Gasoline mg/Kg	Diesel mg/Kg	Mineral Spirits mg/Kg	Benzene mg/Kg	Toluene mg/Kg	Ethyl benzene mg/Kg	Total Xylenes mg/Kg	TBA mg/Kg	MTBE mg/Kg	DIPE mg/Kg	ETBE mg/Kg	TAME mg/Kg
SJCMW8-6.5	SJC-MW8	08-20-04	6.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SJCMW8-11.0		08-20-04	11.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SJCMW8-16.0		08-20-04	16.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SJCMW8-20.5		08-20-04	20.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SJCMW8-24.0		08-20-04	24.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: ND = Not Detected above the Method Detection Limit (MDL).

**TABLE 3**  
GROUNDWATER QUALITY DATA for well **SJC-MW-8**

Date	Gasoline µg/L	Diesel µg/L	Mineral Spirits µg/L	Benzene µg/L	Toluene µg/L	Ethyl benzene µg/L	Total Xylenes µg/L	TBA µg/L	MTBE µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L
09/08/04	80	ND	ND	ND	ND	ND	ND	ND	28	ND	ND	n/a
12/09/04	100	53*	ND	2.8	ND	ND	ND	0.91	26	ND	ND	n/a

\* Laboratory reports that hydrocarbon in sample is an unknown hydrocarbon in the diesel range.

Note: ND = Not Detected above the Method Detection Limit (MDL).

# The San Joaquin Company Inc.

# Monitoring Well Log

WELL No.: **SJC-MW-8**      Project: SNK Andante      Project No.: 9401.206

Owner: SNK Captec Andante LLC      Location: 3992 San Pablo Avenue, Emeryville, California

Top of Casing Elevation: 42.58 ft.      Surface Elevation: 43.07 ft.      Depth to Water: 5.69 ft.

Date Installed: 08/20/04      Total depth of Boring: 25 ft.      Boring Diameter: 8 in.

Well Casing Diameter: 2 in.      Total depth of Well: 25 ft.      Casing Material: PVC

Drilling Company: Gregg Drilling & Testing      Drilling Method: Hollow Stem Auger

Driller: Trevor Joyner      Logged By: Steve Flexser

NOTE: Uniform Soil Classifications are from field observations only without data from laboratory.

Depth (Feet)	Sample	Graphic Log	Description	Well Construction
0			Sandy Clayey GRAVEL (GM), loose, dry	<p>Heavy-duty steel wellhead box with bolted cover and O-ring seal</p> <p>Cap</p> <p>Concrete</p> <p>Type-II Portland cement grout</p> <p>Bentonite seal</p> <p>▼ 09/08/04</p> <p>No. 2 Monterey sand filter pack</p> <p>2-inch diameter PVC well casing with 0.02 inch aperture machine-cut slots</p> <p>▼</p> <p>Conical PVC casing cap</p>
2			Dark brown Sandy CLAY (CL), medium stiff, damp, with some gravel (FILL) No odor	
4			Light blue-gray Sandy CLAY (CL), medium stiff, damp (FILL) No odor	
6	SJC-MW-8-6.5		Light blue-gray Sandy CLAY (CL), medium stiff, damp (FILL) No odor	
8			Light grey Silty CLAY (CH), stiff, damp, with gravel clasts of white angular chert, and black angular to rounded basalt, and gray mottling No odor	
10	SJC-MW-8-11		Light grey Silty CLAY (CH), stiff, damp, with gravel clasts of white angular chert, and black angular to rounded basalt, and gray mottling No odor	
12			Gray and orange Sandy CLAY (CL), medium stiff, moist, mottled, with fine gravel No odor	
14	SJC-MW-8-16		Gray and orange Sandy CLAY (CL), medium stiff, moist, mottled, with fine gravel No odor	
16			Light brown to orange Sandy Silty CLAY (CL), soft, wet, some gray mottling, with angular gravel No odor	
18	SJC-MW-8-20.5		Light brown to orange Sandy Silty CLAY (CL), soft, wet, some gray mottling, with angular gravel No odor	
20			Light brown to orange Sandy Silty CLAY (CL), very stiff, moist, with fine gravel and angular soft black cinder clasts No odor	
22	SJC-MW-8-24		Light brown to orange Sandy Silty CLAY (CL), very stiff, moist, with fine gravel and angular soft black cinder clasts No odor	
24			TD Boring @ 25 feet	
26				
28				
30				

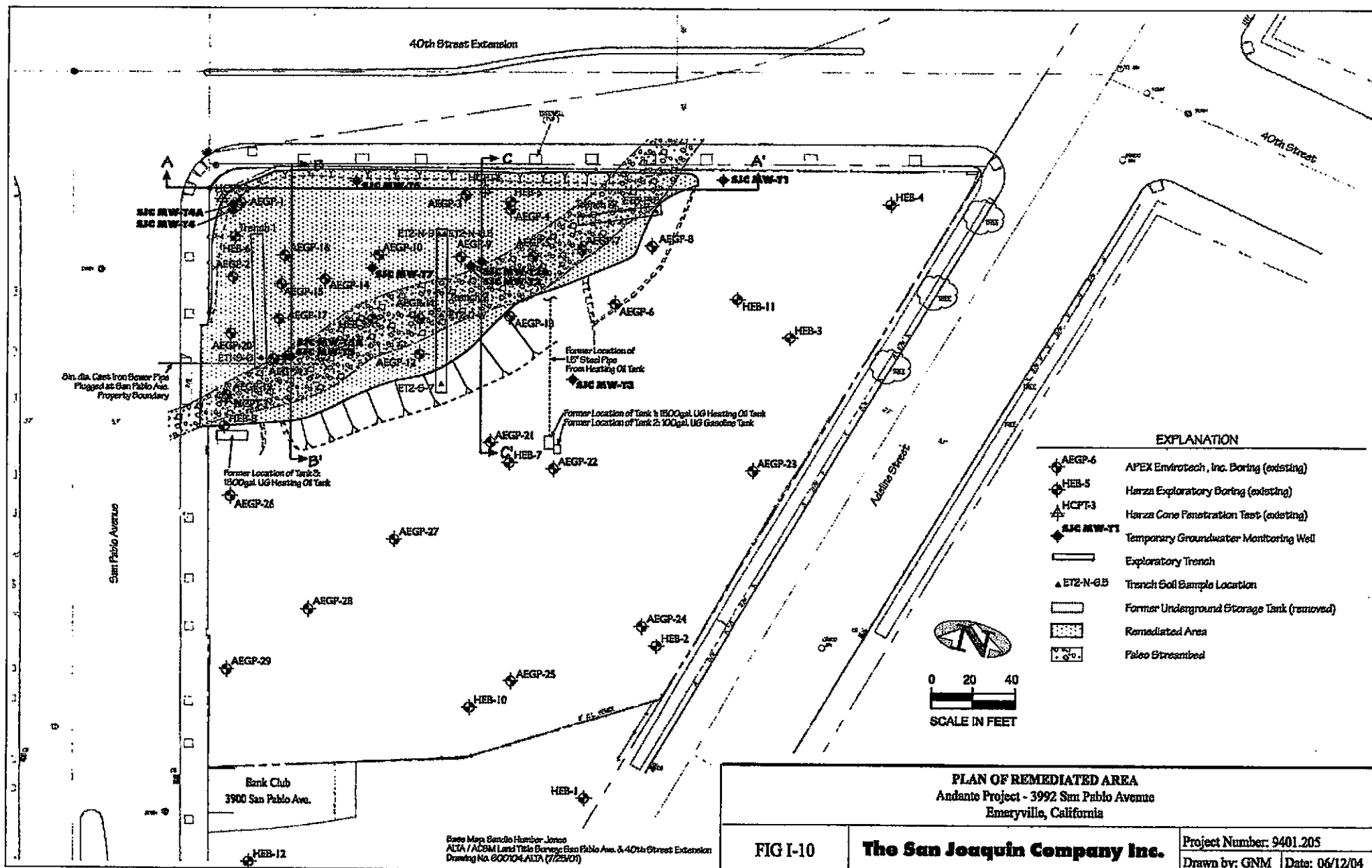






TABLE I-1  
 DEPTHS TO GROUNDWATER

Well No.	Date Measured	Casing Elevation ft. MSL	Ground Elevation ft. MSL	Depth below Top of Well Casing ft.	Depth below Ground Level ft.	Groundwater Elevation ft. MSL
SMW-1 <sup>1</sup>	09/11/92	n/a <sup>2</sup>		9.10	n/a	n/a
	12/03/92	n/a		9.55	n/a	n/a
	03/04/93	n/a		7.82	n/a	n/a
	06/04/93	n/a		5.15	n/a	n/a
	09/02/93	n/a		8.00	n/a	n/a
	12/01/93	n/a		11.82	n/a	n/a
	03/08/94	n/a		5.08	n/a	n/a
WC-EW-1		39.04	n/a			
	12/05/97			6.00	n/a	33.04
	09/26/97			8.06	n/a	30.98
	06/02/98			7.24	n/a	31.80
	03/13/98			5.92	n/a	33.12
LF-LF-1		38.95	n/a			
	08/08/93			9.40	n/a	29.55
	08/20/93			10.00		28.95
LF-LF-2		40.25	n/a			
	08/08/93			7.97	n/a	32.28
	08/20/93			8.29	n/a	31.96
LF-LF-3		39.35	n/a			
	08/08/93			8.90	n/a	30.45
	08/07/93			9.18	n/a	30.17
LF-LF-4		38.08	n/a			
	06/02/98			6.99	n/a	31.09
	03/13/98			6.58	n/a	31.50
	12/05/97			6.28	n/a	31.80
	09/26/97			8.25	n/a	29.83
	01/28/94			6.77	n/a	31.31
SJC-MW-T1		46.99	43.51			
	04/14/03			6.69	3.21	40.30
	04/16/03			6.84	3.36	40.15
	04/21/03			8.14	4.66	38.85
SJC-MW-T2		43.26	41.54			
	04/14/03			2.83	1.11	40.43
	04/16/03			3.42	1.70	39.84
	04/21/03			4.22	2.50	39.04
SJC-MW-T2A		43.99	41.52			
	04/14/03			7.49	5.02	36.50
	04/16/03			7.52	5.05	36.47
	04/21/03			7.00	4.53	36.99

Well No.	Date Measured	Casing Elevation ft. MSL	Ground Elevation ft. MSL	Depth below Top of Well Casing ft.	Depth below Ground Level ft.	Groundwater Elevation ft. MSL
SJC-MW-T3		46.01	42.50			
	04/14/03			7.77	4.26	38.24
	04/16/03			7.89	4.38	38.12
	04/21/03			8.12	4.61	37.89
SJC-MW-T4		41.01	39.73			
	04/14/03			3.32	2.04	37.69
	04/16/03			3.54	2.26	37.47
	04/21/03			5.14	3.86	35.87
SJC-MW-T4A		42.70	39.69			
	04/14/03			8.81	5.80	33.89
	04/16/03			8.10	5.09	34.60
	04/21/03			8.00	4.99	34.70
SJC-MW-T5		41.79	39.64			
	04/14/03			2.33	0.18	39.46
	04/11/02			3.52	1.37	38.27
	04/21/03			5.22	3.07	36.57
SJC-MW-T5A		42.30	39.52			
	04/14/03			4.20	1.42	38.10
	04/16/03			6.62	3.84	35.68
	04/21/03			7.56	4.78	34.74
SJC-MW-T6		44.02	40.73			
	04/14/03			5.28	1.99	38.74
	04/16/03			5.99	2.70	38.03
	04/21/03			7.07	3.78	36.95
SJC-MW-T7		44.10	40.55			
	04/14/03			5.86	2.31	38.24
	04/16/03			6.24	2.69	37.86
	04/21/03			6.86	3.31	37.24

**Notes:**

(1) Data from groundwater-quality monitoring in Well SMW-1 that is included in this Table became available after Table II-13 of Volume II of this Corrective Action Report, which includes an otherwise similar data compilation, had been completed.

(2) n/a = Data not available.

TABLE I-5

RESULTS OF ANALYSES OF SOIL SAMPLES FROM BORINGS <sup>1</sup>  
ON ANDANTE PROJECT SITE

Sample ID	Date Sampled	Depth BGS ft.	TPHd (diesel) mg/Kg	TPHg (gasoline) mg/Kg	Benzene mg/Kg	Toluene mg/Kg	Ethyl-benzene mg/Kg	Total Xylenes mg/Kg	MTBE mg/Kg	Total Lead mg/Kg
AE GP-1@5'	02/05/03	5	ND <sup>2</sup>	ND	ND	ND	ND	ND	ND	6.35
AE GP-2@5'	02/05/03	5	ND	ND	0.0093	ND	ND	ND	ND	8.83
AE GP-2@8'	02/05/03	8	69	<b>1,800</b>	<b>6.6</b>	<b>30</b>	<b>19</b>	<b>150</b>	ND	4.16
AE GP-3@5'	02/05/03	5	1.6	ND	0.0081	ND	0.014	ND	ND	6.70
AE GP-4@8'	02/05/03	8	34	<b>400</b>	<b>1.6</b>	<b>1.9</b>	<b>7.7</b>	<b>35</b>	ND	4.58
AE GP-5@5'	02/05/03	5	130	42	0.17	0.013	0.69	0.48	ND	8.07
AE GP-5@10'	02/05/03	10	1.2	31	<b>0.31</b>	ND	0.53	1.7	0.0086	3.80
AE GP-6@5'	02/05/03	5	ND	ND	ND	ND	ND	ND	ND	10.3
AE GP-6@11'	02/05/03	11	ND	ND	ND	ND	ND	ND	ND	6.03
AE GP-7@5'	02/05/03	5	13	1.8	ND	0.0061	0.019	0.0055	ND	10.3
AE GP-7@10'	02/05/03	10	11	25	0.12	ND	1.2	0.23	0.0069	5.42
AE GP-8@10'	02/05/03	10	3.4	ND	ND	ND	ND	ND	ND	3.01
AE GP-9@5'	02/05/03	5	<b>1,100</b>	<b>12,000</b>	<b>19</b>	<b>270</b>	<b>230</b>	<b>1,300</b>	<b>0.061</b>	16.7
AE GP-10@6'	02/05/03	6	420	870	<b>3.0</b>	<b>8.8</b>	<b>9.3</b>	<b>46</b>	ND	8.41
AE GP-11@5'	02/05/03	5	6.2	<b>4,900</b>	<b>3.3</b>	<b>61</b>	<b>92</b>	<b>590</b>	ND	7.92
AE GP-11@10'	02/05/03	10	<b>630</b>	26	<b>0.34</b>	0.5	0.61	<b>2.5</b>	ND	6.84
AE GP-12@8'	02/05/03	8	ND	ND	ND	ND	ND	ND	ND	6.05
AE GP-13@8'	02/05/03	8	1.5	40	<b>0.68</b>	ND	1.6	<b>3.2</b>	0.0075	2.83
AE GP-16@5'	02/05/03	5	1.4	1.3	ND	ND	ND	ND	ND	5.57
AE GP-17@5'	02/05/03	5	ND	ND	ND	ND	ND	ND	ND	5.06
AE GP-18@5'	02/05/03	5	ND	ND	ND	ND	ND	ND	ND	6.52
AE GP-18@10'	02/05/03	10	15	ND	ND	ND	ND	ND	ND	2.17
AE GP-21@7'	02/05/03	7	ND	ND	ND	ND	ND	ND	ND	6.10
AE GP-22@7'	02/05/03	7	ND	ND	ND	ND	ND	ND	ND	4.46
AE GP-23@7'	02/05/03	7	41	ND	ND	ND	ND	ND	ND	4.58
AE GP-24@7'	02/05/03	7	140	ND	ND	ND	ND	ND	ND	4.28
AE GP-25@7'	02/05/03	7	54	ND	ND	ND	ND	ND	ND	4.58
AE GP-26@5'	02/05/03	5	ND	ND	ND	ND	ND	ND	ND	5.31
AE GP-27@5'	02/05/03	5	ND	ND	ND	ND	ND	ND	ND	4.14
AE GP-28@5'	02/05/03	5	ND	ND	ND	ND	ND	ND	ND	3.73
AE GP-29@5'	02/05/03	5	ND	ND	ND	ND	ND	ND	ND	5.05

Notes:

- (1) Data Apex Envirotech, Inc., (2003) *Results of Limited Subsurface Investigation*, Table 1
- (2) ND = Not Detected above the Method Detection Limit (MDL).
- (3) Concentrations in bold script exceed the San Francisco Bay Area RWQCB's RBSL limits for residential sites where groundwater is at less than 3 meters BGS in porous soils where groundwater is not a source of drinking water (Interim Final Edition December 2001).

TABLE I-6

RESULTS OF ANALYSES OF SOIL SAMPLES RECOVERED FROM EXPLORATORY TRENCHES, TANK PITS AND TEMPORARY WELLS ON ANDANTE PROJECT SITE

Sample ID	Date Sampled	Depth BGS ft.	TPHd (diesel) mg/Kg	Mineral Spirits mg/Kg	TPHg (gasoline) mg/Kg	Benzene mg/Kg	Toluene mg/Kg	Ethylbenzene mg/Kg	Total Xylenes mg/Kg	TBA mg/Kg	MTBE mg/Kg	TAME mg/Kg	DIPE mg/Kg	ETBE mg/Kg	1,2-DCA mg/Kg	EDB mg/Kg	Ethanol mg/Kg	PNA (Naphthalene) mg/Kg	Total Lead mg/Kg
ET2-N-6.5	03/24/03	6.5	110 <sup>3</sup>	n/a <sup>2</sup>	510 <sup>3</sup>	1.1	3.7	10	65	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a
ET2-N-9	03/24/03	9.0	46 <sup>3</sup>	n/a	400	2.8	8.2	7.9	45	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a
ET2-S-7	03/24/03	7.0	ND <sup>1</sup>	n/a	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a
ET1-S-6	03/25/03	6.0	ND	n/a	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
ET3-E-8	03/25/03	8.0	1.2	n/a	1.2	0.030	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tank 1 - N	04/29/03	10.0	ND	54	31 <sup>4</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	5.6
Tank 1 - S	04/29/03	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	2.4
Tank 1P - 20N	04/29/03	3.0	230 <sup>3</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a
Tank 1P - 40N	04/29/03	3.0	1.2 <sup>3</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a
Tank 3	05/22/03	7.8	ND	ND	n/a	ND	ND	ND	ND	0.0080	0.0081	ND	ND	ND	ND	ND	n/a	n/a	n/a
SJC-MW-T1-7.5	04/11/03	7.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T1-11.5	04/11/03	11.5	3.5 <sup>3</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T2-8	04/11/03	8.0	18 <sup>3</sup>	ND	250	1.4	3.5	5.2	27	ND	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T2A-5	04/11/03	5.0	130 <sup>3</sup>	ND	660	ND	1.4	9.9	75	ND	ND	ND	ND	ND	n/a	n/a	n/a	1.8	n/a
SJC-MW-T2A-9	04/11/03	9.0	8.3 <sup>3</sup>	ND	500	0.5	0.5	0.5	2	ND	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T2A-15.5	04/11/03	15.5	6.1 <sup>3</sup>	ND	ND	ND	ND	ND	0.012	ND	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T2A-19.5	04/11/03	19.5	1.2 <sup>3</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T3-8	04/11/03	8.0	2.4 <sup>3</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T3-12	04/11/03	12.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
SJC-MW-T4-8	04/11/03	8.0	12 <sup>3</sup>	ND	ND	ND	ND	ND	1.8	0.01	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a

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Sample ID	Date Sampled	Depth BGS ft.	TPHd (diesel) mg/Kg	Mineral Spirits mg/Kg	TPHg (gasoline) mg/Kg	Benzene mg/Kg	Toluene mg/Kg	Ethyl-benzene mg/Kg	Total Xylenes mg/Kg	TBA mg/Kg	MTBE mg/Kg	TAME mg/Kg	DIPE mg/Kg	ETBE mg/Kg	1,2-DCA mg/Kg	EDB mg/Kg	Ethanol mg/Kg	PNA (Naphthalene) mg/Kg	Total Lead mg/Kg
SJC-MW-T4A-5	04/11/03	5.0	2.9 <sup>3</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T4A-12	04/11/03	12.0	14 <sup>3</sup>	ND	76	ND	ND	0.98	3.1	ND	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T4A-15.5	04/11/03	15.5	4.2 <sup>3</sup>	ND	ND	ND	ND	ND	ND	ND	0.0052	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T4A-20	04/11/03	20.0	4.6 <sup>3</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T5-5	04/11/03	5.0	34 <sup>3</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T5-7.5	04/11/03	7.5	12 <sup>3</sup>	ND	ND	ND	ND	0.57	2.4	ND	ND	ND	ND	ND	n/a	n/a	n/a	ND	n/a
SJC-MW-T5A-5	04/11/03	5.0	9.3 <sup>3</sup>	ND	ND	0.0086	ND	0.019	ND	0.0068	ND	ND	ND	ND	n/a	n/a	n/a	0.29	n/a
SJC-MW-T5A-10	04/11/03	10.0	71 <sup>3</sup>	ND	1,500	4.40	17.0	28.0	150.0	ND	ND	ND	ND	ND	n/a	n/a	n/a	0.35	n/a
SJC-MW-T5A-15.5	04/11/03	15.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
SJC-MW-T5A-19.5	04/11/03	19.5	ND	ND	ND	ND	ND	ND	0.011	ND	0.014	ND	ND	ND	n/a	n/a	n/a	n/a	n/a
SJC-MW-T6-5	04/11/03	5.0	48 <sup>3</sup>	ND	1,300	4.2	15	23	140	ND	ND	ND	ND	ND	n/a	n/a	n/a	1.1	n/a
SJC-MW-T6-11.5	04/11/03	11.5	20 <sup>3</sup>	ND	180	ND	ND	2.3	120	ND	ND	ND	ND	ND	n/a	n/a	n/a	0.50	n/a
SJC-MW-T7-7.5	04/11/03	7.5	37 <sup>3</sup>	ND	2,000	9.1	41	35	230	ND	ND	ND	ND	ND	n/a	n/a	n/a	0.91	n/a
SJC-MW-T7-11.5	04/11/03	11.5	150 <sup>3</sup>	ND	1,800	8.2	33	31	200	ND	ND	ND	ND	ND	n/a	n/a	n/a	2.1	n/a

Notes:

- (1) ND = Not Detected above the Method Detection Limit (MDL).
- (2) n/a = Not analyzed
- (3) The laboratory reports that the detected hydrocarbon does not match its Diesel standard. The hydrocarbon detected appears to be a mixture of Diesel and Mineral Spirits, but the components of the mixture, all of which were in the Diesel range, were insufficiently distinct to quantify them separately.
- (4) Does not match laboratory's standard for gasoline.
- (5) Concentrations in bold script exceed the San Francisco Bay Area RWQCB's RBSL limits for residential sites where groundwater is at less than 3 meters BGS in porous soils where groundwater is not a source of drinking water (Interim Final Edition December 2001).

TABLE I-7

RESULTS OF ANALYSES OF GROUNDWATER SAMPLES RECOVERED FROM EXPLORATORY TRENCHES AND TEMPORARY WELLS ON ANDANTE PROJECT SITE

Sample ID	Date Sampled	TPHd (diesel) $\mu\text{g/L}$	Mineral Spirits $\mu\text{g/L}$	TPHg (gasoline) $\mu\text{g/L}$	Benzene $\mu\text{g/L}$	Toluene $\mu\text{g/L}$	Ethyl-benzene $\mu\text{g/L}$	Total Xylenes $\mu\text{g/L}$	TBA $\mu\text{g/L}$	MTBE $\mu\text{g/L}$	TAME $\mu\text{g/L}$	DIPE $\mu\text{g/L}$	ETBE $\mu\text{g/L}$	1,2-DCA $\mu\text{g/L}$	EDB $\mu\text{g/L}$	Ethanol $\mu\text{g/L}$	PNA (Naphthalene) $\mu\text{g/L}$
ET2-C-W	03/24/03	<b>20,000</b> <sup>3</sup>	n/a	<b>510,000</b>	<b>1,100</b>	<b>3,700</b>	<b>10,000</b>	<b>65,000</b>	ND <sup>1</sup>	ND	ND	ND	ND	ND	ND	ND	n/a <sup>2</sup>
SJC-MW-T1	04/16/03	380 <sup>4</sup>	ND	280	1.7	ND	0.54	ND	ND	6.3	ND	ND	ND	ND	ND	ND	n/a
SJC-MW-T2	04/16/03	<b>7,900</b> <sup>4</sup>	ND	<b>33,000</b>	<b>460</b>	<b>1,200</b>	<b>1,300</b>	<b>8,300</b>	ND	15	ND	ND	ND	ND	ND	ND	n/a
SJC-MW-T2A	04/16/03	<b>6,700</b> <sup>4</sup>	ND	<b>63,000</b>	<b>1,400</b>	<b>2,000</b>	<b>3,300</b>	<b>17,000</b>	ND	ND	ND	ND	ND	ND	ND	ND	n/a
SJC-MW-T3	04/16/03	320 <sup>4</sup>	ND	ND	ND	0.71	ND	ND	ND	0.59	ND	ND	ND	ND	ND	ND	n/a
SJC-MW-T4	04/16/03	360 <sup>4</sup>	ND	670	94	1.9	83	120	ND	0.93	ND	ND	ND	ND	ND	ND	n/a
SJC-MW-T4A	04/16/03	740 <sup>4</sup>	ND	<b>5,700</b>	120	4	630	790	ND	78	ND	ND	ND	ND	ND	ND	n/a
SJC-MW-T5	04/16/03	320 <sup>4</sup>	ND	610	130	2.1	54	90	ND	1.4	ND	ND	ND	ND	ND	ND	n/a
SJC-MW-T5A	04/16/03	<b>5,400</b> <sup>4</sup>	ND	<b>34,000</b>	<b>2,700</b>	<b>2,200</b>	<b>2,100</b>	<b>9,000</b>	ND	ND	ND	ND	ND	ND	ND	ND	n/a
SJC-MW-T6	04/16/03	4,500 <sup>4</sup>	ND	<b>24,000</b>	<b>1,900</b>	<b>1,900</b>	<b>1,100</b>	<b>6,200</b>	ND	ND	ND	ND	ND	ND	ND	ND	n/a
SJC-MW-T7	04/16/03	<b>6,100</b> <sup>4</sup>	ND	<b>45,000</b>	<b>3,400</b>	<b>4,800</b>	<b>1,700</b>	<b>9,300</b>	ND	ND	ND	ND	ND	ND	ND	ND	n/a
30S-40E (Water)	05/15/03	<b>3,200</b> <sup>4</sup>	ND	<b>23,000</b>	<b>1,500</b>	<b>2,400</b>	<b>730</b>	<b>3,700</b>	ND	74	ND	ND	ND	ND	ND	ND	140

Notes:

- (1) ND = Not Detected above the Method Detection Limit (MDL).
- (2) n/a = Not Analyzed.
- (3) Chromatogram for this sample indicates that the only analyte in the C<sub>6</sub> to C<sub>24</sub> range is Mineral Spirits.
- (4) The laboratory reports that the detected hydrocarbon does not match its Diesel Standard.
- (5) Concentrations in bold script exceed the San Francisco Bay Area RWQCB's RBSL limits for residential sites where groundwater is at less than 3 meters BGS in porous soils where groundwater is not a source of drinking water (Interim Final Edition December 2001).

TABLE 6

**ENVIRONMENTAL SITE CHARACTERIZATION  
BORING AND WELL LOCATIONS AND ELEVATIONS**

Well/Casing ID	Surface Elev. ft. MSL	Casing Elev. ft. MSL	Latitude Degrees (N)	Longitude Degrees (W)
BG-1	43.33	-	37.83126586	122.27971459
BG-2	46.47	-	37.83157152	122.27901056
CPT-1	46.54	-	37.83157565	122.27899228
CPT-2	44.69	-	37.83159903	122.27956231
BE-1	44.96	-	37.83140061	122.27938970
BE-2	46.60	-	37.83141540	122.27892388
BE-3	48.48	-	37.83149306	122.27850527
BE-4	44.59	-	37.83154608	122.27931623
BE-5	43.84	-	37.83168812	122.27985103
BE-6	43.88	-	37.83163348	122.27970796
WCEW-1	42.09	41.73	37.83120830	122.27974368
MW-2	44.71	44.40	37.83131189	122.27912475
MW-3	45.95	45.49	37.83137871	122.27878729
MW-4	47.49	47.31	37.83145282	122.27838874
MW-5	42.86	42.51	37.83147167	122.27983901
MW-6	43.86	43.35	37.83183292	122.27986542
MW-7	45.24	44.75	37.83194879	122.27958321
MW-8	48.53	48.38	37.83210236	122.27875590
MWT-1	43.32	42.98	37.83138990	122.27976003
MWT-2	45.70	45.28	37.83146798	122.27918964
MWT-3	47.93	47.64	37.83151042	122.27863741
MWT-4	45.15	44.74	37.83156377	122.27949460
MWT-5	47.32	47.10	37.83159767	122.27883544
MWT-6	45.41	45.16	37.83175239	122.27951885
MWT-7a <sup>1</sup>	45.43	46.61	37.83164427	122.27918245
MWT-7b	45.60	45.69	37.83164424	122.27918258
MWT-8	47.43	47.23	37.83175750	122.27885735
MWT-9	46.14	45.78	37.83193666	122.27927581
MWT-10	47.38	47.22	37.83197238	122.27902606
MWT-11	45.50	46.63	37.83170803	122.27930198
MWT-12	46.10	47.97	37.83172816	122.27914423
MWT-13	46.30	48.16	37.83173814	122.27901118
MWT-14	47.80	47.85	37.83187913	122.27889705

## Notes:

- 1) MWT-7 casing truncated by vandals. Elevation resurveyed on 11/10/04
- 2) Horizontal Datum: NAD 83
- 3) Vertical Datum: NAVD 88

TABLE 7

RECENT DEPTHS TO GROUNDWATER  
AT OAK WALK REDEVELOPMENT SITE

Well No.	Date Measured	Casing Elevation ft. MSL	Groundwater Depth ft.	Groundwater Elevation ft. MSL
WCEW-1	05/19/04	41.73	7.88	33.85
	11/08/04		7.13	34.60
MW-2	05/19/04	44.40	5.98	38.42
	11/08/04		4.94	39.46
MW-3	05/19/04	45.49	5.66	39.83
	11/08/04		5.89	39.60
MW-4	05/19/04	47.31	6.19	41.12
	11/08/04		5.81	41.50
MW-5	05/19/04	42.51	7.39	35.12
	11/08/04		7.09	35.42
MW-6	05/19/04	43.35	7.16	36.19
	11/08/04		6.93	36.42
MW-7	05/19/04	44.75	8.40	36.35
	11/08/04		8.10	36.65
MW-8	05/19/04	48.38	9.65	38.73
	11/08/04		9.05	39.33
MWT-1	05/19/04	42.98	8.43	34.55
	11/08/04		6.82	36.16
MWT-2	05/19/04	45.28	7.69	37.59
	11/08/04		7.17	38.11
MWT-3	05/19/04	47.64	7.64	40.00
	11/08/04		7.66	39.98



Oak Walk Redevelopment Project, Emeryville, CA

Well No.	Date Measured	Casing Elevation ft. MSL	Groundwater Depth ft.	Groundwater Elevation ft. MSL
MWT-4	05/19/04	44.74	8.43	36.31
	11/08/04		7.99	36.75
MWT-5	05/19/04	47.10	9.07	38.03
	11/08/04		8.84	38.26
MWT-6	05/19/04	45.21	9.05	36.16
	11/08/04		8.73	36.48
MWT-7 <sup>1</sup>	05/19/04	46.61	9.90	36.71
	11/08/04	45.69	8.60	37.09
MWT-8	05/19/04	47.23	9.65	37.58
	11/08/04		9.31	37.92
MWT-9	05/19/04	45.78	8.70	37.08
	11/08/04		8.23	37.55
MWT-10	05/19/04	47.22	9.53	37.69
	11/08/04		9.03	38.19
MWT-11	11/08/04	46.63	9.71	36.92
MWT-12	11/08/04	47.97	10.79	37.18
MWT-13	11/08/04	48.16	10.65	37.51
MWT-14	11/08/04	47.85	9.63	38.22

**Notes:**

- 1) MWT-7 casing truncated by vandals. Elevation resurveyed on 11/10/04

TABLE 8  
RESULTS OF ANALYSES OF SOIL SAMPLES RECOVERED FROM SOIL BORINGS AT OAK WALK REDEVELOPMENT SITE

Sample ID	Date Sampled	Depth BGS ft.	Petroleum Hydrocarbons			BTEX Compounds					Volatile Organic Compounds											PNAs						
			Mineral Spirits mg/kg	TPHd (diesel) mg/kg	TPHg (gasoline) mg/kg	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Total Xylenes mg/kg	MTBE mg/kg	Acetone mg/kg	2-Butanone mg/kg	n-Butylbenzene mg/kg	sec-Butylbenzene mg/kg	tert-Butylbenzene mg/kg	Isopropylbenzene mg/kg	p-Isopropylbenzene mg/kg	p-Isopropyltoluene mg/kg	n-Propylbenzene mg/kg	1,2,4-Trimethylbenzene mg/kg	1,3,5-Trimethylbenzene mg/kg	Other VOCs by 8260B GC/MS	Napthalene mg/kg	2-Methylnaphthalene mg/kg	15 Other PNAs by 8270C mg/kg			
Trenches - December 2003																												
T1 - 7.0	12/03/03	7.0	n/a	70	530 <sup>1</sup>	ND	ND	8.3	4.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
T1 - 8.5	12/03/03	8.5	n/a	90	1,400 <sup>2</sup>	ND	ND	10	1.9	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
T2 - 6.5	12/03/03	6.5	n/a	ND	3.8 <sup>4</sup>	0.026	ND	0.024	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
T2 - 8.5	12/03/03	8.5	n/a	1.5	300 <sup>5</sup>	1.1	3.1	6.4	27	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
T3 - 8.0	12/03/03	8.0	n/a	4.3	6.4	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ND	n/a	n/a	
T3 - 9.5	12/03/03	9.5	n/a	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
T4 - 10.5	12/03/03	10.5	n/a	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	ND	
T5 - 9.0	12/03/03	9	ND	70 <sup>4</sup>	400	ND	2.6	6.1	36	ND	n/a	n/a	ND	0.6	ND	0.88	ND	ND	3.9	25	7.6	ND	4.1	1.8	ND	ND	ND	
T6 - 8.5	12/02/03	8.5	n/a	70	3,000 <sup>6</sup>	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
T7 - 9.0	12/02/03	9.0	n/a	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
T8 - 8.5	12/02/03	8.5	n/a	150	820 <sup>6</sup>	ND	ND	ND	ND	ND	n/a	n/a	0.51	0.81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	ND	ND	
Borings and Wells 2004																												
BE-1-5.0	04/02/04	5.0	62 <sup>3</sup>	ND	540	ND	ND	5.1	1.6	ND	ND	ND	8.4	3.1	ND	2.7	ND	0.29	13	12	3.8	ND <sup>4</sup>	18	3.2	ND <sup>5</sup>	ND	ND	
BE-1-10.0	04/02/04	10.0	130 <sup>2</sup>	ND	3,600	13	140	80	430	ND	ND	ND	3.7	ND	ND	1.4	ND	ND	6.2	32	12	ND	7.5	ND	ND	ND	ND	
BE-1-13.5	04/02/04	13.5	n/a <sup>2</sup>	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BE-1-15.0	04/02/04	15.0	ND	ND	7.9	0.086	0.029	0.12	0.6	0.011	ND	ND	0.014	ND	ND	ND	ND	ND	0.027	0.054	0.013	ND	0.12	ND	ND	ND	ND	
BE-1-20.0	04/02/04	20.0	ND	ND	2.5	0.027	0.011	0.016	0.033	ND	0.031	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BE-1-25.0	04/02/04	25.0	ND	ND	ND	ND	0.0053	ND	0.011	0.012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
BE-2-5.0	04/02/04	5.0	27 <sup>3</sup>	ND	340	1.3	ND	5.7	26	ND	ND	ND	9.1	2.4	ND	2.5	ND	ND	12	37	14	ND	18	1.4	ND	ND	ND	
BE-2-10.0	04/02/04	10.0	24 <sup>3</sup>	ND	820	7.4	33.0	16.0	87.0	ND	ND	ND	3.3	ND	ND	1.3	ND	ND	5.7	29	10	ND	6.8	0.31	ND	ND	ND	
BE-2-15.0	04/02/04	15.0	ND	2.6 <sup>5</sup>	5.0	0.052	ND	0.027	ND	0.075	0.14	ND	0.046	0.019	ND	ND	ND	ND	0.046	ND	ND	ND	ND	ND	ND	ND	ND	
BE-2-20.0	04/02/04	20.0	ND	2.4 <sup>7</sup>	ND	ND	ND	ND	0.0088	0.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
BE-2-25.0	04/02/04	25.0	ND	ND	ND	0.053	0.051	0.038	0.15	0.018	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0069	ND	ND	ND	ND	ND	ND	ND	
BE-3-5.0	04/02/04	5.0	ND	1.1 <sup>8</sup>	ND	ND	ND	ND	ND	ND	0.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
BE-3-10.0	04/02/04	10.0	ND	ND	ND	ND	ND	ND	ND	ND	0.025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
BE-3-15.0	04/02/04	15.0	ND	1.3 <sup>7</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
BE-3-20.0	04/02/04	20.0	190	ND	1,600 <sup>4</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

Sample ID	Date Sampled	Depth BGS ft.	Petroleum Hydrocarbons					BTEX Compounds					Volatile Organic Compounds										PNAs			
			Min-eral Spirits mg/kg	TPHd (dis-sol) mg/kg	TPHg (gas-o-line) mg/kg	Ben-zene mg/kg	Tolu-ene mg/kg	Ethyl-ben-zene mg/kg	Total Xy-lenes mg/kg	MTBE mg/kg	Acet-ane mg/kg	2-Bu-ta-none mg/kg	n-Bu-tylben-zene mg/kg	sec-Bu-tylben-zene mg/kg	tert-Bu-tylben-zene mg/kg	Isopro-pylben-zene mg/kg	p-Isopro-pylben-zene mg/kg	p-Isopro-pyltol-uene mg/kg	n-Pro-pylben-zene mg/kg	1,2,4-Tr-i-methyl-benzene mg/kg	1,3,5-Tr-i-methyl-benzene mg/kg	Other VOCs by 8260B OSHA mg/kg	Naptha-lene mg/kg	2-Methyl-naphthalene mg/kg	15 Other PNAs by 8270C mg/kg	
BE-4-5.0	04/01/04	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BE-4-9.5	04/01/04	9.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BE-4-14.5	04/01/04	14.5	ND	1.3 <sup>6</sup>	2.8	0.008	ND	0.047	0.024	ND	0.04	ND	0.081	0.027	ND	0.017	0.0099	ND	0.081	0.12	0.005	ND	0.086	ND	ND	ND
BE-4-19.5	04/01/04	19.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BE-5-5.0	04/01/04	5.0	ND	4.5 <sup>7</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BE-5-10.0	04/01/04	10.0	14	ND	340 <sup>6</sup>	ND	ND	ND	ND	ND	ND	ND	0.092	0.046	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BE-5-14.5	04/01/04	14.5	ND	2.5 <sup>7</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BE-5-19.5	04/01/04	19.5	ND	12 <sup>7</sup>	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BE-6-4.0	04/01/04	4.0	ND	22 <sup>7</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BE-6-9.5	04/01/04	9.5	ND	1,200 <sup>7</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0066	ND	ND	ND
BE-6-15.0	04/01/04	15.0	ND	11 <sup>8</sup>	130 <sup>6</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BE-6-20.0	04/01/04	20.0	ND	4.9 <sup>6</sup>	2.6 <sup>6</sup>	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BG-1-5	04/06/04	5.0	ND	ND	1.30	ND	ND	ND	ND	ND	0.046	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	ND
BG-1-10	04/06/04	10.0	35 <sup>3</sup>	ND	870	ND	9.0	13	75	ND	ND	ND	2.6	ND	ND	1.1	ND	ND	4.4	23	8.1	ND	4.2	3.5	ND	ND
BG-1-15	04/06/04	15.0	ND	3.7 <sup>8</sup>	270	1.1	0.99	4.9	24	ND	0.065	ND	0.028	ND	ND	ND	ND	0.025	0.160	0.056	ND	0.055	ND	ND	ND	ND
BG-1-20	04/06/04	20.0	ND	ND	ND	0.0082	ND	ND	ND	ND	0.005	0.044	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BG-1-25	04/06/04	25.0	ND	ND	ND	ND	ND	0.0051	0.023	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BG-1-30	04/06/04	30.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a
BG-1-35	04/06/04	35.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BG-2-5.0	04/06/04	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BG-2-10.5	04/06/04	10.5	47 <sup>3</sup>	ND	1,200	ND	ND	16	80	ND	ND	ND	6.0	ND	ND	2.4	ND	ND	10	50	17	ND	6.5	3	ND	ND
BG-2-15.0	04/06/04	15.0	ND	ND	ND	ND	ND	ND	ND	ND	0.028	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BG-2-18.0	04/06/04	18.0	ND	ND	ND	ND	ND	ND	ND	0.020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BG-2-21.0	04/06/04	21.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BG-2-25.0	04/06/04	25.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BG-2-30.0	04/06/04	30.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BG-2-35.0	04/06/04	35.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MWT-1-4.0	04/02/04	4.0	ND	ND	ND	ND	ND	ND	0.0063	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWT-1-11.5	04/02/04	11.5	74	ND	2,400 <sup>6</sup>	ND	ND	ND	ND	ND	ND	ND	0.023	0.022	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.7	ND
MWT-1-15.0	04/02/04	15.0	ND	2.8 <sup>8</sup>	ND	ND	ND	ND	ND	ND	ND	ND	0.0051	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWT-1-20 <sup>11</sup>	04/02/04	20.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWT-2-5.5	04/02/04	5.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWT-2-10.0	04/02/04	10.0	12 <sup>1</sup>	ND	440	ND	ND	2.3	6.8	ND	ND	1.8	0.44	ND	0.500	ND	ND	2.4	10	3.8	ND	1.2	0.93	ND	ND	
MWT-2-15.0	04/02/04	15.0	ND	6.0 <sup>8</sup>	120	ND	ND	0.67	1.2	ND	0.099	0.027	0.035	0.0079	ND	ND	0.055	ND	0.032	0.18	0.047	ND	0.08	0.14	ND	ND
MWT-2-20.0	04/02/04	20.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample ID	Date Sampled	Depth BGS ft.	Petroleum Hydrocarbons			BTEX Compounds					Volatile Organic Compounds												PNAs		
			Mineral Spirits mg/Kg	TPHd (diesel) mg/Kg	TPHg (gasoline) mg/Kg	Benzene mg/Kg	Toluene mg/Kg	Ethylbenzene mg/Kg	Total Xylenes mg/Kg	MTBE mg/Kg	Acetone mg/Kg	2-Butanone mg/Kg	n-Butylbenzene mg/Kg	sec-Butylbenzene mg/Kg	tert-Butylbenzene mg/Kg	Isopropylbenzene mg/Kg	p-Isopropylbenzene mg/Kg	p-Isopropyltoluene mg/Kg	n-Propylbenzene mg/Kg	1,2,4-Trimethylbenzene mg/Kg	1,3,5-Trimethylbenzene mg/Kg	Other VOCs by 8260B GC/MS mg/Kg	Naphthalene mg/Kg	2-Methylnaphthalene mg/Kg	15 Other PNAs by 8270C mg/Kg
MWT-3-5.0	04/02/04	5.0	ND	1.2 <sup>7</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-3-10.0	04/02/04	10.0	ND	7.5 <sup>8</sup>	7.0 <sup>5</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.028	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-3-15.0	04/02/04	15.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-3-20.0	04/02/04	20.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-4-4.0	04/01/04	4.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-4-10.0	04/01/04	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-4-15.0	04/01/04	15.0	150	ND	120 <sup>6</sup>	ND	ND	ND	ND	ND	ND	0.028	0.015	0.0094	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-4-20.0	04/01/04	20.0	ND	2.4 <sup>8</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-5-5.0	04/02/04	5.0	ND	1.3 <sup>4</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-5-10.0	04/02/04	10.0	ND	1.1 <sup>4</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-5-15.0	04/02/04	15.0	ND	7.0 <sup>7</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-5-20.0	04/02/04	20.0	ND	7.6 <sup>7</sup>	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
MWT-6-5.0	04/01/04	5.0	ND	2.1 <sup>4</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-6-10.5	04/01/04	10.5	51	ND	880 <sup>9</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-6-14.5	04/01/04	14.5	ND	1.4 <sup>9</sup>	9.0 <sup>6</sup>	ND	ND	ND	ND	ND	0.064	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-6-19.5	04/01/04	19.5	ND	8.5 <sup>8</sup>	13.0 <sup>5</sup>	ND	ND	ND	0.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-7-5.0	04/01/04	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-7-10.0	04/01/04	10.0	ND	3.5 <sup>8</sup>	4.40 <sup>6</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-7-15.0	04/01/04	15.0	ND	3.4 <sup>8</sup>	7.20 <sup>6</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-7-20.0	04/01/04	20.0	ND	ND	ND	ND	ND	ND	ND	0.088	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-8-5.5	04/02/04	5.5	ND	1.5 <sup>4</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-8-10.5	04/02/04	10.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-8-15.0	04/02/04	15.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
MWT-8-19.0	04/02/04	19.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-9-4.0	04/01/04	4.0	ND	3.3 <sup>7</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-9-9.5	04/01/04	9.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-9-14.5	04/01/04	14.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
MWT-9-19.5	04/01/04	19.5	ND	14 <sup>4</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-10-5.0	04/01/04	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-10-10.0	04/01/04	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-10-15.0	04/01/04	15.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
MWT-10-20	04/01/04	20.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MWT-11-5	11/05/04	5.0	ND	1.1 <sup>12</sup>	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
MWT-11-10	11/05/04	10.0	33 <sup>13</sup>	ND	170 <sup>14</sup>	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
MWT-11-15	11/05/04	15.0	ND	1.4 <sup>12</sup>	27 <sup>14</sup>	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
MWT-11-19.5	11/05/04	19.5	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	

Sample ID	Date Sampled	Depth BGS ft.	Petroleum Hydrocarbons							BTEX Compounds										Volatile Organic Compounds										PNAs		
			Mineral Spirits mg/kg	TPHd (diesel) mg/kg	TPHg (gasoline) mg/kg	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Total Xylenes mg/kg	MTBE mg/kg	Acetone mg/kg	2-Butanone mg/kg	n-Butylbenzene mg/kg	sec-Butylbenzene mg/kg	tert-Butylbenzene mg/kg	Isopropylbenzene mg/kg	p-Isopropylbenzene mg/kg	p-Isopropyltoluene mg/kg	n-Propylbenzene mg/kg	1,2,4-Trimethylbenzene mg/kg	1,3,5-Trimethylbenzene mg/kg	Other VOCs by 8260B GC/MS	Naphthalene mg/kg	2-Methylnaphthalene mg/kg	15 Other PNAs by 8270C mg/kg							
MWT-12-5	11/05/04	5.0	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MWT-12-10	11/05/04	10.0	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MWT-12-15	11/05/04	15.0	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MWT-12-19.5	11/05/04	19.5	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MWT-13-5	11/05/04	5.0	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MWT-13-10	11/05/04	10.0	40 <sup>13</sup>	ND	520 <sup>14</sup>	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MWT-13-15	11/05/04	15.0	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MWT-13-19	11/05/04	19.0	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MWT-14-5	11/05/04	5.0	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MWT-14-10	11/05/04	10.0	110 <sup>13</sup>	ND	360 <sup>14</sup>	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MWT-14-15	11/05/04	15.0	12 <sup>13</sup>	ND	1.2 <sup>14</sup>	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MWT-14-19.5	11/05/04	19.5	15 <sup>13</sup>	ND	82 <sup>14</sup>	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MW-2-5.0	04/07/04	5.0	28 <sup>3</sup>	ND	860	ND	ND	19	87	ND	ND	2.9	ND	ND	0.098	ND	ND	4.4	27	9.8	ND	7.2	1.1	ND								
MW-2-10.0	04/07/04	10.0	16 <sup>3</sup>	ND	530	ND	2.4	9.2	47	ND	ND	2.1	ND	ND	0.77	ND	ND	3.4	21	7.4	ND	5.6	0.23	ND								
MW-2-15.0	04/07/04	15.0	ND	ND	ND	0.03	ND	0.021	0.029	ND	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0085	ND	ND	ND							
MW-2-20.0	04/07/04	20.0	ND	ND	ND	ND	0.0062	ND	0.037	0.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-3-5.0	04/07/04	5.0	Lost	Core																												
MW-3-10.0	04/07/04	10.0	Lost	Core																												
MW-3-14.0	04/07/04	14.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-3-20.0	04/07/04	20.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-4-5.5	4/30/2004	5.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-4-10.5	4/30/2004	10.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-4-15.5	4/30/2004	15.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-4-19.5	4/30/2004	19.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-5-6.0	4/30/2004	6.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-5-10.0	4/30/2004	10.0	27	ND	1,000 <sup>5</sup>	ND	ND	0.55	3.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-5-15.5	4/30/2004	15.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-5-19.5	4/30/2004	19.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-6-5.0	04/07/04	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-6-10.0	04/07/04	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-6-15.0	04/07/04	15.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MW-6-20.0	04/07/04	20.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-7-5.0	04/06/04	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-7-10.0	04/06/04	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
MW-7-15.0	04/06/04	15.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a							
MW-7-20.0	04/06/04	20.0	ND	7.9 <sup>6</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							

Sample ID	Date Sampled	Depth BGS ft.	Petroleum Hydrocarbons			BTEX Compounds					Volatile Organic Compounds												PNAs							
			Mineral Spirits (mg/kg)	TPHd (diesel) (mg/kg)	TPHg (gasoline) (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Acetone (mg/kg)	2-Butanone (mg/kg)	n-Butylbenzene (mg/kg)	sec-Butylbenzene (mg/kg)	tert-Butylbenzene (mg/kg)	Isopropylbenzene (mg/kg)	p-Isopropylbenzene (mg/kg)	p-Isopropyltoluene (mg/kg)	n-Propylbenzene (mg/kg)	1,2,4-Trimethylbenzene (mg/kg)	1,3,5-Trimethylbenzene (mg/kg)	Other VOCs by E2808 OCME (mg/kg)	Naphthalene (mg/kg)	2-Methylnaphthalene (mg/kg)	16 Other PNAs by E270C (mg/kg)					
MW-8-5.0	04/07/04	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-8-10.0	04/07/04	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-8-15.0	04/08/04	15.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MW-8-20.0	04/08/04	20.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

- (1) ND = Not Detected above the Method Detection Limit (MDL).
- (2) n/a = Not analyzed
- (3) The laboratory reports that the detected hydrocarbon does not match its mineral spirits standard.
- (4) The laboratory reports that the detected hydrocarbon does not match its Diesel standard.
- (5) The laboratory reports that the detected hydrocarbon does not match its standard for gasoline.
- (6) Laboratory Method EPA 8260B analyzes for 108 Volatile Organic Compounds. Only those found are listed separately in this table.
- (7) The laboratory reports that the compound reported reflects individual or discrete unidentified peaks detected in the diesel range; the pattern does not match a typical fuel standard.
- (8) The laboratory reports that the hydrocarbon reported is in the early Diesel range and does not match the laboratory's Diesel standard.
- (9) Laboratory Method EPA 8270C analyzes for 17 Polynuclear Aromatics. Only those found are listed separately in this table.
- (10) Concentrations in bold script exceed the 2005 San Francisco Bay Area RWQCB's Environmental Screening Levels in shallow soils (<3m bgs) where groundwater is not a source of drinking water.
- (11) MW-1-20.0 was also analyzed for 65 Semi-volatile chemicals by GC/MD - EPA8270C. None were detected in the sample.
- (12) Quantity of unknown hydrocarbon(s) in sample based on Diesel
- (13) Quantity of unknown hydrocarbon(s) in sample based on Mineral Spirits
- (14) Quantity of unknown hydrocarbon(s) in sample based on Gasoline

TABLE 9

RESULTS OF ANALYSES FOR 17 CAM METALS IN SOIL SAMPLES RECOVERED FROM SELECTED SOIL BORINGS  
OAK WALK REDEVELOPMENT SITE

Sample No.	Date Sampled	Depth BGS ft.	Anti-mony mg/Kg	Ar-senic mg/Kg	Bar-lum mg/Kg	Beryl-llum mg/Kg	Cad-mium mg/Kg	Chro-mium III mg/Kg	Chro-mium VI mg/Kg	Cobalt mg/Kg	Copper mg/Kg	Lead mg/Kg	Molyb-denum mg/Kg	Nickel mg/Kg	Sele-nium mg/Kg	Silver mg/Kg	Thal-ium mg/Kg	Vana-dium mg/Kg	Zinc mg/Kg	Mer-cury mg/Kg
BE-4-5.5	04/01/04	5.5	ND	2.6	110	ND	ND	27	n/a	2.6	17	4.3	ND	24	ND	ND	ND	22	31	ND
BE-1-13.5	04/02/04	13.5	ND	1.3	110	ND	ND	35	ND	4.9	12	4.1	ND	46	ND	ND	ND	24	28	0.053
BE-3-19.5	04/02/04	19.5	ND	2.1	150	ND	ND	30	n/a	6.9	19	5.4	ND	26	ND	ND	ND	25	32	ND

Notes:

- (1) ND = Not Detected above the Method Detection Limit (MDL).
- (2) Concentrations in **bold** script exceed the 2005 San Francisco Bay Area RWQCB's Environmental Screening Levels in shallow soil (<3m bgs) and where groundwater is not a source of drinking water

TABLE 10

RESULTS OF ANALYSES OF GROUNDWATER SAMPLES RECOVERED FROM EXPLORATORY TRENCHES AND WELLS  
OAK WALK REDEVELOPMENT SITE

		Petroleum Hydrocarbons			BTEX Compounds					Volatile Organic Compounds										PNAs			
Sample ID	Date Sampled	TPHd (diesel) µg/L	Mineral Spirits µg/L	TPHg (gasoline) µg/L	Ben- zene µg/L	Toi- lone µg/L	Ethyl- ben- zene µg/L	Total Xy- lenes µg/L	MTBE µg/L	Acet- one µg/L	2- Buta- none µg/L	n-Bu- tylben- zene µg/L	sec-Bu- tylben- zene µg/L	tert-Bu- tylben- zene µg/L	isopro- pylben- zene µg/L	p-isopro- pylben- zene µg/L	p-isopro- pyltol- uene µg/L	n-pro- pylben- zene µg/L	1,2,4-tri- methyl- benzene µg/L	1,3,5-tri- methyl- benzene µg/L	Naph- tha- lene µg/L	2-Methyl- naptha- lene µg/L	15 Other PNAs by 8270C µg/L
<b>Trenches December 2003</b>																							
T3-W	12/03/03	2300 <sup>a</sup>	n/a	6300 <sup>b</sup>	ND	ND	31	30	ND	ND	ND	100	47	ND	ND	23	ND	230	320	110	12	n/a	n/a
T7-W	12/02/03	ND	n/a	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	n/a	n/a	n/a
<b>Wells 2004</b>																							
WCEW-1	5/19/04	ND	600 <sup>b</sup>	3700	90	0.68	48	56	170	ND	ND	ND	8.7	ND	12	1.8	ND	31	14	5.6	8.3	ND	ND
MW-2	5/19/04	ND	2100 <sup>b</sup>	49000	7900	2100	880	8300	770	ND	ND	100	ND	ND	ND	ND	ND	ND	1600	480	490	ND	ND
MW-3	5/19/04	ND	420 <sup>b</sup>	1300	ND	ND	ND	1.1	5.8	ND	ND	14	ND	ND	ND	ND	ND	ND	ND	12	ND	ND	ND
MW-4	5/19/04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5	5/19/04	ND	330 <sup>b</sup>	2600 <sup>b</sup>	ND	ND	ND	ND	17	ND	ND	ND	ND	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6	5/19/04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	5/19/04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-8	5/19/04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWT-1	5/19/04	ND	74 <sup>b</sup>	350	ND	ND	ND	ND	ND	ND	ND	8.0	ND	ND	1.0	ND	ND	1.0	ND	ND	ND	ND	ND
MWT-2	5/19/04	ND	3200 <sup>a</sup>	28000	460	ND	1200	2700	66	ND	ND	100	ND	ND	ND	ND	ND	310	1600	490	340	ND	ND
MWT-3	5/19/04	ND	450	1000 <sup>b</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWT-4	5/19/04	ND	88 <sup>b</sup>	540 <sup>b</sup>	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND



Sample ID	Date Sampled	Petroleum Hydrocarbons			BTEX Compounds				Volatile Organic Compounds										PNAs				
		TPHd (diesel) $\mu\text{g/L}$	Mineral Spirits $\mu\text{g/L}$	TPHg (gasoline) $\mu\text{g/L}$	Benzene $\mu\text{g/L}$	Toluene $\mu\text{g/L}$	Ethylbenzene $\mu\text{g/L}$	Total Xylenes $\mu\text{g/L}$	MTBE $\mu\text{g/L}$	Acetone $\mu\text{g/L}$	2-Butanone $\mu\text{g/L}$	n-Butylbenzene $\mu\text{g/L}$	sec-Butylbenzene $\mu\text{g/L}$	tert-Butylbenzene $\mu\text{g/L}$	Isopropylbenzene $\mu\text{g/L}$	p-Isopropylbenzene $\mu\text{g/L}$	p-Isopropyltoluene $\mu\text{g/L}$	n-Propylbenzene $\mu\text{g/L}$	1,2,4-trimethylbenzene $\mu\text{g/L}$	1,3,5-trimethylbenzene $\mu\text{g/L}$	Naphthalene $\mu\text{g/L}$	2-Methylnaphthalene $\mu\text{g/L}$	15 Other PNAs by 8270C $\mu\text{g/L}$
MWT-5	5/19/04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWT-6	5/19/04	ND	<b>980</b>	<b>4200<sup>5</sup></b>	ND	ND	ND	ND	ND	ND	ND	ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWT-7	5/19/04	ND	<b>3200</b>	<b>56000<sup>5</sup></b>	0.78	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWT-8	5/19/04	ND	370	<b>800<sup>5</sup></b>	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND	ND	ND	ND	ND	0.70	ND	ND	ND	ND
MWT-9	5/19/04	ND	ND	ND	ND	ND	ND	ND	0.79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWT-10	5/19/04	ND	ND	<b>59<sup>5</sup></b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWT-11	11/6/04	ND	<b>3500<sup>8</sup></b>	<b>930<sup>9</sup></b>	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ND	n/a	ND
MWT-12	11/6/04	ND	<b>830<sup>8</sup></b>	<b>1400<sup>9</sup></b>	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ND	n/a	ND
MWT-13	11/6/04	ND	<b>440<sup>8</sup></b>	<b>1100<sup>9</sup></b>	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ND	n/a	ND
MWT-14	11/6/04	ND	<b>1200<sup>8</sup></b>	<b>4600<sup>9</sup></b>	ND	ND	ND	ND	ND	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ND	n/a	ND

Notes:

- (1) ND = Not Detected above the Method Detection Limit (MDL).
- (2) n/a = Not Analyzed.
- (3) The laboratory reports that the detected hydrocarbon does not match its diesel standard.
- (4) Laboratory Method 8260B looks for 66 Volatile Organic Compounds. Only those detected are presented on this table.
- (5) The laboratory reports that the detected hydrocarbon does not match its gasoline standard.
- (6) The laboratory reports that the detected hydrocarbon does not match its mineral spirits standard.
- (7) Concentrations in bold script exceed the 2005 San Francisco Bay Area RWQCB's Environmental Screening Levels for shallow soils (<3m bgs) and where groundwater is not a source of drinking water.
- (8) Quantity of unknown hydrocarbons in sample based on Mineral Spirits
- (9) Quantity of unknown hydrocarbons in sample based on gasoline