URS

December 15, 2006

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

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

Subject: **Monitoring Well Installation Work Plan, Former Celis' Alliance Service Station, 4000 San Pablo Avenue, Emeryville, California**

Dear Mr. Chan:

On behalf of the City of Emeryville Redevelopment Agency (the City), URS Corporation (URS) is pleased to submit this Monitoring Well Installation Work Plan to Alameda County Environmental Health (ACEH) for the Former Celis' Alliance Service Station, located at the intersection of San Pablo Avenue and 40th Street in Emeryville, California (Figure 1). This Work Plan is prepared in response to your October 12, 2006 letter containing review comments of the report *Additional Investigation at Former Celis' Alliance Service Station,* prepared by URS (May 31, 2006).

As described in the URS report, three (3) new soil borings were advanced in February 2006 in an attempt to evaluate the downgradient area extent of petroleum hydrocarbons originating from the former leaking underground fuel storage tanks (USTs) located at the former Celis' Alliance Service Station site. Five (5) of the proposed soil borings could not be advanced due to the presence of numerous underground utilities. In the October 12, 2006 letter, ACEH requested that additional groundwater monitoring wells be installed to determine the petroleum hydrocarbon plume extent and provide trend data for petroleum hydrocarbons in groundwater. The number of additional wells, their locations and construction details are based on the soil and groundwater data collected from the previous investigations associated with the Celis' site as well as at adjacent sites. Details of the proposed Celis' site monitoring well installations, groundwater monitoring program and intended reporting contents are discussed below.

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PROPOSED MONITORING WELL INSTALLATION AND MONITORING PROGRAM

Investigations conducted at the adjacent SNK and the Oak Walk sites have generated an extensive data set to assist in local hydrogeologic characterization that will be further supplemented by the proposed borings/monitoring wells for the Celis' site and those proposed for the Oak Walk Corrective Action Plan. Locations of the five proposed Celis' site monitoring wells are shown on Figure 2. Proposed wells URS-MW-1 and URS-MW-2 (adjacent to previous soil borings URS-SB-1 and URS-SB-3, respectively) are located in a downgradient transect along the San Pablo Avenue right-of-way perpendicular to the petroleum hydrocarbon plume. Proposed downgradient monitoring wells URS-MW-3 and URS-MW-4 will be located in the shopping center parking lot (behind 3999 San Pablo Ave. and 1111 40th Street, respectively) in a transect perpendicular to the petroleum hydrocarbon plume. Note that the presence of numerous underground utilities limits location of monitoring wells along the San Pablo Avenue right of way south of the 40th Street intersection. URS-MW-5 will be located on the south side of 40th Street in the center of the paleo-streambed (identified in previous SNK and Oak Walk investigations) to aid in characterizing the area between the Former San Francisco Bread Company site and the Celis' site.

Monitoring Well Installations

- Pre-drilling details include: developing a site health and safety plan; obtaining a property access agreement from the owners of the shopping center at the southwest corner of San Pablo Avenue and 40th Street, obtaining well construction permits from Alameda County Public Works Agency; underground utility clearance (obtaining as-built drawings, contacting Underground Service Alert [USA], contracting to an independent utility locator to clear proposed locations and hand augering or air knifing to 5 feet below ground surface [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 photo-ionization detector (PID) to evaluate the presence or absence of volatile hydrocarbons.

- 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 benzene, toluene, ethylbenzene, and total xylenes (BTEX), five fuel oxygenates, gasoline range organics (GRO), diesel range organics (DRO) and mineral spirit range organics (MSRO).

- The well borings will extend at least 8 feet beyond first encountered groundwater (approximate seasonal range between 6- and 12-feet bgs). 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) with a screened interval of long enough length whereby adequate water samples can be collected from the predominantly fine grained (i.e., of low permeability and yield) sediments at and nearby the site. As such, it is expected that the screened interval of the wells will extend from roughly 5- to 20-feet bgs.

- The wells will be constructed and finished in accordance with local and state well regulations. The wells will be constructed with flush threaded 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 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 above mean sea level (land surface, flush mounted traffic box rim and top of PVC well casing [i.e., measuring point]). Vertical and horizontal survey datum will be NAVD 1988 and NAD 1983 in accordance with State Water Resources Control Board (SWRCB) GeoTracker requirements. Well survey activities and datum will be coordinated with those at the adjacent SNK and Oak Walk sites as well as with the former Dunne Paint Company aka Green City Development, and the former Oakland National Engravers (ONE) site.

- 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, GRO, DRO and MSRO. 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 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.

Groundwater Monitoring Program

- The groundwater monitoring program will include semi-annual sampling and reporting for one year of the five newly installed wells (URS-MW-1, URS-MW-2, URS-MW-3, URS-MW-4 and URS-MW-5) and one existing wells (LFMW-4 located on the north side of 40th Street approximately 145 feet west-southwest of the Celis site). Former Celis' well WCEW-1 will be included as part of the Oak Walk Post Remediation Monitoring Program. Groundwater monitoring activities will be coordinated with those at the adjacent SNK and Oak Walk sites as well as with the former Dunne Paint Company aka Green City Development, and the former ONE site, as possible. Specific details of the groundwater monitoring program are outlined below:

- Prior to purging, static groundwater levels will be measured to the nearest 0.01 feet in each of the six 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, GRO, DRO and MSRO.

Reporting

The monitoring well installation activities, well development, initial water level and well sampling results will be included in a monitoring well installation report supported with summary tables, figures, boring logs and well construction diagrams, along with hard copies of chemical analytical reports and chain-of-custody documents. Following each semi-annual groundwater monitoring event, a letter report will be prepared presenting sampling results, groundwater contours, findings and recommendations. The monitoring well installation report as well as the groundwater monitoring reports will integrate data from the Celis', the Former San Francisco Bread Company, the SNK and the Oak Walk sites to produce regional groundwater flow and contaminant distribution figures. Groundwater monitoring data and monitoring reports will be shared with those responsible for the adjacent SNK and Oak Walk sites as well as with the former Dunne Paint Company aka Green City Development, and the former ONE site.

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

Sincerely,

URS Corporation

REGISTERED GEOLOGIST
GEORGE MUEHLECK
No. 5392
6/07
STATE OF CALIFORNIA

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Senior Geologist

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

cc: Ignacio Dayrit, City of Emeryville
Xinggang Tong, OTG EnviroEngineering Solutions, Inc.

Attachments:
Figure 1 – Site Location Map
Figure 2 – Proposed Additional Monitoring Well Locations

1333 BROADWAY, SUITE 800 Oakland, Ca 94612 Tel: (510) 893-3600 Fax: (510) 874-3268	URS	26814847 City of Emeryville Redevelopment Agency 1333 Park Avenue Emeryville, CA 94608	SITE LOCATION MAP Former Celis Alliance Fuel Station Site 4000 SAN PABLO AVENUE EMERYVILLE, Ca	FIGURE 1

May 10, 2006 - 3:51pm
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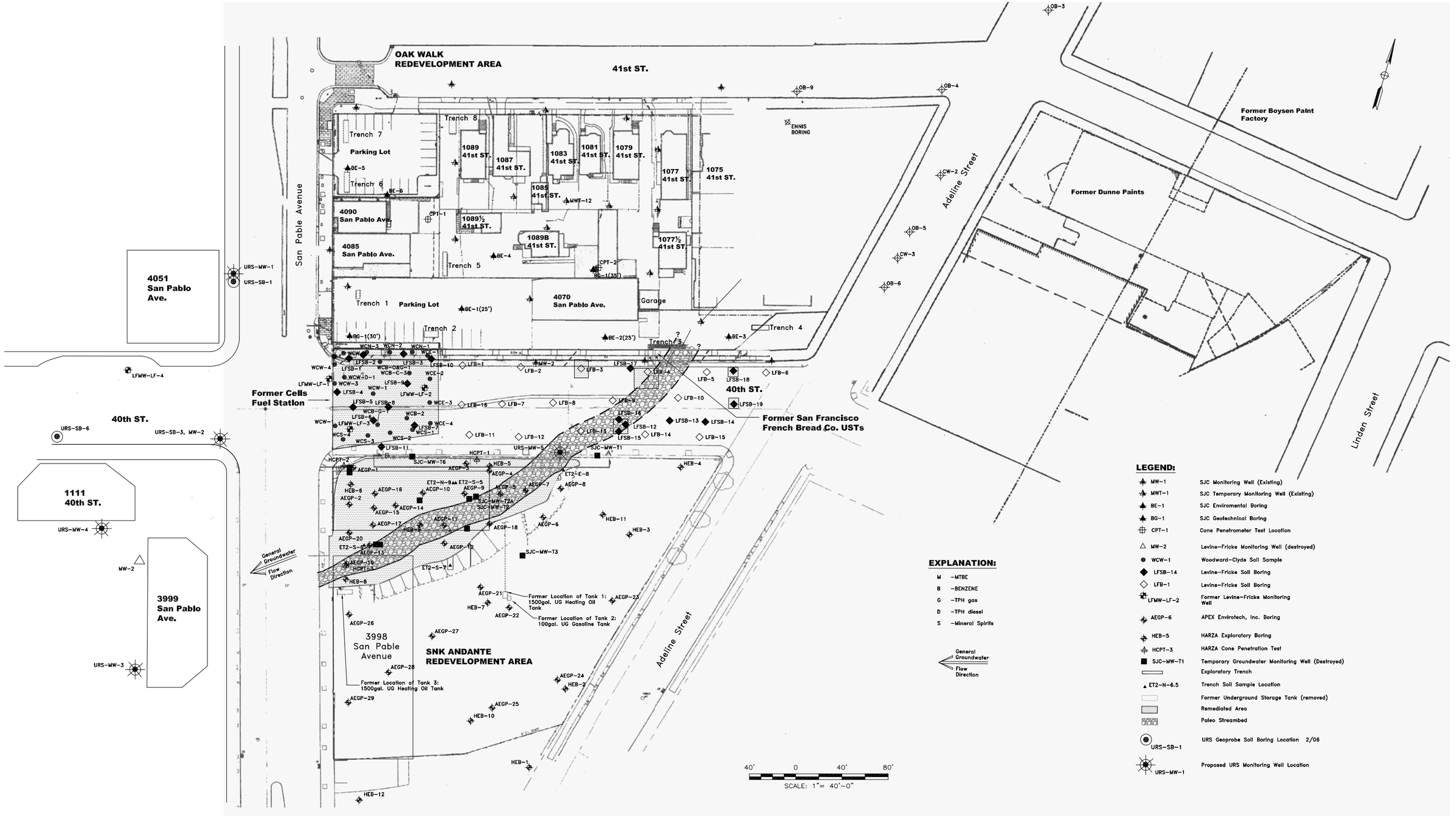

Base Map From The San Joaquin Company, Inc. (Dec 2004)

REV	DESCRIPTION OF REVISION	BY	DATE

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

URS

1333 BROADWAY, SUITE 800
Oakland, CA 94612
Tel: (510) 893-3600
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DESIGNED	–
DRAWN	MS
CHECKED	–
PEER REVIEWED	
PROJECT MANAGER	–
DATE	–

Proposed Additional Monitoring Well Locations

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

REVISION	1
PROJECT	26814847
FIGURE	2

Dec 13, 2006 – 5:08pm
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