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GEOSCIENCE & ENGINEERING CONSULTING

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Alameda County
Environmental Health

September 28, 2007

Mr. Jerry Wickham
Local Oversight Program
Environmental Health Services – Environmental Protection
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, California 94502-6577

Subject: Workplan for Soil Vapor Extraction System Installation and Operation
Oakland Auto Works – 240 W. MacArthur Blvd., Oakland, CA
Alameda County Environmental Health Fuel Leak Case No. R00000142

Dear Mr. Wickham:

INTRODUCTION AND BACKGROUND

On behalf of the property owners (Mr. Glen Poy-Wing and his wife Elizabeth Poy-Wing), Stellar Environmental Solutions, Inc. (SES) is submitting to the Alameda County Environmental Health Department (ACEH) this workplan for the installation of a soil vapor extraction (SVE) system as a remedial remedy to capture subsurface hydrocarbons at the referenced site. This workplan is being submitted in response to the ACEH letter dated August 24, 2007. The location of the site is shown on Figure 1 in Attachment A.

Previous environmental remediation and investigations associated with former fuel underground storage tanks (USTs) and a waste oil UST have been conducted at the site since 1991. All known USTs have been removed, and there are currently eight site groundwater monitoring wells. In 2002, the current property owners purchased the property and become solely responsible for the remaining site environmental issues. Our August 1, 2007 Corrective Action Assessment Report and subsequent quarterly groundwater monitoring progress reports fully discuss the site history and environmental characteristics, as detailed below. Attachment B of this document contains figures that show historical sampling locations, analytical results, utility lines, and geologic cross-sections.

The following key activities and findings were considered in preparing this workplan:

- Waste oil UST removals in 1991 and 1996 resulted in no significant residual soil or groundwater contamination.
- Three 10,000-gallon gasoline USTs removed prior to 1991 left residual soil and groundwater contamination at concentrations exceeding screening level criteria.
- Site contaminants include gasoline- and diesel-range petroleum hydrocarbons; benzene, toluene, ethylbenzene, and xylenes (BTEX); methyl tertiary-butyl ether; fuel oxygenates (groundwater only); and the lead scavenger EDC (groundwater only).
- There is a substantial mass of residual soil contamination in the former source area, which will very likely be a long-term source of groundwater contamination if left unabated.
- Historical (since 1997) site groundwater flow direction has been northwest to N80W with a relatively flat hydraulic gradient. Shallowest recorded groundwater depth (equilibrated in wells) is 12.5 feet, and first groundwater is encountered in exploratory boreholes at depths of approximately 15 feet, suggesting semi-confining conditions. Shallowest groundwater occurs in a lithologically distinct sand and gravel zone between approximately 15 and 18 feet deep, overlain by typical clay, silt, and sand sediments. A capillary fringe (zone of fluctuating groundwater) of several feet is suggested by seasonal water level elevations and the distribution of soil contamination. The attached figures show geologic cross-sections of the site and immediate vicinity.
- Groundwater contamination extends offsite to the west and north.
- There are no documented sensitive receptors (i.e., water wells) that could be impacted by site-sourced contamination. Sanitary sewer lines beneath Howe Street and W. MacArthur Boulevard are located at a depth that could be coincident with groundwater contamination. There are insufficient data regarding whether these utilities could be acting as preferential pathways for contaminant migration; however, lithologic boundaries observed along the perimeter of the property suggest narrow channeling and very tight lithologic controls on contaminant migration off the property and likely minimal contaminant input into these preferential pathways. Drilling refusal was encountered in two attempts to drill through the medium strip of W. MacArthur Boulevard.
- August 2007 borehole groundwater data on contaminant distribution roughly correlated with recent quarterly groundwater monitoring well contaminant data. This suggests that the existing groundwater monitoring well network is adequate for evaluating local

groundwater flow direction and future changes in contaminant magnitude and distribution.

- Groundwater contamination is constrained to an approximately 3- to 8-foot-thick zone that may vary seasonally. An underlying laterally extensive clay unit has a documented thickness of 6 to 7 feet, and appears to be a competent barrier to downward contaminant migration. This clay unit underlies the saturated zone and displays neither contamination nor evidence of free water, indicating that it defines the base of soil and groundwater contamination.
- Soil and groundwater contamination appears to be laterally heterogeneous on the subject property due to localized lithologic and groundwater hydrologic controls.
- No soil contamination was ever detected in the non-water-bearing clay zone (approximately 21.5 to 32 feet below grade) beneath the upper water-bearing zone.
- Site investigations showed petroleum contamination to be limited to depths of approximately 13 to 20 feet, and no contamination above Regional Water Quality Control Board Environmental Screening Levels was ever detected in the lower clay unit that underlies the upper saturated zone.
- Soil-gas contaminants detected during the May 2007 investigation include gasoline and BTEX, and these were associated with high soil contaminant concentrations at samples depths of 18 and 14 feet.
- There is an estimated 500 to 800 pounds of residual petroleum hydrocarbon contaminant mass that is conservatively estimated to be 75 percent recoverable utilizing SVE. This is estimated based on extrapolations between vadose zone soil sampling points with contaminated soil volume of up to 6,400 cubic feet having an average total petroleum hydrocarbons as gasoline (TPHg) concentration of 1,500 milligrams per kilogram.
- Favorable results from soil-gas sampling and the SVE pilot test indicate SVE to be the most appropriate interim remedial cleanup strategy for this site.
- A total of 35 groundwater monitoring events have been conducted at the site.
- The existing groundwater monitoring well network has been determined to be adequate for evaluating local groundwater flow direction and future changes in contaminant magnitude and distribution that may be affected by installation of the SVE system.
- Electronic data uploads for this investigation have been made to the State of California's GeoTracker database and Alameda County Health's ftp system.

TECHNICAL OBJECTIVES AND PROPOSED SCOPE OF WORK

The objective of the proposed work is to satisfy ACEH's requirements as stipulated in its August 24, 2007 letter. As requested by ACEH, this workplan presents specific technical specifications for the design, installation, operation, and monitoring of a site SVE system. In addition, ACEH has requested a discussion of estimated mass removal rates, and regulatory, permitting, and community acceptance issues. SES has determined that the existing network of groundwater monitoring wells is suitable for monitoring contaminant magnitude and distribution that may be affected by installation of the SVE system, and that the installation of additional groundwater monitoring wells is therefore not needed.

The proposed scope of work is divided into the following work tasks: 1) preparation and permitting for the SVE system; 2) installation of vapor extraction wells (VEWs) and vapor monitoring points (VMPs); 3) SVE system installation; 4) SVE system start-up, monitoring, operation, and maintenance; and 5) technical reporting.

Attachment A contains the design schematics of the VEWs, VMPs, and SVE system.

Task 1: SVE System Installation Preparation and Permitting

The SVE system installation will require planning, permitting, and community considerations, as described below.

Planning and Permitting Tasks

- Update the existing site-specific Health and Safety Plan to incorporate the SVE system installation elements.
- Obtain requisite permits for the installation of two permanent VEWs and three VMPs from the Alameda County Public Works Department (ACPW).
- Contact Underground Service Alert to mark underground utilities in the areas of VEW and VMP installations.
- Inform the ACPW of the investigation schedule and arrange all necessary grout and well installation inspections.
- Prior to the installation and commencement of the SVE system, obtain the required permits for emission discharge treatment from the Bay Area Air Quality Management District (BAAQMD). This will include: Application for Authority to Construct/Permit to Operate (Form 101B); General Air Pollution Source Permit (Form G); and Abatement

Device Permit (Form A). Monitoring and reporting to BAAQMD will be conducted periodically as required. Attachment A contains copies of the BAAQMD permits.

Community Acceptance Issues

- The SVE system will most likely be installed inside the onsite building, in which case issues of community acceptance (e.g., noise and security) will be averted. However, noise reduction measures such as vibration mats, sound curtains, and an exhaust muffler will be used whether the installation in located inside or outside the facility. If necessary, a permit will be obtained from the City of Oakland to operate the SVE system outdoors in the facility parking area (in which case the unit noise level may not exceed 80 decibels and noise reduction mitigation measures will be implemented).
- The SVE system will not be located within 1,000 feet of a school; thus, the BAAQMD will not require that a Health Risk Screening Analysis be performed.

Task 2: VEW and VMP Installation

The SVE system will require two VEWs with aboveground piping connecting the wells to the vacuum pump/blower and three VMPs. The VMPs and VEWs will be installed utilizing a GeoProbe® (or equivalent) direct-push rig.

The proposed locations of the SVE system pump/blower apparatus and the VEWs and VMPs are shown on the Site Plan (Figure 2 in Attachment A).

Vapor Extraction Well Installation

Two VEWs will be installed—one centrally located near the former USTs, and one approximately 25 feet downgradient in the area showing the highest observed TPHg and benzene concentrations in soil-gas as determined during the 2007 investigation. The VEW will be installed utilizing a limited access GeoProbe (or equivalent) direct-push rig. The VEW will be installed in the vadose zone to a terminal depth of 16 feet below ground surface (bgs). The well will be constructed with 2-inch-diameter schedule 40 PVC casing, and screened from 11 to 16 feet (0.020-inch slot size). Annular filter pack #8/16 sand will be emplaced across the screen and ½ foot above the screen from 10.5 to 16.5 feet bgs. Above the filter pack sand will be a 3-foot annular seal consisting of hydrated bentonite. Above that, the annulus will be grouted to the surface. The sanitary seal is designed to inhibit any "short-circuiting" of the air from above. The well will be surface completed with a flush mount metal well box and concrete collar. *(Please note that the VEWs will be located in the vadose zone and not necessarily constructed with a sanitary seal in compliance with the California Groundwater Well Standards. Care will*

be taken during installation of the surface completion to ensure that surface water cannot infiltrate the VEWs.) Fittings consisting of a flow control valve and a sampling port will be connected to the top of the VEW casing and will connect to blower system piping.

The slotted depth interval for the two proposed VEWs is based on bore log lithology, recorded contamination, and depth of groundwater. The 10-year average for the depth of groundwater is approximately 16 feet, the base well depth. Thus, based on the critical considerations, the 11- to 16-foot-depth interval will yield maximum contaminant mass transfer.

The construction summary of the VEWs is shown on Figure 3 in Attachment A.

Vapor Monitoring Point Installation

Three VMPs will be installed at distances ranging from approximately 15 to 30 feet from the location of the VEWs. The VMPs will be installed utilizing a limited access GeoProbe (or equivalent) direct-push rig. The VMPs will be installed in the vadose zone to terminal depths of 14 feet bgs. The VMPs will be constructed with 1-inch-diameter schedule 40 PVC casing, and screened from 12 to 14 feet (0.020-inch slot size). Annular filter pack #8/16 sand will be emplaced across the screen and ½ foot above the screen from 11.5 to 14.5 feet bgs. Above the filter pack sand will be a 3-foot annular seal consisting of hydrated bentonite. The well will be surface completed with a metal well box and concrete collar. *(Please note that the VMPs will be located in the vadose zone and not necessarily constructed with a sanitary seal in compliance with the California Groundwater Well Standards. Care will be taken during installation of the surface completion to ensure that surface water cannot infiltrate the VMP.)* A sampling port consisting of a stop-cock valve will be connected to the top of each VMP casing. The valve will be utilized for purging and sampling of the VMPs.

Figure 4 in Attachment A presents the proposed VMP locations.

Task 3: Vapor Extraction System Installation

The VEWs will consist of 2-inch-diameter PVC with screen intervals extending from 11 to 16 feet bgs. The bottom of the screen interval is set to coincide with the top of the site historical average water level to ensure maximum operating efficiency throughout the year. The radius of influence was determined during the August 2007 pilot test to extend up to 40 feet, so it is expected that the SVE system will easily capture contaminant mass above the saturated zone at deeper levels below 16 feet bgs (20 feet bgs is the deepest detected soil contamination; most was found between 13 and 18 feet bgs).

The SVE system design, layout, and technical specifications are shown on Figure 5 in Attachment A.

The SVE system technical specifications are based on the Onion® Enterprise Equipment basic SVE system, with the following standard features:

- Steel base with forklift tubes (portability)
- Cyclonic 80-gallon (nominal) carbon steel knockout tank with 6-inch cleanout site gauge, and drain valve
- Inlet vacuum gauge and sample port
- Inline filter
- Vacuum relief valve
- Belt-driven positive displacement blower pump
- Premium combination chamber
- Absorptive discharge silencer
- Two in-line granular activated carbon (GAC) units

The vacuum or pressure pump operates on the rotary Claw principle. The rotary Claw principle is based on dry running, non-contacting rotors. As the rotors rotate, a void is created on the inlet side of the pumping chamber, pulling air inward. The trapped air is then pushed to the discharge side of the pumping chamber where it is first internally compressed and then discharged. The standard Claw cannot be used to produce vacuum and pressure simultaneously. With a Claw pump configured for vacuum operation, the inlet port is connected to the vacuum line, and the discharge port is open to atmospheric pressure (through a silencer). A Claw pump configured for pressure operation has the inlet port connected to the pressure line, and the inlet port open to atmospheric pressure (through a silencer and filter). Claw vacuum pumps have an ultimate pressure between 15 and 173 torr, depending on the model, and Claw pressure pumps have an ultimate pressure of 29.4 pounds per square inch gauge. A small, fixed, gauged clearance is maintained between all of the moving parts in the pumping chambers. Thus, there is no friction (no wear) in the pumping chamber, and therefore no lubricant is required in the pumping chamber. The wearing parts of the Claw are well isolated from the heat and contaminates usually found in a pumping chamber. The wearing parts of the Claw primarily consist of bearings and gears, which are thermally separated from the pumping chamber by a double endplate design with an atmospheric air space.

The SVE system blower will be attached to two 400-pound GAC units by 2-inch PVC temporary piping. As the system is operating in a space without pedestrians, and the remedy will most likely be temporary in scope (possibly less than 2 years), there is no need to install the piping in more permanent belowground trenches.

Contaminated Mass Removal

The two 400-pound GAC units (size of a 55-gallon drum) are connected in series and used to adsorb the vapors coming out of the vapor extraction unit. A sampling port will be installed between the two units to check for breakthrough in the first 400-pound carbon unit. Approximately 5 pounds of activated carbon is needed to adsorb 1 pound of volatile petroleum hydrocarbons. Thus, the first in-line unit is theoretically good to adsorb 80 pounds of volatile organic compounds (VOCs) pulled from the subsurface soil.

Soil-gas sample will be collected in Summa canisters at a minimum frequency of once per month from each of the VEW sampling ports, and will be submitted to a laboratory certified by the State of California Environmental Laboratory Accreditation Program (ELAP) for quantification of total petroleum hydrocarbons as diesel (TPHd), TPHg, and BTEX VOCs by U.S. Environmental Protection Agency (EPA) Method 8015/8020. These samples will be used to determine contaminant mass removal rate.

Task 4: SVE System Start-Up, Monitoring, Operation, and Maintenance

Monitoring and soil-gas sampling will require utilization of the following equipment:

- Photoionization detector (PID) (Photovac or mini-RAE) calibrated to 100 parts per million by volume (ppmv) isobutylene to be used for the measurement of total VOCs. The PID will be calibrated each day to ensure accurate measurements.
- Anemometer (model TSI 8345) for the measurement of air flow.
- Digital manometer (Dwyer Series 475 Mark III) for the measurement of vacuum pressure at VMPs to determine approximate SVE system radius of influence.
- Tedlar bags for the collection of air samples from VEWs and VMPs. Bags will be dedicated to each sampling location and reused (purged between sample collections) until determined to require replacement.
- Battery-operated laboratory grade air purge pump.
- Temperature gauges (on VEW outlet and GAC inlet).

- Air sampling vacuum chamber (SKC brand or equivalent) for the collection of air samples in Tedlar bags utilizing the vacuum chamber.
- Tygon tubing and assorted swagelock fittings for the collection of Tedlar bag air samples.

SVE System Start-Up Test

An SVE system start-up test up to 1 week long will be performed to "fine tune" and maximize efficiency of the SVE system. During the test, vacuum will be applied to the VEWs. The vacuum response will be measured in the VMPs, and contaminant concentrations in the VEWs will be monitored utilizing a PID. The start-up test will determine the radius of influence of vacuum and appropriate flow rate settings to maximize contaminant extraction.

In accordance with BAAQMD requirements, monitoring and sampling will be conducted on a daily basis for the first week of operation. After a short period (usually 4 days), the BAAQMD will calculate the GAC breakthrough rate (based on contaminant concentration, GAC adsorption, and flow rate) and then determine the required monitoring schedule for the remainder of the operation. The BAAQMD will require a minimum of monthly "influent" and "effluent" monitoring.

The following samples and measurements will be collected during system start-up:

- Soil-gas will be collected in Tedlar bags and measured in ppmv utilizing a field PID every hour the first day and once a day for 1 week from both of the VEW outlet sampling ports. Soil-gas measurements collected in the field will be plotted against elapsed time to track changes in contaminant concentration as vacuum adjustments made during start-up.
- Vacuum response (inches-water) will be measured in each of the three VMPs every hour for the first 8 hours, and then every 2 hours the following day.
- Air flow will be measured in cubic feet per minute (cfm) using a magnehelic gauge at the VEW sampling port.
- Pressure and vacuum readings will be recorded at the GAC inlet, mid-point between the two GAC units, and the final GAC outlet.
- Adjustments or change in vacuum pressure will be recorded.

SVE System Operation, Maintenance, and Sampling

Operation and maintenance of the system will be conducted on a basis to be determined by the BAAQMD requirements (weekly or monthly, etc.), and will consist of the following tasks:

- Upon arrival to the site, the technician will inspect the SVE system to ensure proper operation. An initial inspection for leaks will also be conducted at this time. The blower inlet vacuum and outlet pressure will be recorded and the quantity of water in the moisture knock-out drum will be quantified.
- The technician will measure the airflow rate in cfm and temperature at the VEW sampling ports located in piping extending from the VEW and after the blower before the first GAC unit.
- The PID will be calibrated using a two-point calibration. Following calibration, a Tedlar bag air sample will be collected from each of the VEW sampling ports utilizing the air sampling vacuum chamber and pump. The results will be compared with the previous screening results.
- Following the collection of "influent," a Tedlar bag air sample will be collected from the sampling port located between the two carbon vessels utilizing the air sampling vacuum chamber and pump. The "midpoint" sample will be field screened with the PID to determine if breakthrough is occurring, thus necessitating a carbon change-out.
- Following field screening of the "midpoint" sample, a Tedlar bag air sample will be collected from the "effluent" sampling port utilizing the air sampling vacuum chamber and pump. Should the PID screening results indicate the breakthrough of VOCs, the system will be shut down until carbon change-out and/or troubleshooting determines the cause of breakthrough.
- After the system monitoring and sampling are completed, the blower bleed valve will be opened to minimize extraction from the well. Water in the moisture knock-out drum will be carefully transferred to a holding drum for disposal, along with purgewater from quarterly sampling; this water is anticipated to be impacted with VOCs. Following completion of this procedure, the bleed valve will be closed, returning the system to optimum operational parameters.
- To confirm that the system is operating properly, the anemometer will be used to measure the air flow at the VEW monitoring point and the GAC outlet. Air flow may be adjusted by opening and closing the blower bleed valve with respect to the maximum allowable flow rate for the GAC units.
- All field measurements, observations, notes, date and time of sample collection, etc. will be documented in a field book.

- Following field screening of air samples, an air sample will be collected in a Tedlar bag from the each VEW sampling port and the "Effluent" sampling port on a weekly basis for laboratory analysis. The sample will be analyzed by an ELAP-certified laboratory.
- A soil-gas sample will be collected in Summa canisters at a minimum frequency of once per month from each of the VEW sampling ports, and submitted to an ELAP-certified laboratory for quantification of TPHd, TPHg, and BTEX VOCs by EPA Method 8015/8020.

Disposal of Investigation-Derived Waste

While collecting environmental samples from the site, the sampling team will generate different types of potentially contaminated investigation-derived waste that may include:

- Purged groundwater
- Moisture knock-out pot water from SVE system blower system
- Disposable sampling equipment
- Decontamination fluid

Purged groundwater will be containerized onsite in labeled steel 55-gallon drums for future disposal, along with the groundwater that accumulates from quarterly sampling events. Any decontamination fluids generated during sampling will also be placed in 55-gallon drums with the purged groundwater. One composite sample per four drums of soil and/or groundwater will be collected for waste characterization. Following characterization and acceptance to a licensed facility, the investigation-derived waste will be disposed of offsite at a licensed facility in accordance with local, State, and federal requirements. Used personal protection and disposable equipment will be double-bagged and placed in a municipal refuse dumpster.

Task 5: Technical Reporting

SES will complete a system installation documentation report, followed by quarterly data reports, as described below:

- The exact timeline for installation and start-up of the remedial system is currently not known; however, the goal is to begin in fall 2007. Once the system is installed and started up, SES will submit a comprehensive technical documentation report to ACEH within several weeks after the field and/or analytical activities are completed. The documentation report will summarize the results of the SVE system start-up, and will include: descriptions of the procedures, results, and conclusions of the field

investigation; figures showing the sampling locations, the SVE extraction well, the VMPs and groundwater monitoring wells; tabulated laboratory analyses; geologic logs; well completion reports exhibiting subsurface conditions; copies of the certified laboratory reports; and limitations. The project will be overseen by, and all technical reports will be signed by, a California Professional Geologist.

- SVE system operation and maintenance reporting will be incorporated into the site quarterly groundwater monitoring events and summarized in an annual report. SVE system reporting will focus on evaluating local groundwater flow direction and changes and projections of future changes in contaminant magnitude and distribution that may be affected by installation of the SVE system.
- Additional corrective action designed specifically to address groundwater contamination would be recommended as indicated by the SVE system operation data and continued groundwater monitoring. SES has determined that the existing network of groundwater monitoring wells will be suitable for monitoring contaminant magnitude and distribution that may be affected by installation of the SVE system, and that the installation of additional groundwater monitoring wells is therefore not needed.
- Following VEW and VMP installations, SES will prepare and submit the required Well Completion Reports to the California Department of Water Resources in accordance with State regulations. Copies of the Well Completion Reports will also be submitted to the ACEH.
- Following the first month of SVE system operation, SES will prepare a SVE system Operating System Report documenting the first month's operation and monitoring. This report will be submitted to the BAAQMD as required under the operation and emissions permits for the SVE system. All SVE system records will be maintained by SES for a period of no less than 2 years from completion of SVE system operation and available for BAAQMD inspection.
- As required, site data will be uploaded to the California GeoTracker system and ACEH ftp system.

TEAM QUALIFICATIONS

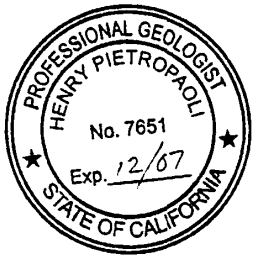
Stellar Environmental Solutions, Inc. has completed dozens of similar projects, including several under the jurisdiction of ACEH. Our team will consist of:

- Stellar Environmental Solutions, Inc. (owners' consultant responsible for overall project coordination, geologic evaluation, sampling, data evaluation, SVE system design, installation and operation, and report certification by a California Professional Geologist).
- A driller with a current C-57 license (for installation of VEWs and VMPs).
- Analytical laboratory with a current California ELAP certification.

We trust that this submittal meets your agency's needs. We request that ACEH provide to SES and the property owners written approval of this workplan. Please contact the undersigned directly if you have any questions.

Sincerely,

Henry Pietropaoli, P.G., R.E.A.
Project Manager



Richard S. Makdisi, P.G., R.E.A.
Principal

Attachments:

Attachment A – Site Figures, Design Schematics, Permits
Attachment B – Historical Figures, Groundwater Data, Analytical Results, Geologic Cross-Sections

cc: Mr. Glen Poy-Wing (Property Owner)

ATTACHMENT A

Site Location and Plan Figures

Design Schematics for VEWs, VMPs & SVE System

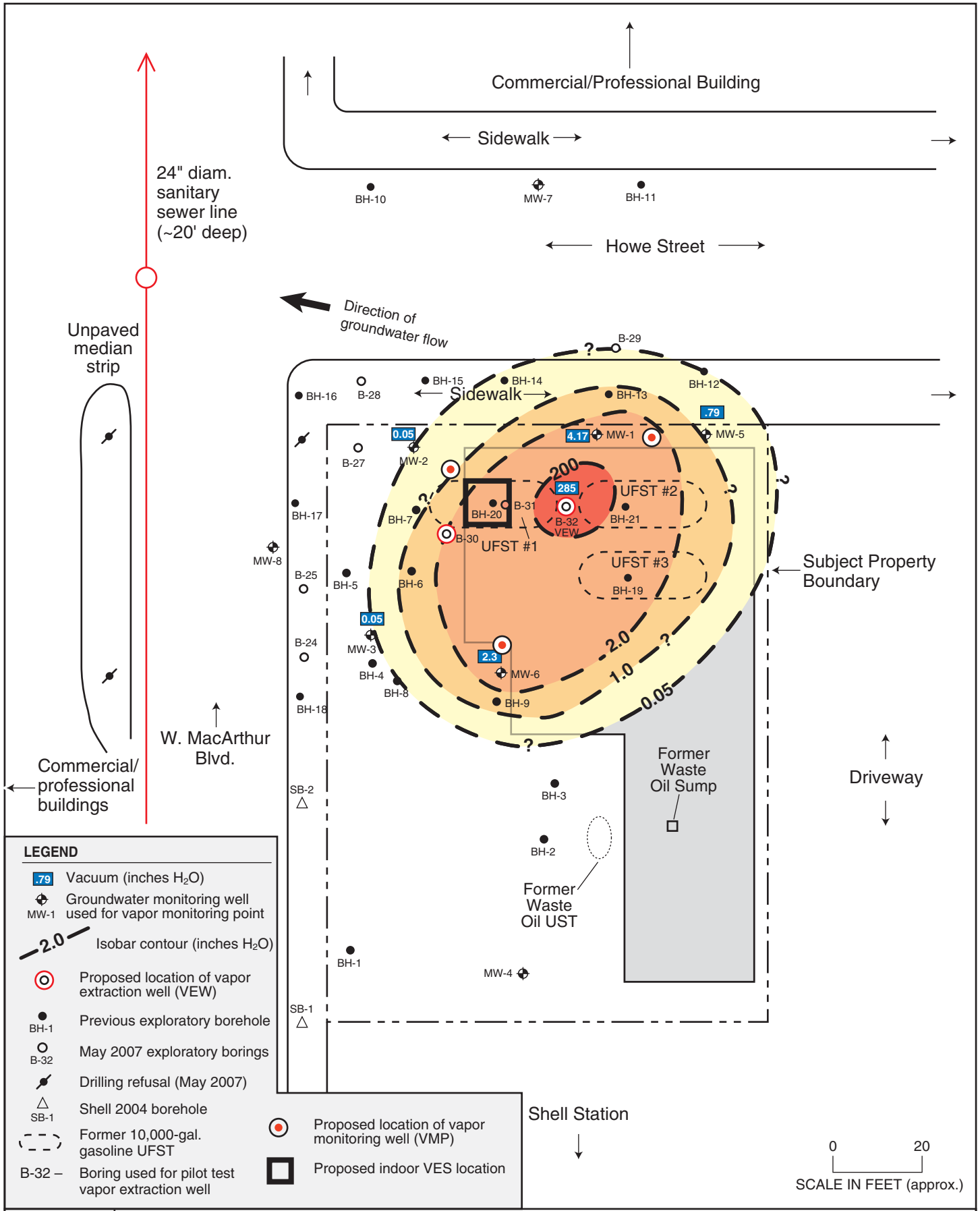
BAAQMD Permits

SITE LOCATION ON U.S.G.S. TOPOGRAPHIC MAP

240 W. MacArthur Blvd. Oakland, CA	By: MJC	APRIL 2007
	Figure 1	

STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

2003-43-01

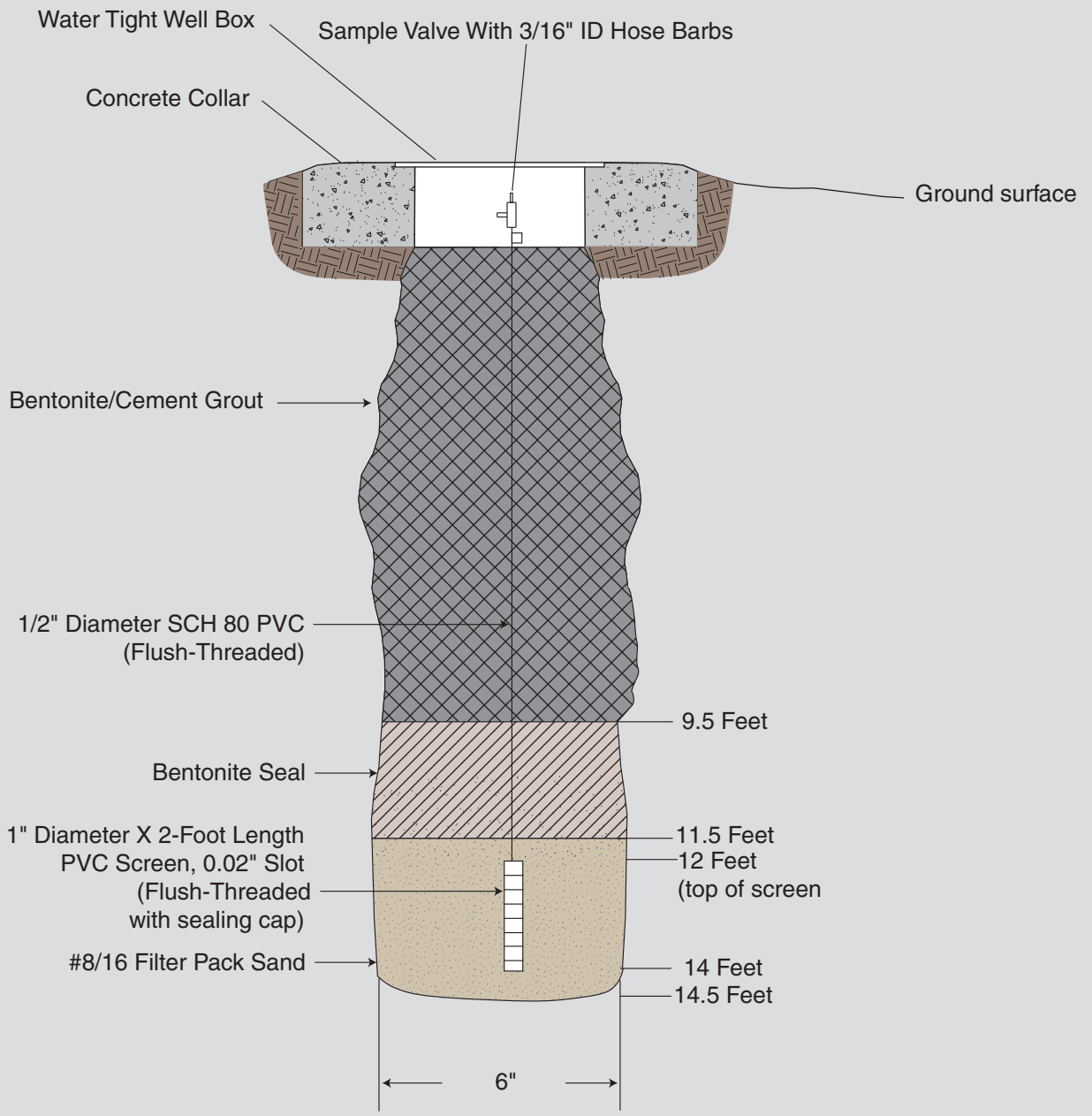


PROPOSED SVE SYSTEM, VMP AND VEW PLAN

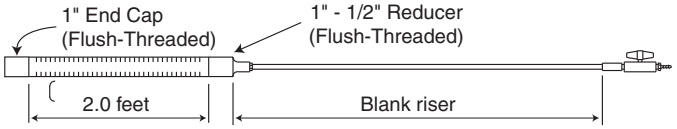
240 W. MacArthur Blvd. Oakland, CA	By: MJC	SEPTEMBER 2007
	Figure 2	

STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

2003-43-173



Not To Scale



VMP SCREEN DETAIL
Not To Scale

AS-BUILT VAPOR MONITORING POINT CONSTRUCTION DETAILS

240 W. MacArthur Blvd. Oakland, CA	By: MJC	SEPTEMBER 2007
	Figure 3	

STELLAR ENVIRONMENTAL SOLUTIONS, INC
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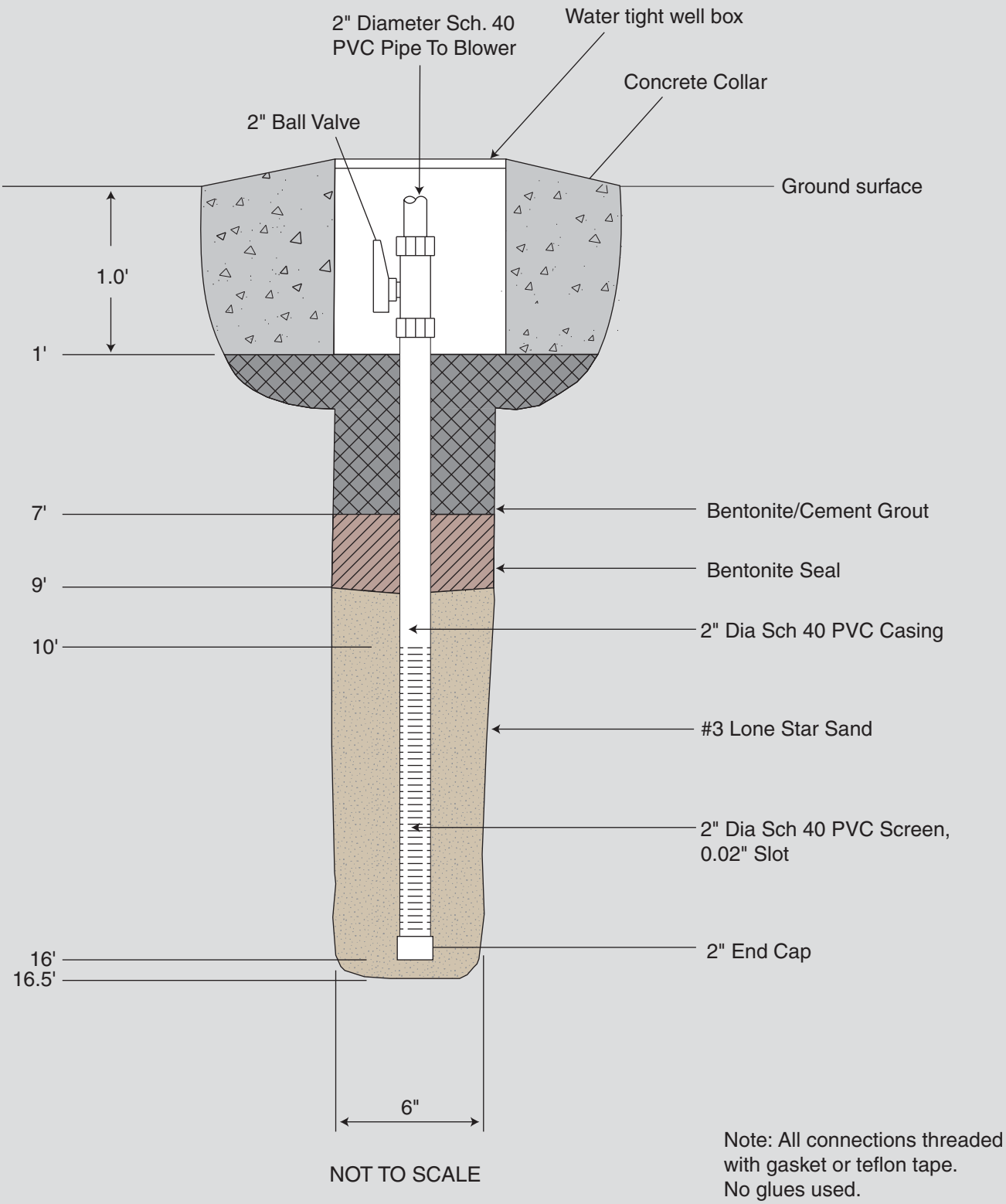
2003-43-175



AS-BUILT VENT WELL CONSTRUCTION DETAILS FOR VEW-1 & VEW-2

240 W. MacArthur Blvd. Oakland, CA	By: MJC	SEPTEMBER 2007
	Figure 4	

STELLAR ENVIRONMENTAL SOLUTIONS, INC
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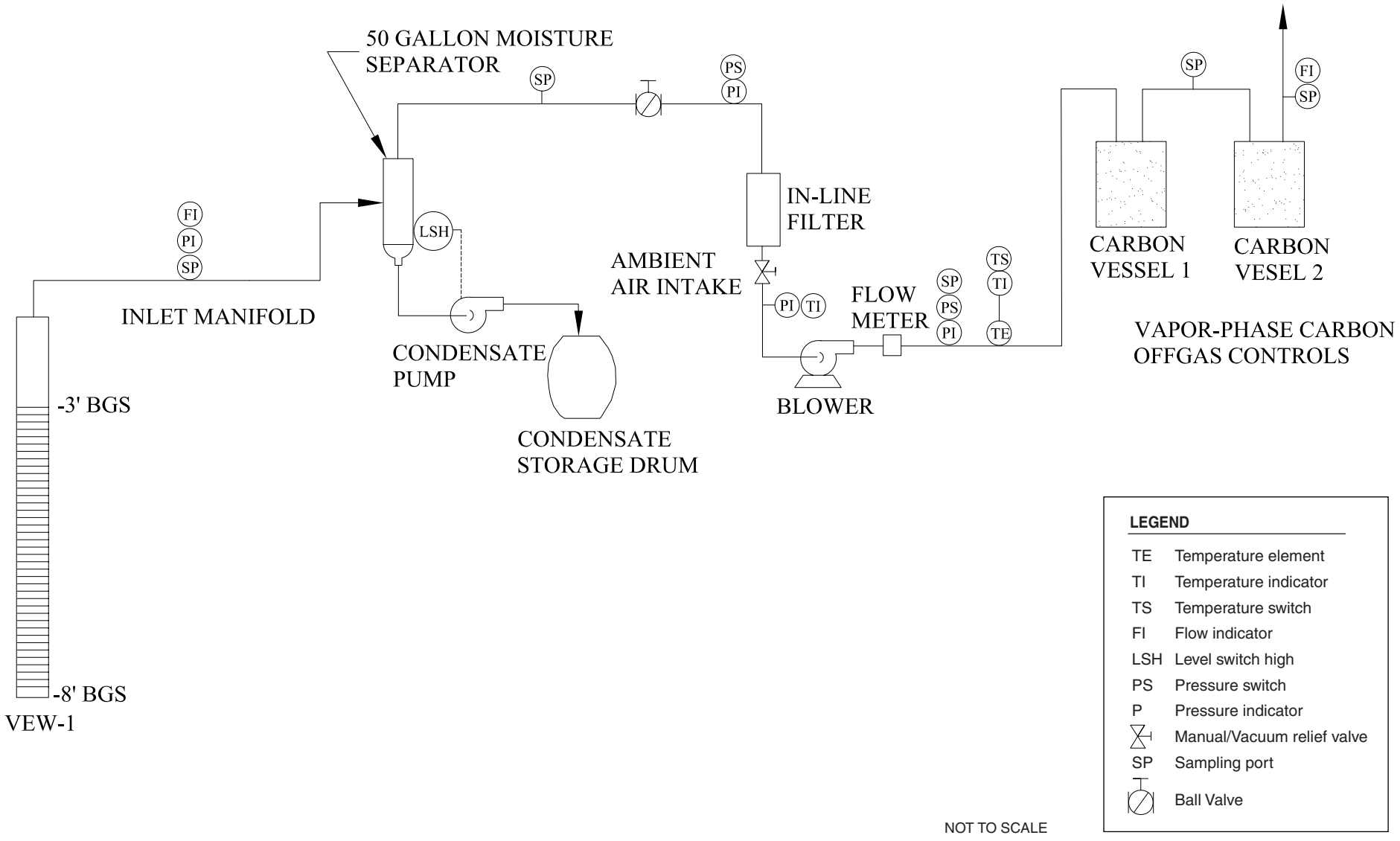
2003-43-174



STELLAR ENVIRONMENTAL SOLUTIONS, INC
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VES DESIGN PLAN

240 W. MacArthur Blvd., Oakland, CA

Figure 5

by: MJC | **SEPTEMBER 2007**

2003-43-176

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street, San Francisco, CA 94109
Engineering Division (415) 749-4990
www.baaqmd.gov fax (415) 749-5030

Form P-101B
Authority to Construct/
Permit to Operate

1. Application Information

BAAQMD Plant No. _____ Company Name _____

Equipment/Project Description _____

2. Plant Information

If you have not previously been assigned a Plant Number by the District or if you want to update any plant data that you have previously supplied to the District, please complete this section.

Equipment Location _____

City _____ Zip Code _____

Mail Address _____

City _____ State _____ Zip Code _____

Plant Contact _____ Title _____

Telephone ( ) _____ Fax ( ) _____ Email _____

NAICS (North American Industry Classification System) see www.census.gov/epcd/naics02/naico602.htm _____

3. Proximity to a School (K-12)

The sources in this permit application (*check one*) ☐ Are ☐ Are not within 1,000 ft of the outer boundary of the nearest school.

4. Application Contact Information

All correspondence from the District regarding this application will be sent to the plant contact unless you wish to designate a different contact for this application.

Application Contact _____ Title _____

Mail Address _____

City _____ State _____ Zip Code _____

Telephone ( ) _____ Fax ( ) _____ Email _____

5. Additional Information

The following additional information is required for all permit applications and should be included with your submittal. Failure to provide this information may delay the review of your application. Please indicate that each item has been addressed by checking the box. Contact the Engineering Division if you need assistance.

☐ If a new Plant, a local street map showing the location of your business

☐ A facility map, drawn roughly to scale, that locates the equipment and its emission points

☐ Completed data form(s) and a pollutant flow diagram for each piece of equipment. (See www.baaqmd.gov/pmt/forms/)

☐ Project/equipment description, manufacturer's data

☐ Discussion and/or calculations of the emissions of air pollutants from the equipment

6. Trade Secrets

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items separate as specified in Regulation 2, Rule 1, Section 202.7, please complete the following steps.

☐ Each page containing trade secret information must be labeled "trade secret" with the trade secret information clearly marked.

☐ A second copy, with trade secret information blanked out, marked "public copy" must be provided.

☐ For each item asserted to be trade secret, you must provide a statement which provides the basis for your claim.

7. Small Business Certification *You are entitled to a reduced permit fee if you qualify as a small business as defined in Regulation 3. In order to qualify, you must certify that your business meets all of the following criteria:*

☐ The business does not employ more than 10 persons and its gross annual income does not exceed $600,000.

☐ And the business is not an affiliate of a non-small business. (Note: a non-small business employs more than 10 persons and/or its gross income exceeds $600,000.)

8. Accelerated Permitting *The Accelerated Permitting Program entitles you to install and operate qualifying sources of air pollution and abatement equipment* ***without waiting for the District to issue a Permit to Operate****. To participate in this program you must certify that your project will meet all of the following criteria. Please acknowledge each item by checking each box.*

☐ Uncontrolled emissions of any single pollutant are each less than 10 lb/highest day, or the equipment has been precertified by the BAAQMD.

☐ Emissions of toxic compounds do not exceed the trigger levels identified in Table 2-5-1 (see Regulation 2, Rule 5).

☐ The project is not subject to public notice requirements (the source is either more than 1000 ft. from the nearest school, or the source does not emit any toxic compound in Table 2-5-1).

☐ For replacement of abatement equipment, the new equipment must have an equal or greater overall abatement efficiency for all pollutants than the equipment being replaced.

☐ For alterations of existing sources, for all pollutants the alteration does not result in an increase in emissions.

☐ Payment of applicable fees (the minimum permit fee to install and operate each source). See Regulation 3 or contact the Engineering Division for help in determining your fees.

9. CEQA *Please answer the following questions pertaining to CEQA (California Environmental Quality Act).*

A. Has another public agency prepared, required preparation of, or issued a notice regarding preparation of a California Environmental Quality Act (CEQA) document (initial study, negative declaration, environmental impact report, or other CEQA document) that analyzes impacts of this project or another project of which it is a part or to which it is related? ☐YES ☐NO If no, go to section 9B.

Describe the document or notice, preparer, and date of document or expected date of completion:

B. List and describe any other permits or agency approvals required for this project by city, regional, state or federal agencies:

C. List and describe all other prior or current projects for which either of the following statements is true: (1) the project that is the subject of this application could not be undertaken without the project listed below, (2) the project listed below could not be undertaken without the project that is the subject of this application:

10. Certification *I hereby certify that all information contained herein is true and correct. (Please sign and date this form)*

Name of person certifying (print)	Title of person certifying	Signature of person certifying	Date

Send all application materials to the **BAAQMD Engineering Division, 939 Ellis Street, San Francisco, CA 94109.**

DATA FORM G
General Air Pollution Source

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street San Francisco, CA 94109 (415) 749-4990 FAX (415) 749-5030 www.baaqmd.gov

Form G is for general air pollution sources. Use specific forms when applicable. If this source burns fuel, then also complete Form C.

1. Business Name: _____ Plant No: _____ (if unknown, leave blank)
2. SIC No.: _____ Date of Initial Operation _____
3. Name or Description: _____ Source No.: S-_____
4. Make, Model, and Rated Capacity of Equipment: _____
5. Process Code[1] _____ Material Code[2] _____ Usage Unit[2] _____
6. Total throughput, last 12 mos. _____usage units[2] Maximum operating rate:_____usage units[2] /hr
7. Typical % of total throughput: Dec-Feb_____% Mar-May_____% Jun-Aug_____% Sep-Nov_____%
8. Typical operating times: _____ hrs/day _____ days/week _____ weeks/year
9. For batch or cyclic processes: _____ minutes/cycle _____ minutes between cycles
10. Exhaust gases from source: *(at maximum operation)* Wet gas flowrate _____ cfm at _____ °F
    Approximate water vapor content _____ volume%

EMISSION FACTORS *(at maximum operating rate)*

If this form is being submitted as part of an application for an **authority to construct**, completion of the following table is mandatory. If not, and the Source is *already in operation*, completion of the table is requested but not required.

If this source also burns fuel, do not include those combustion products in the emission factors below; they are accounted for on Form C. If source test or other data are available for composite emissions only, estimate from those data the emissions attributable to just the general process and show below.

☐ Check box if factors apply to emissions ***after*** Abatement Device(s).

	Emission Factors lb/Usage Unit [2]	***Basis Code*** [3]
11. Particulate		
12. Organics		
13. Nitrogen Oxides (as NO_2)		
14, Sulfur Dioxide		
15. Carbon Monoxide		
16. Other:_____		
17. Other:_____		

18. With regard to air pollutant flow from this source, what sources(s), abatement device(s) and/or emission point(s) are **immediately** downstream?

S- _____ **S-** _____ **S-** _____ **A** _____ **A-** _____ **A-** _____
P- _____ **P-** _____ **P-** _____ **P-** _____ **P-** _____

[1]**See Tables G-1 through G-7 for code**
[2]**See Table G5 or the Material Codes Table (available upon request)**
[3]**See Basis Code Table below**

Person completing this form: Date:

Basis Code	
Codes	**Method**
0	Not applicable for this pollutant
1	Source Testing or other measurement *by plant*
2	Source Testing or other measurement *by BAAQMD*
3	Specification from vendor
4	Material balance *by plant* using engineering expertise and knowledge of process
5	Material balances *by BAAQMD* using engineering expertise and knowledge of process
6	Taken from AP-42 ("Compilation of Air Pollutant Emission Factors," E.P.A.)
7	Taken from literature, other than AP-42
8	Guess

Process Code Tables for General Air Pollution Sources (Data Form G)	
Table	**Process**
G-1	Food & Agricultural
G-3	Metallurgical (Secondary Metals)
G-4	Mineral
G-5	Petroleum Refining
G-7	Chemical/Other
G-8	Miscellaneous
G-9	Fugitive Emissions

TABLE G-1

FOOD AND AGRICULTURAL PROCESSES

CODE	PROCESS
1028	Aging
1001	Brewing
1022	Cleaning
1021	Conveying/transferring
1003	Cooking
1020	Cooling/stoning
1004	Cotton ginning - cleaner
1005	Cotton ginning - stick/burr machine
1006	Cotton ginning - unloading fan
1026	Dehydration
1007	Direct fired kiln
1008	Direct fired roaster
1016	Dryer - rotary
1019	Dryer - spray
1023	Dryer - other
1009	Drying tower
1030	Extraction - mechanical
1029	Extraction - solvent
1027	Fermentation
1014	Grinding
1010	Indirect fired kiln
1011	Indirect fired roaster
1007	Kiln - direct fired
1010	Kiln - indirect fired
1012	Liquor aging
1013	Meat smoker
1024	Milling
1036	Mixing/blending
1025	Oven baking
1035	Packaging
1030	Pressing - extraction
1031	Pressing - other
1015	Prilling
1008	Roaster - direct fired
1011	Roaster - indirect fired
1016	Rotary dryer
1017	Screening
1018	Shipping & receiving
1019	Spray dryer
1032	Sterilization - food/pharmaceutical products
1020	Stoning/cooling
1034	Storage
1033	Sulfuring - fruit/food stuff
1021	Transferring/conveying
1999	Other/not specified

TABLE G-3

METALLURGICAL (SECONDARY METALS)

DRYING (Kilns/Dryers/Ovens)

3002 Calcining kiln
3003 Concentrate dryer
3004 Oxide kiln
3005 Other/not specified

FURNACES

3030 Bake furnace
3007 Blast furnace
3008 Casting furnace
3009 Crucible furnace
3010 Cupola
3011 Cupola furnace
3012 Electric arc furnace
3013 Flux furnace
3014 Heat treating furnace
3015 Horizontal muffle furnace
3016 Induction furnace
3017 Open hearth furnace
3018 Open hearth furnace w/ oxygen lance
3019 Pot furnace
3020 Retort furnace
3059 Reverberatory - rotary
3022 Reverberatory - sweat
3021 Reverberatory - other
3023 Rotary furnace - non-reverberatory
3024 Smelt-crucible furnace
3025 Smelt-reverberatory furnace
3026 Sweating furnace
3027 Other/not specified

MATERIAL HANDLING/MISCELLANEOUS

3062 Abrasives blasting
3078 Alodyning
3029 Annealing
3065 Annealing - continuous
3063 Anodizing
3069 Buffing/polishing
3031 Can making operations
3046 Casting - miscellaneous
3033 Chlorination station
3062 Cleaning - abrasives blasting
3034 Cleaning - chemical
3076 Conveying
3068 Crushing/shredding
3035 Drawing
3036 Drilling
3037 Extruding
3047 Fabricating - miscellaneous
3039 Finishing - soak pit
3038 Finishing - other/not specified
3040 Foil converting
3041 Foil rolling
3042 Galvanizing
3043 Grinding
3044 Honing
3045 Lead oxide manufacturing
3067 Machine shop operations
3061 Milling/turning
3046 Miscellaneous casting
3047 Miscellaneous fabricating
3048 Mixing
3064 Non-destructive coating
3049 Paste mixer (lead batteries)
3072 Pickling
3050 Pitch treating (furnace electrode mfg)
3051 Plating (not chrome)
3070 Plating dec chrome-hexavalent <=500,000 amphr
3080 Plating dec chrome-hexavalent >500,000 amphr
3079 Plating dec chrome-trivalent
3071 Plating hard chrome-hexavalent
3081 Plasma metal application (thermal spraying)
3052 Reaming
3073 Refining
3053 Rolling
3054 Sand handling
3055 Sanding
3056 Sawing
3077 Screening
3060 Sintering
3075 Soldering
3057 Storage
3074 Ventilation
3066 Welding
3999 Other/not specified

TABLE G-4

MINERAL PROCESSES

DRYING (Kilns/Dryers/Ovens)

4002 Calcimatic kiln
4082 Cement calcining kiln
4003 Coke dryer
4004 Curing oven
4005 Fluidized bed kiln
4006 Rotary dryer
4070 Rotary kiln
4007 Vertical kiln
4008 Other/not specified

FURNACES

4010 Cupola
4012 Electric furnace
4011 Electric induction furnace
4013 Reverberatory furnace - other
4014 Reverberatory furnace - recupex
4015 Reverberatory furnace - regenex
4071 Rotary - non-reverberatory
4016 Soda lime genl furnace (glass manufacturing)
4072 Vertical furnace - other
4017 Other/not specified

MATERIAL HANDLING/MISCELLANEOUS

4073 Abrasives blasting
4019 Asphalt blowing
4020 Asphalt dipping
4077 Asphalt mixing - batch/continuous
4078 Asphalt mixing - rotary drum
4021 Asphalt spraying
4022 Bagging
4073 Blasting - abrasives cleaning
4023 Blasting - quarry
4024 Blow chamber
4075 Calcining
4025 Coal cleaning - therm/flash
4026 Coal cleaning - therm/fluid bed
4027 Coal cleaning - therm/multi low pd
4028 Concrete batching - asbestos/cement products
4029 Concrete batching - other
4030 Conveying
4031 Cooling
4032 Crushing
4033 Drying (open air)
4034 Electric arc melting
4035 Fiberizing
4036 Forming line (fiberglass manufacturing)
4037 Furnace room venting
4074 Glass enamel spraying
4038 Glass manufacturing - batching
4039 Glass manufacturing - material receiving
4040 Glass manufacturing - material storage
4041 Glass manufacturing - mixing
4042 Glass manufacturing - molten holding tanks
4043 Glass manufacturing - other/not specified
4044 Grinding
4045 Hold/shakeout
4046 Hydrator
4079 Loading - feed/surge/weigh bins
4080 Loading/unloading (non-mining/quarry)
4047 Milling
4048 Mining/quarry - cobbing
4053 Mining/quarry - crushing (primary)
4054 Mining/quarry - crushing (secondary)
4069 Mining/quarry - crushing (tertiary)
4061 Mining/quarry - loading/unloading
4049 Mining/quarry - open pit blasting
4050 Mining/quarry - open pit cobbing
4051 Mining/quarry - open pit drilling
4052 Mining/quarry - ore concentrating
4055 Mining/quarry - stockpiling
4056 Mining/quarry - stripping
4057 Mining/quarry - surface blasting
4058 Mining/quarry - surface drilling
4059 Mining/quarry - tailing piles
4060 Mining/quarry - tailings
4062 Mining/quarry - ventilating
4068 Mining/quarry - other
4081 Mixing operations
4063 Road surfacing
4073 Sand blasting
4064 Screening
4065 Sintering
4066 Stone cutting
4067 Storage - contained
4076 Storage - open
4037 Venting - furnace room
4099 Other/not specified

TABLE G-5

PETROLEUM REFINING PROCESSES

CODE	PROCESS	CODE	MATERIAL	USAGE UNITS
5040	Air Stripping/DAF processing	300	Waste Water	1000 barrels
5030	Alkylation	195	Hydrocarbons - olefinic	1000 barrels feed
5001	Asphalt oxidizer	30	Asphalt	tons processed
5002	Blow-down system - w/ controls	340	Crude oil *	1000 bbl/day ref cap
5003	Blow-down system - w/o controls	340	Crude oil *	1000 bbl/day ref cap
5004	Catalytic reforming	342	Cat reformer fresh feed	1000 barrels fresh feed
5023	Chemical treating - other	239	Feedstock	1000 barrels
5038	Coke storage piles (open)	80	Coke	tons
5025	Converting - other/not specified	239	Feedstock	1000 barrels
5005	Cooling tower	428	Water - brackish/sea	1000 gallons
5005	Cooling tower	415	Water - fresh	1000 gallons
5005	Cooling tower	300	Waste Water	1000 barrels
5018	Delayed coking	343	Delayed coke product	tons produced
5027	Distillation - crude	89	Crude oil	1000 barrels
5032	Distillation - vacuum	339	Vacuum distillation feed	1000 barrels
5028	Distillation - other	239	Feedstock	1000 barrels
5034	Flexicoking	346	Coker fresh feed	1000 barrels fresh feed
5007	Fluid cat cracker	344	FCC fresh feed	1000 barrels fresh feed
5008	Fluid coking - cooling	345	Fluid coke product	tons produced
5009	Fluid coking - general	346	Coker fresh feed	1000 barrels fresh feed
5010	Fluid coking - storage	345	Fluid coke product	tons produced
5011	Fluid coking - transportation	345	Fluid coke product	tons produced
5021	Hydrocracking	239	Feedstock	1000 barrels
5026	Hydrogen manufacturing	50	C1-C2 paraffins	million cubic feet
5026	Hydrogen manufacturing	52	C3+ paraffins	1000 barrels feed
5026	Hydrogen manufacturing	188	Naphtha	1000 barrels feed
5022	Hydrotreating/hydrofining	239	Feedstock	1000 barrels
5031	Isomerization	52	C3+ paraffins	1000 barrels feed
5039	Marine loading/unloading berths	80	Coke	tons
5017	Oil-water separator	300	Waste water	1000 barrels
5017	Oil-water separator	427	Process water	1000 gallons
5024	Polymerization	195	Hydrocarbons - olefinic	1000 barrels feed
5012	Process drain - w/controls	442	Waste water - sour	1000 barrels
5012	Process drain - w/controls	300	Waste water	1000 barrels
5013	Process drain - w/o controls	442	Waste water - sour	1000 barrels
5013	Process drain - w/o controls	300	Waste water	1000 barrels
5017	Separator - oil/water	300	Waste water	1000 barrels
5017	Separator - oil/water	427	Process water	1000 gallons
5014	Sludge converter	347	Sludge	tons produced
5029	Solvent extraction	***	(use specific Materials Code)	
5037	Sour water stripping	442	Waste water - sour	1000 barrels
5035	Sulfur removal - other/caustic	238	Refinery fuel gas	million cubic feet
5019	Thermal cracking	446	Thermal cracker fresh feed	1000 barrels feed
5020	Thermal processing - other	446	Thermal cracker fresh feed	1000 barrels feed
5032	Vacuum distillation	339	Vacuum distillation feed	1000 barrels
5015	Vacuum jet - w/ controls	339	Vacuum distillation feed	1000 barrels
5016	Vacuum jet - w/o controls	339	Vacuum distillation feed	1000 barrels
5033	Wastewater storage - ponds	300	Waste water	1000 gallons
5036	Wastewater storage - tanks	300	Waste water	1000 gallons
5993	Other/not specified	80	Coke	tons
5994	Other/not specified	89	Crude oil	1000 barrels
5995	Other/not specified	239	Feedstock	1000 barrels feed
5997	Other/not specified	339	Vacuum distillation feed	1000 barrels
5998	Other/not specified	338	Waste gases	million cubic feet
5999	Other/not specified	321	Other petroleum products	1000 gallons

NOTE: Each process listed in Table G-5 has a specific material associated with it for use on the G-Form. *Code 340 for crude oil for these processes must be used; emissions are dependent on total refinery capacity rather than on throughput. Use code 89 for crude oil in any other process.

TABLE G-7

CHEMICAL PROCESSES

7019	Air blow ml brine
7020	Ammoniating
7016	Ammonium sulfate mfg - NH_3/H_2SO_4 proc
7018	Ammonium sulfate mfg - coke oven byprdcts
7131	Biological oxidation
7021	Bodying oil
7022	Boiling tub
7023	Brine evaporation
7096	Calcining - rotary kiln
7024	Calcining - other
7030	Carbon black manufacturing - other process
7132	Carbon dioxide liquifaction plant
7031	Carpet operation
7032	Caulking
7998	Chemical reaction - other/not specified
7173	Chemical reactor – greater than 1000 gallons
7073	Chemical reactor - other/not specified
7055	Claus - modified 2 stage
7056	Claus - modified 3 stage
7057	Claus - modified 4 stage
7033	Condensing
7155	Contaminated ground water stripping
7156	Contaminated soil remediation
7034	Cooking
7035	Creosote pressure treating
7114	Crystallizing
7036	Cyclohex - general
7151	Dipping/cleaning tank
7037	Distillation
7133	Etching
7038	Ethylene dichloride mfg - direct chlorination
7039	Ethylene dichloride mfg - oxychlorination
7023	Evaporation - brine
7110	Evaporation - other
7040	Fabrics manufacturing - bleaching
7041	Fabrics manufacturing - yarn prep
7042	Fabrics manufacturing - other/not specified
7152	Feed/holding tank
7158	Gas collection system
7044	Gas purging
7046	Gypsum pond
7130	Hydrochloric acid manufacturing
7148	Hydrochloric acid regeneration
7043	Injection – NOx control system
7144	Laboratory
7145	Landfill with gas collection system
7159	Landfill without gas collection system
7132	Liquifaction - CO2 plant
7053	Liquifaction - diaphragm
7054	Liquifaction - merc cell
7055	Mod-Claus 2 stage
7056	Mod-Claus 3 stage
7057	Mod-Claus 4 stage
7097	Neutralizing
7062	Nitration reactors
7051	Nitric acid - paraxylen gen
7052	Nitric acid concentrators
7063	Nitric acid mfg - ammonia oxid new
7064	Nitric acid mfg - ammonia oxid old
7131	Oxidation, biological
7065	Phosphoric acid manufacturing - thermal
7066	Phosphoric acid manufacturing - wet process
7147	Phosphoric acid manufacturing - other
7154	Photographic equipment
7067	Pressure treating - other
7068	Prilling
7153	Process tank
7071	Pulpboard manufacturing
7072	Pyrolysis
7073	Reactor - other/not specified
7074	Regenerator
7075	Rubberized fabric mfg - hot melt coating
7076	Rubberized fabric mfg - impregnation
7077	Rubberized fabric mfg - wet coating
7078	Rubberized fabric mfg - other/not spec
7080	Scrubber
7081	Seelite exhaust
7160	Separating – DAF processing
7103	Separating - oil/water
7098	Separating - other
7290	Sewage - Digesters
7270	Sewage - Disinfection
7230	Sewage - Flow equalization
7210	Sewage - Preliminary treatment
7220	Sewage - Primary treatment
7300	Sewage - Reclamation
7250	Sewage - Secondary clarifiers
7240	Sewage - Secondary treatment
7280	Sewage - Sludge handling processes
7260	Sewage - Tertiary treatment
7200	Sewage - Wastewater treatment plant
7058	Sodium carbonate Solvay - NH3 recovery
7059	Sodium carbonate Solvay - handling
7060	Sodium carbonate Trona - calcining
7061	Sodium carbonate Trona - dryer
7146	Sterilization - medical equipment
7089	Sulfate pulping - other/not specified
7082	Sulfate pulping - blow tank accumulator
7083	Sulfate pulping - fluidbed calciner
7084	Sulfate pulping - liquor oxidation tower
7085	Sulfate pulping - mult-effect evaporation
7086	Sulfate pulping - smelt dissolv tank
7087	Sulfate pulping - turpentine condenser
7088	Sulfate pulping - washer/screen
7090	Sulfite pulping - digester
7091	Sulfite pulping - evaporator
7092	Sulfite pulping - liquor recovery
7093	Sulfite pulping - pulp digester
7094	Sulfite pulping - smelt tank
7095	Sulfite pulping - other/not specified
7047	Sulfuric acid mfg - chamber process
7048	Sulfuric acid mfg - contact process
7050	Sulfuric acid mfg - other/not specified
7049	Sulfuric acid regenerators
7157	Tank/drum/container cleaning
7073	Other chemical - reactor
7998	Other chemical reaction - other/not spec
7999	Other process/not specified

TABLE G-8

MISCELLANEOUS PROCESSES

DRYING (Kilns/Dryers/Ovens)

7002 Pigment drying
7003 Spray drying
7004 Veneer drying
7005 Drying - other/not specified

MATERIAL HANDLING

7116 Bagging/packaging
8007 Coke storage pile
7007 Drying
7045 Granulating
7008 Grinding
7009 Loading - storage tank
7010 Loading - tank car
7108 Milling
7011 Mixing
7115 Pelletizing
7017 Pumping facility - organic liquids
7012 Sanding
7014 Storage
7013 Material handling - other/not spec

MISCELLANEOUS

7109 Abrasives blasting
7109 Cleaning - abrasives blasting
8001 Coating operation - powder, other non-solvent
8010 Conveying
7164 Composting - windows
7165 Composting - aerated static piles
7166 Composting - in-vessel
7105 Cooling - pond
7104 Cooling - tower
7106 Cooling - other
8011 Crematory retort
8003 Expanders - plastics, other
8004 Extruders - plastics, other
7045 Granulating
7143 Insulation stripping - wire
7143 Laser-stripping - wire insulation
7170 Latex dipping
8005 Material working equipment - plastics, other
7111 Molding/curing - plastics
7112 Molding/curing - rubber
7113 Molding/curing - other/not specified
8002 Oven
8006 Paper/paperboard handling equipment
7109 Sand blasting
7079 Sawmill operation
8008 Screening/Separating
8009 Shredding/Mangling/Cutting
8012 Waste material grinding
7161 Wastewater – industrial storage ponds
7143 Wire insulation stripping - laser
7107 Woodworking - other/not specified
8999 Other process - not specified

TABLE G-9

FUGITIVE EMISSION SOURCES

FUGITIVE EMISSIONS

9000 Combined fugitive emission sources
9010 Refinery flaring/blowdown
9070 Refinery pressure relief valves
9080 Refinery process drains
9040 Refinery process vessels
9060 Refinery pumps/compressors
9030 Refinery vacuum products
9050 Refinery valves/flanges

Data Form A
ABATEMENT DEVICE

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street . . . San Francisco, CA 94109. . . (415) 749-4990 . . . FAX (415) 749-5030

for office use only

Abatement Device: Equipment/process whose primary purpose is to reduce the quantity of pollutant(s) emitted to the atmosphere.

1. Business Name: _____ Plant No: _____
   (If unknown, leave blank)

2. Name or Description _____ Abatement Device No: A-_____

3. Make, Model, and Rated Capacity _____

4. Abatement Device Code (See table*) _____ Date of Initial Operation _____

5. With regard to air pollutant flow into this abatement device, what sources(s) and/or abatement device(s) are **immediately** upstream?

   S- _____ **S-** _____ **S-** _____ **S-** _____ **S-** _____
   S- _____ **A-** _____ **A-** _____ **A-** _____ **A-** _____ **A-** _____

6. Typical gas stream temperature at inlet: _____ °F

If this form is being submitted as part of an application for an ***Authority to Construct***, completion of the following table is mandatory. If not, and the Abatement Device is *already in operation,* completion of the table is requested but not required.

	Pollutant	Weight Percent Reduction (at typical operation)	Basis Codes *(See Table**)*
7.	Particulate		
8.	Organics		
9.	Nitrogen Oxides (as NO_2)		
10.	Sulfur Dioxide		
11.	Carbon Monoxide		
12.	Other:		
13.	Other:		

14. ☐ Check box if this Abatement Device burns fuel; complete lines 1, 2 and 15-36 on Form C (using the Abatement Device No. above for the Source No.) and attach to this form.

15. With regard to air pollutant flow from this abatement device, what sources(s), abatement device(s) and/or emission point(s) are ***immediately*** downstream?

   S- _____ **A-** _____ **A-** _____ **A-** _____ **P-** _____ **P-** _____

Person completing this form: Date:

*ABATEMENT DEVICE CODES

Code	DEVICE
	ADSORBER (See Vapor Recovery)
	AFTERBURNER
1	CO Boiler
2	Catalytic
3	Direct Flame
4	Flare
5	Furnace-firebox
6	Other
	BAGHOUSE (See Dry Filter)
	CYCLONE (See Dry Inertial Collector and Scrubber)
	DUST CONTROL
68	Water Spray
	DRY FILTER
7	Absolute
8	Baghouse, Pulse Jet
9	Baghouse, Reverse Air
10	Baghouse, Reverse Jet
11	Baghouse, Shaking
12	Baghouse, Simple
13	Baghouse, Other
14	Envelope
15	Moving Belt
16	Other
	DRY INERTIAL COLLECTOR
17	Cyclone, Dynamic
18	Cyclone, Multiple (12 inches dia. or more)
19	Cyclone, Multiple (less than 12 inches dia.)
20	Cyclone, Simple
21	Settling Chamber, Baffled/Louvered
22	Settling Chamber, Simple
23	Other
	ELECTROSTATIC PRECIPITATOR
24	Single Stage
25	Single Stage, Wet
26	Two Stage
27	Two Stage, Wet
28	Other
	INCINERATOR (See Afterburner)
	INTERNAL COMBUSTION ENGINE CONTROL
69	Catalyzed Diesel Particulate Filter
70	Non-Cat. Diesel Part. Filter w/ Active Regeneration
71	Diesel Oxidation Catalyst
72	Oxidation Catalyst
	INCINERATOR (See Afterburner)
	KNOCK-OUT POT (See Liquid Separator)
	LIQUID SEPARATOR
29	Knock-out Pot
30	Mist Eliminator, Horizontal Pad, Dry
31	Mist Eliminator, Panel, Dry
32	Mist Eliminator, Spray/Irrigated
33	Mist Eliminator, Vertical Tube, Dry
34	Mist Eliminator, Other
35	Other
	MIST ELIMINATOR (See Liquid Separator)

Code	DEVICE
	NO_X CONTROL
66	Selective Catalytic Reduction (SCR)
67	Non-Selective Catalytic Reduction (NSCR)
73	Selective Non-Catalytic Reduction (SNCR)
	SCRUBBER
36	Baffle and Secondary Flow
37	Centrifugal
38	Cyclone, Irrigated
39	Fibrous Packed
40	Impingement Plate
41	Impingement and Entrainment
42	Mechanically Aided
43	Moving Bed
44	Packed Bed
45	Preformed Spray
46	Venturi
47	Other
	SETTLING CHAMBER (See Dry Inertial Collector)
	SULFUR DIOXIDE CONTROL
48	Absorption and Regeneration, for Sulfur Plant
49	Claus Solution Reaction, for Sulfur Plant
50	Dual Absorption, for H2S04 Plant
51	Flue Gas Desulfurization, for Fossil Fuel Combustion
52	Reduction and Solution Regeneration, for Sulfur Plant
53	Reduction and Stretford Process, for Sulfur Plant
54	Sodium Sulfite-Bisulfite Scrubber, for H2S04 Plant
55	Other
	VAPOR RECOVERY
56	Adsorption, Activated Carbon/Charcoal
57	Adsorption, Silica
58	Adsorption, Other
59	Balance
60	Compression/Condensation/Absorption
61	Compression/Refrigeration
62	Condenser, Water-Cooled
63	Condenser, Other
64	Other
	MISCELLANEOUS
65	Not classified above

**BASIS CODES

Code	Method
0	Not applicable for this pollutant
1	Source testing or other measurement **by plant**
2	Source testing or other measurement **by BAAQMD**
3	Specifications from vendor
4	Material balance by plant using engineering expertise and knowledge of process
5	Material balance **by BAAQMD** using engineering expertise and knowledge of process
6	Taken from AP-42 ("Compilation of Air Pollutant Emission Factors," EPA)
7	Taken from literature, other than AP-42
8	Guess

(revised: 9/05)

ATTACHMENT B

Historical Figures

Groundwater Data

Analytical Results

Geologic Cross-Sections

Table D-1
Historical Water Levels in Monitoring Wells
240 W. MacArthur Boulevard, Oakland, Alameda, California

Well I.D.	Sampling Event No.	Date Measured	Water Level Depth (a)	Water Level Elevation (b)
MW-1	1	Aug-97	16.83	62.32
	2	Dec-97	NA	NA
	3	Mar-98	13.58	65.57
	4	Jul-98	15.55	63.60
	5	Oct-98	15.70	63.45
	6	Jan-99	15.21	63.94
	7	Jun-00	15.41	63.74
	8	Dec-00	NA	NA
	9	Feb-01	NA	NA
	10	May-01	15.57	63.58
	11	Jul-01	16.42	62.73
	12	Oct-01	16.82	62.33
	13	Dec-01	15.08	64.07
	14	Mar-02	14.53	64.62
	15	May-02	NA	NA
	16	Jul-02	16.39	62.76
	17	Oct-02	17.03	62.12
	18	Jan-03	14.91	64.24
	19	Mar-03	15.26	63.89
	20	Aug-03	16.24	62.91
	21	Dec-03	16.90	62.25
	22	Mar-04	14.33	64.82
	23	Jun-04	16.28	62.87
	24	Sep-04	17.03	62.12
	25	Dec-04	16.38	62.77
	26	Mar-05	14.30	64.85
	27	Jun-05	15.53	63.82
	28	Sep-05	16.42	62.73
	29	Dec-05	15.67	63.48
	30	Mar-06	12.75	66.40
	31	Jun-06	14.60	64.55
	32	Sep-06	16.52	62.63
	33	Dec-06	15.89	63.26
	34	Mar-07	15.50	63.65
	35	Jun-07	20.90	58.25
	36	Sep-07	23.30	55.85

Notes:

(a) Feet below well top of casing. (b) Relative to mean sea level.

NA = Data Not Available

Data prior to August 2003 are likely not valid as well elevations were not surveyed.

Table D-1 (continued)

Well I.D.	Sampling Event No.	Date Measured	Water Level Depth (a)	Water Level Elevation (b)
	1	Aug-97	16.32	62.13
	2	Dec-97	NA	NA
	3	Mar-98	13.05	64.95
	4	Jul-98	14.95	63.50
	5	Oct-98	15.09	63.36
	6	Jan-99	14.61	63.84
	7	Jun-00	14.80	63.65
	8	Dec-00	NA	NA
	9	Feb-01	NA	NA
MW-2	10	May-01	14.98	63.47
	11	Jul-01	15.86	62.59
	12	Oct-01	16.69	61.76
	13	Dec-01	13.49	64.96
	14	Mar-02	13.07	65.38
	15	May-02	NA	NA
	16	Jul-02	15.86	62.59
	17	Oct-02	16.54	61.91
	18	Jan-03	14.37	64.08
	19	Mar-03	14.74	63.71
	20	Aug-03	15.75	62.70
	21	Dec-03	16.11	62.34
	22	Mar-04	13.83	64.82
	23	Jun-04	15.76	62.69
	24	Sep-04	16.48	61.97
	25	Dec-04	15.74	62.71
	26	Mar-05	13.48	64.97
	27	Jun-05	14.48	63.97
	28	Sep-05	16.00	62.45
	29	Dec-05	14.88	63.57
	30	Mar-06	12.20	66.25
	31	Jun-06	14.15	64.30
	32	Sep-06	16.00	62.45
	33	Dec-06	15.19	63.26
	34	Mar-07	14.78	63.67
	35	Jun-07	20.60	57.85
	36	Sep-07	23.80	54.65 (dry)

Notes:

(a) Feet below well top of casing. (b) Relative to mean sea level.

NA = Data Not Available

Data prior to August 2003 are likely not valid as well elevations were not surveyed.

Table D-1 (continued)

Well I.D.	Sampling Event No.	Date Measured	Water Level Depth (a)	Water Level Elevation (b)
MW-3	1	Aug-97	15.36	62.22
	2	Dec-97	NA	NA
	3	Mar-98	12.18	65.40
	4	Jul-98	14.08	63.50
	5	Oct-98	14.24	63.34
	6	Jan-99	13.74	63.84
	7	Jun-00	13.94	63.64
	8	Dec-00	NA	NA
	9	Feb-01	NA	NA
	10	May-01	14.08	63.50
	11	Jul-01	14.99	62.59
	12	Oct-01	16.26	61.32
	13	Dec-01	13.62	63.96
	14	Mar-02	13.19	64.39
	15	May-02	NA	NA
	16	Jul-02	14.97	62.61
	17	Oct. 2002	15.44	62.14
	18	Jan-03	13.49	64.09
	19	Mar-03	13.83	63.75
	20	Aug-03	14.90	62.68
	21	Dec-03	15.10	62.48
	22	Mar-04	12.93	64.65
	23	Jun-04	14.90	62.68
	24	Sep-04	15.61	61.97
	25	Dec-04	14.77	62.81
	26	Mar-05	12.60	64.98
	27	Jun-05	13.73	63.85
	28	Sep-05	15.14	62.44
	29	Dec-05	13.94	63.64
	30	Mar-06	11.25	66.33
	31	Jun-06	13.27	64.31
	32	Sep-06	15.12	62.46
	33	Dec-06	14.34	63.24
	34	Mar-07	13.96	63.62
	35	Jun-07	19.60	57.98
	36	Sep-07	22.90	54.68

Notes:

(a) Feet below well top of casing. (b) Relative to mean sea level.

NA = Data Not Available

Data prior to August 2003 are likely not valid as well elevations were not surveyed.

Table D-1 (continued)

Well I.D.	Sampling Event No.	Date Measured	Water Level Depth (a)	Water Level Elevation (b)
MW-4	1	Aug-97	NA	NA
	2	Dec-97	NA	NA
	3	Mar-98	11.87	65.87
	4	Jul-98	13.90	63.84
	5	Oct-98	14.10	63.64
	6	Jan-99	13.56	64.18
	7	Jun-00	13.75	63.99
	8	Dec-00	NA	NA
	9	Feb-01	NA	NA
	10	May-01	13.65	64.09
	11	Jul-01	14.87	62.87
	12	Oct-01	15.78	61.96
	13	Dec-01	13.54	64.20
	14	Mar-02	13.02	64.72
	15	May-02	NA	NA
	16	Jul-02	14.81	62.93
	17	Oct-02	15.56	62.18
	18	Jan-03	13.39	64.35
	19	Mar-03	13.75	63.99
	20	Aug-03	14.75	62.99
	21	Dec-03	15.11	62.63
	22	Mar-04	12.78	64.96
	23	Jun-04	14.68	63.06
	24	Sep-04	15.17	62.57
	25	Dec-04	14.90	62.84
	26	Mar-05	12.57	65.17
	27	Jun-05	13.43	64.31
	28	Sep-05	15.13	62.61
	29	Dec-05	13.83	63.91
	30	Mar-06	10.90	66.84
	31	Jun-06	13.02	64.72
	32	Sep-06	15.16	62.58
	33	Dec-06	14.35	63.39
	34	Mar-07	13.85	63.89
	35	Jun-07	18.41	59.33
	36	Sep-07	19.36	58.38

Notes:

(a) Feet below well top of casing. (b) Relative to mean sea level.

NA = Data Not Available

Data prior to August 2003 are likely not valid as well elevations were not surveyed.

Table D-1 (continued)

Well I.D.	Sampling Event No.	Date Measured	Water Level Depth (a)	Water Level Elevation (b)
MW-5	9	Feb-01	NA	NA
	10	May-01	15.65	63.71
	11	Jul-01	16.50	62.86
	12	Oct-01	17.46	61.90
	13	Dec-01	15.28	64.08
	14	Mar-02	14.62	64.74
	15	May-02	NA	NA
	16	Jul-02	16.46	62.90
	17	Oct-02	17.18	62.18
	18	Jan-03	14.99	64.37
	19	Mar-03	15.33	64.03
	20	Aug-03	16.34	63.02
	21	Dec-03	16.90	62.46
	22	Mar-04	14.44	64.92
	23	Jun-04	16.43	62.93
	24	Sep-04	17.07	62.29
	25	Dec-04	16.59	62.77
	26	Mar-05	14.08	65.28
	27	Jun-05	15.33	64.03
	28	Sep-05	16.61	62.75
	29	Dec-05	15.81	63.55
	30	Mar-06	12.75	66.61
	31	Jun-06	14.65	64.71
	32	Sep-06	16.66	62.70
	33	Dec-06	16.10	63.26
	34	Mar-07	15.22	64.14
	35	Jun-07	19.29	60.07
	36	Sep-07	NM	dry

Notes:

(a) Feet below well top of casing. (b) Relative to mean sea level.

NA = Data Not Available NM = Not Measurable

Data prior to August 2003 are likely not valid as well elevations were not surveyed.

Table D-1 (continued)

Well I.D.	Sampling Event No.	Date Measured	Water Level Depth (a)	Water Level Elevation (b)
MW-6	9	Feb-01	NA	NA
	10	May-01	15.54	62.89
	11	Jul-01	15.56	62.87
	12	Oct-01	16.41	62.02
	13	Dec-01	14.37	64.06
	14	Mar-02	13.75	64.68
	15	May-02	NA	NA
	16	Jul-02	15.55	62.88
	17	Oct-02	16.24	62.19
	18	Jan-03	14.17	64.26
	19	Mar-03	14.52	63.91
	20	Aug-03	15.50	62.93
	21	Dec-03	16.19	62.24
	22	Mar-04	13.51	64.92
	23	Jun-04	15.42	63.01
	24	Sep-04	16.13	62.30
	25	Dec-04	15.40	63.03
	26	Mar-05	13.28	65.15
	27	Jun-05	14.14	64.29
	28	Sep-05	15.61	62.82
	29	Dec-05	14.90	63.53
	30	Mar-06	11.85	66.58
	31	Jun-06	13.73	64.70
	32	Sep-06	15.71	62.72
	33	Dec-06	15.15	63.28
	34	Mar-07	14.58	63.85
	35	Jun-07	19.40	59.03
	36	Sep-07	20.00	58.43 (dry)

Notes:

(a) Feet below well top of casing.

(b) Relative to mean sea level.

NA = Data Not Available

Data prior to August 2003 are likely not valid as well elevations were not surveyed.

Table D-1 (continued)

Well I.D.	Sampling Event No.	Date Measured	Water Level Depth (a)	Water Level Elevation (b)
MW-7	9	Feb-01	NA	NA
	10	May-01	15.04	62.23
	11	Jul-01	15.69	62.58
	12	Oct-01	16.59	61.68
	13	Dec-01	14.30	63.97
	14	Mar-02	13.87	64.40
	15	May-02	NA	NA
	16	Jul-02	15.72	62.55
	17	Oct-02	16.36	61.91
	18	Jan-03	14.22	64.05
	19	Mar-03	14.57	63.70
	20	Aug-03	15.61	62.66
	21	Dec-03	16.04	62.23
	22	Mar-04	13.57	64.70
	23	Jun-04	15.63	62.64
	24	Sep-04	16.33	61.94
	25	Dec-04	15.70	62.57
	26	Mar-05	13.42	64.85
	27	Jun-05	14.53	63.74
	28	Sep-05	15.81	62.46
	29	Dec-05	14.88	63.39
	30	Mar-06	13.00	65.27
	31	Jun-06	13.98	64.29
	32	Sep-06	15.82	62.45
	33	Dec-06	15.12	63.15
	34	Mar-07	14.66	63.61
	35	Jun-07	19.18	59.09
	36	Sep-07	19.96	58.31 (dry)

Notes:

(a) Feet below well top of casing. (b) Relative to mean sea level.

NA = Data Not Available

Data prior to August 2003 are likely not valid as well elevations were not surveyed.

Table D-1 (continued)

Well I.D.	Sampling Event No.	Date Measured	Water Level Depth (a)	Water Level Elevation (b)
MW-8	10	May-01	12.75	63.64
	11	Jul-01	13.84	62.55
	12	Oct-01	14.65	61.74
	13	Dec-01	12.39	64.00
	14	Mar-02	11.89	64.50
	15	May-02	NA	NA
	16	Jul-02	13.96	62.43
	17	Oct-02	14.48	61.91
	18	Jan-03	12.49	63.90
	19	Mar-03	12.85	63.54
	20	Aug-03	13.75	62.65
	21	Dec-03	14.50	61.89
	22	Mar-04	11.78	64.61
	23	Jun-04	13.71	62.68
	24	Sep-04	14.43	61.96
	25	Dec-04	13.64	62.75
	26	Mar-05	11.52	64.87
	27	Jun-05	12.50	63.89
	28	Sep-05	13.90	62.49
	29	Dec-05	12.75	63.64
	30	Mar-06	10.80	65.59
	31	Jun-06	12.10	64.29
	32	Sep-06	13.93	62.46
	33	Dec-06	13.12	63.27
	34	Mar-07	12.76	63.63
	35	Jun-07	18.40	57.99
	36	Sep-07	19.12	57.27 (dry)

Notes:

(a) Feet below well top of casing. (b) Relative to mean sea level.

NA = Data Not Available

Data prior to August 2003 are likely not valid as well elevations were not surveyed.

Table C-1
Historical Groundwater Monitoring Well Groundwater Analytical Results
Petroleum and Aromatic Hydrocarbons (µg/L)
240 W. MacArthur Boulevard, Oakland, Alameda, California

Well Purged?	Sampling Event No.	Date Sampled	TVH-g	TEH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MW-1									
Yes	1	Aug-97	1,140	*< 1,000*	110	16	15	112	*NA*
Yes	2	Dec-97	ND	*NA*	ND	ND	ND	31	*NA*
Yes	3	Mar-98	370	*NA*	8.9	*< 0.5*	*< 0.5*	2.2	18
Yes	4	Jul-98	6,400	*NA*	1,300	23	3.7	58	97
Yes	5	Oct-98	2,500	*NA*	360	44	1.3	150	*< 0.5*
Yes	6	Jan-99	2,700	*NA*	1,200	28	140	78	130
(a)	7	Jun-00	27,000	*NA*	5,200	500	320	3,100	1,300
(a)	8	Dec-00	976,000	*NA*	2,490	1,420	3,640	10,100	*< 150*
(a)	9	Feb-01	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
(a)	10	May-01	20,000	*NA*	2,900	310	230	1,900	*< 30*
(a)	11	Jul-01	92,000	*NA*	2,900	580	2,800	20,000	560
Pre"hi-vac"	12	Oct 22-01	20,000	*NA*	3,700	560	410	4,600	2,600
Post "hi-vac"	12	Oct 26-01	*< 0.05*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
(a)	13	Dec-01	3,300	*NA*	200	12	5.7	43	44
No	14	Mar-02	4,600	*NA*	820	4.4	100	300	210
No	15	May-02	1,600	*NA*	100	23	20	190	7.7
No	16	Jul-02	2,300	*NA*	250	15	13	180	180
No	17	Oct-02	1,820	*NA*	222	16	*< 0.3*	59	58
No	18	Jan-03	2,880	*NA*	188	*< 50*	*< 50*	157	20
No	19	Mar-03	6,700	*NA*	607	64	64	288	*< 0.18*
No	20	Aug-03	4,900	5,000	740	45	85	250	14
Yes	21	Dec-03	8,930	800	1,030	55	127	253	212
Yes	22	Mar-04	11,300	1,100	483	97	122	452	67
Yes	23	Jun-04	9,300	4,000	1,700	75	92	350	6.0
Yes	24	Sep-04	9,100	97	920	19	82	201	7.2
Yes	25	Dec-04	11,000	3,300	830	21	74	118	7.9
Yes	26	Mar-05	4,700	3,500	450	28	42	97	6.7
Yes	27	Jun-05	21,000	6,800	1,900	270	320	2,800	*< 13*
Yes	28	Sep-05	23,000	2,500	2,100	100	200	880	*< 2.5*
Yes	29	Dec-05	4,300	3,000	500	22	72	228	5.5
Yes	30	Mar-06	11,000	3,000	340	45	89	630	4.3
Yes	31	Jun-06	21,000	8,500	1,600	160	170	1,000	*< 2.5*
Yes	32	Sep-06	13,000	6,200	1,700	76	110	440	*< 13*
Yes	33	Dec-06	16,000	4,100	1,500	100	160	670	*< 13*
Yes	34	Mar-07	22,000	6,200	1,700	140	180	1,100	*< 13*
Yes	35	Jun-07	3,600	1,500	210	10	19	61	3.2
Yes	36	Sep-07	1,400	1,700	50	*< 0.5*	1.3	*< 0.5*	4.1

(table continued on next page; footnotes on final page)

Well Purged?	Sampling Event No.	Date Sampled	TVH-g	TEH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MW-2									
Yes	1	Aug-97	5,350	*< 1,000*	108	36	33	144	*NA*
Yes	2	Dec-97	1,600	*NA*	73	*ND*	*ND*	*ND*	*NA*
Yes	3	Mar-98	3,400	*NA*	830	100	210	240	870
Yes	4	Jul-98	3,100	*NA*	25	2.2	*< 0.5*	0.9	1,900
Yes	5	Oct-98	4,300	*NA*	*< 0.5*	1.2	*< 0.5*	1	4,200
Yes	6	Jan-99	2,900	*NA*	160	8.9	6.9	78.4	2,100
(a)	7	Jun-00	2,700	*NA*	200	17	30	16	680
(a)	8	Dec-00	3,020	*NA*	56.7	*< 1.5*	*< 1.5*	*< 3.0*	3,040
(a)	9	Feb-01	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
(a)	10	May-01	720	*NA*	49	*< 3.0*	4.6	*< 3.0*	380
(a)	11	Jul-01	8,400	*NA*	350	44	77	78	550
Pre"hi-vac"	12	Oct 22-01	850	*NA*	170	4.9	5.1	14	260
Post "hi-vac"	12	Oct 26-01	770	*NA*	86	5.5	9.6	8.5	310
(a)	13	Dec-01	1,300	*NA*	9.2	*< 2.0*	*< 2.0*	*< 2.0*	370
No	14	Mar-02	1,300	*NA*	76	3.8	21	15	460
No	15	May-02	320	*NA*	12	1.1	4.6	4.8	160
No	16	Jul-02	1,300	*NA*	130	1	9.4	5.6	420
No	17	Oct-02	1,060	*NA*	12	2.2	4.2	3.5	270
No	18	Jan-03	581	*NA*	6.5	*< 5.0*	*< 5.0*	*< 5.0*	130
No	19	Mar-03	1,250	*NA*	*< 0.22*	*< 0.32*	*< 0.31*	*< 0.4*	155
No	20	Aug-03	2,200	730	58	9.2	*< 0.5*	28	240
Yes	21	Dec-03	1,980	100	29	22.0	7.4	13	295
Yes	22	Mar-04	2,700	100	12	16.0	9	12	249
Yes	23	Jun-04	1,200	370	42	0.7	2.6	0.9	170
Yes	24	Sep-04	1,500	280	14	*< 0.5*	*< 0.5*	0.6	130
Yes	25	Dec-04	1,400	540	26	1.1	1.8	3.5	91
Yes	26	Mar-05	2,300	420	5.3	*< 1.0*	3.7	*< 2.0*	120
Yes	27	Jun-05	1,600	500	14	*< 0.5*	1.8	0.68	66
Yes	28	Sep-05	1,400	210	30	1.3	12	26	58
Yes	29	Dec-05	1,300	800	4.9	0.6	0.7	0.8	74
Yes	30	Mar-06	1,300	400	3.2	*< 0.7*	*< 0.7*	*< 1.4*	120
Yes	31	Jun-06	1,400	1,200	33.0	1.3	3.5	*<1.6*	84
Yes	32	Sep-06	8,300	1,600	67.0	4.1	4.6	15.4	64
Yes	33	Dec-06	1,500	940	22.0	2.9	2.6	3.5	67
Yes	34	Mar-07	1,200	760	65	1.9	3.7	1.6	59
Yes	35	Jun-07	2,900	1,000	67	3.2	14.0	7.5	49
Yes	36	Sep-07	NS	NS	NS	NS	NS	NS	NS

(table continued on next page; footnotes on final page)

Well Purged?	Sampling Event No.	Date Sampled	TVH-g	TEH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MW-3									
Yes	1	Aug-97	8,500	*< 1,000*	450	30	53	106	*NA*
Yes	2	Dec-97	5,200	*NA*	180	6	5	9.3	*NA*
Yes	3	Mar-98	1,000	*NA*	6	*< 0.5*	*< 0.5*	*< 0.5*	810
Yes	4	Jul-98	6,400	*NA*	490	57	23	78	220
Yes	5	Oct-98	2,100	*NA*	*< 5.0*	*< 5.0*	*< 5.0*	*< 5.0*	2,100
Yes	6	Jan-99	4,400	*NA*	450	65	26	42	1,300
(a)	7	Jun-00	1,700	*NA*	110	13	34	13	96
(a)	8	Dec-00	5,450	*NA*	445	*< 7.5*	23.8	*< 7.5*	603
(a)	9	Feb-01	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
(a)	10	May-01	1,900	*NA*	180	12	*< 3.0*	19	330
(a)	11	Jul-01	10,000	*NA*	830	160	150	260	560
Pre“hi-vac”	12	Oct 22-01	1,400	*NA*	240	7.8	4.1	15	220
Post “hi-vac”	12	Oct 26-01	1,900	*NA*	200	16	51	30	290
(a)	13	Dec-01	5,800	*NA*	93	*< 20*	31	*< 20*	330
No	14	Mar-02	1,900	*NA*	220	16	31	24	400
No	15	May-02	1,600	*NA*	110	3.4	29	14	320
No	16	Jul-02	1,900	*NA*	210	27	30	55	200
No	17	Oct. 2002	3,030	*NA*	178	19	6.2	36	178
No	18	Jan-03	2,980	*NA*	47	*< 5.0*	7.6	6.3	105
No	19	Mar-03	3,620	*NA*	124	*< 0.32*	22	12	139
No	20	Aug-03	3,800	2,400	170	28	31	31	170
Yes	21	Dec-03	6,860	500	312	20	55	58	309
Yes	22	Mar-04	5,490	500	82	34	46	49	249
Yes	23	Jun-04	5,400	1,100	150	30	45	66	130
Yes	24	Sep-04	5,400	1,500	70	3.2	16	13	110
Yes	25	Dec-04	5,300	2,400	91	7.4	21	19	92
Yes	26	Mar-05	4,700	2,000	19	1.1	10	3.7	76
Yes	27	Jun-05	4,200	1,800	49	4.5	23	16	66
Yes	28	Sep-05	5,000	950	60	3.1	12	26	59
Yes	29	Dec-05	3,200	1,800	29	1.3	6.6	5.6	80
Yes	30	Mar-06	4,100	1,200	24	1.1	8.5	3.4	99
Yes	31	Jun-06	4,000	1,400	89.0	8.4	14.0	16.7	75
Yes	32	Sep-06	6,100	2,600	190	15.0	24.0	59.0	51
Yes	33	Dec-06	4,500	2,000	110	4.0	7.3	19.1	47
Yes	34	Mar-07	3,800	2,400	90	3.7	9.8	11.1	51
Yes	35	Jun-07	4,500	2,100	8.9	1.4	14.0	4.0	77
Yes	36	Sep-07	4,000	NS	4.6	*< 0.5*	1.3	*< 0.5*	75

(table continued on next page; footnotes on final page)

Well Purged?	Sampling Event No.	Date Sampled	TVH-g	TEH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MW-4									
Yes	1	Aug-97	*< 500*	*< 1,000*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.5*	*NA*
Yes	2	Dec-97	ND	*NA*	*ND*	*ND*	*ND*	*ND*	*NA*
Yes	3	Mar-98	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Yes	4	Jul-98	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Yes	5	Oct-98	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Yes	6	Jan-99	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
(a)	7	Jun-00	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
(a)	8	Dec-00	*< 500*	*NA*	*< 0.3*	*< 0.3*	*< 0.6*	*< 0.3*	*< 0.3*
(a)	9	Feb-01	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
(a)	10	May-01	*< 50*	*NA*	1.2	*< 0.3*	0.55	1.2	2.9
(a)	11	Jul-01	*< 5.0*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Pre"hi-vac"	12	Oct 22-01	*< 5.0*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Post "hi-vac"	12	Oct 26-01	*< 5.0*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
(a)	13	Dec-01	*ND*	*NA*	*ND*	*ND*	*ND*	*ND*	*ND*
No	14	Mar-02	*< 50*	*NA*	*< 1*	*< 1*	*< 1*	*< 1*	*< 1*
No	15	May-02	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
No	16	Jul-02	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
No	17	Oct-02	*< 100*	*NA*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	*< 0.3*
No	18	Jan-03	*< 100*	*NA*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	14
No	19	Mar-03	*< 15*	*NA*	*< 0.4*	*< 0.02*	*< 0.02*	*< 0.06*	5.2
No	20	Aug-03	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Yes	21	Dec-03	63	*NA*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	*< 5.0*
Yes	22	Mar-04	*< 50*	*NA*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	*< 5.0*
Yes	23	Jun-04	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	0.9
Yes	24	Sep-04	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	2.3
Yes	25	Dec-04	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	26	Mar-05	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	27	Jun-05	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	28	Sep-05	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	29	Dec-05	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	30	Mar-06	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	31	Jun-06	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	32	Sep-06	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	33	Dec-06	59	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	34	Mar-07	*<50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	35	Jun-07	57	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	36	Sep-07	70	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

(table continued on next page; footnotes on final page)

Well Purged?	Sampling Event No.	Date Sampled	TVH-g	TEH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MW-5									
(a)	9	Feb-01	5,660	*NA*	76.9	21.1	47.3	312	*< 0.3*
(a)	10	May-01	22,000	*NA*	2,600	480	220	2,700	*< 30*
(a)	11	Jul-01	72,000	*NA*	3,500	1,100	4,300	22,000	2,500
Pre"hi-vac"	12	Oct 22-01	26,000	*NA*	2,800	980	6,000	950	2,300
Post "hi-vac"	12	Oct 26-01	17,000	*NA*	1,200	470	2,900	440	900
(a)	13	Dec-01	2,000	*NA*	620	190	110	910	*< 20*
No	14	Mar-02	8,800	*NA*	1,200	72	7.4	350	1,200
No	15	May-02	2,000	*NA*	150	38	21	260	13
No	16	Jul-02	4,200	*NA*	480	68	29	280	450
No	17	Oct-02	5,370	*NA*	236	45	23	39	135
No	18	Jan-03	8,270	*NA*	615	156	174	1,010	*< 10*
No	19	Mar-03	12,400	*NA*	824	195	213	1,070	*< 0.18*
No	20	Aug-03	18,000	10,000	950	290	330	1,820	*< 2.0*
Yes	21	Dec-03	11,900	800	627	263	288	1,230	595
Yes	22	Mar-04	20,700	850	867	266	305	678	145
Yes	23	Jun-04	12,000	1,700	920	240	260	1,150	*< 3.1*
Yes	24	Sep-04	13,000	1,900	580	240	260	1,260	*< 4.2*
Yes	25	Dec-04	16,000	3,300	730	200	250	1,100	*< 4.2*
Yes	26	Mar-05	6,300	4,600	190	28	42	280	*< 1.7*
Yes	27	Jun-05	16,000	4,100	1,100	260	380	1,590	*< 7.1*
Yes	28	Sep-05	15,000	3,600	810	210	300	1,300	*< 1.3*
Yes	29	Dec-05	9,600	3,600	270	80	110	710	*< 1.7*
Yes	30	Mar-06	9,800	5,100	240	47	97	590	*< 2.0*
Yes	31	Jun-06	28,000	4,900	920.0	250.0	350.0	1,480	*< 2.0*
Yes	32	Sep-06	12,000	2,400	580	170	230	980	*< 3.6*
Yes	33	Dec-06	15,000	3,400	510	160	260	1,190	*<3.6*
Yes	34	Mar-07	20,000	4,600	910	230	360	1,560	*<3.6*
No	35	Jun-07	NS	NS	NS	NS	NS	NS	NS
No	36	Sep-07	NS	NS	NS	NS	NS	NS	NS

(table continued on next page; footnotes on final page)

Well Purged?	Sampling Event No.	Date Sampled	TVH-g	TEH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MW-6									
(a)	9	Feb-01	1,340	*NA*	17	0.967	11.1	51.4	*< 0.3*
(a)	10	May-01	610	*NA*	15	0.97	*< 0.5*	46	*< 0.5*
(a)	11	Jul-01	2,500	*NA*	130	4.7	53	170	120
Pre"hi-vac"	12	Oct 22-01	280	*NA*	18	1.2	6.2	4.7	6
Post "hi-vac"	12	Oct 26-01	3,600	*NA*	210	20	170	62	120
(a)	13	Dec-01	5,300	*NA*	69	5.6	14	17	*< 2.0*
No	14	Mar-02	71	*NA*	54	4.2	27	17	8.5
No	15	May-02	150	*NA*	9.3	*< 0.5*	*< 0.5*	*< 0.5*	1.5
No	16	Jul-02	2,200	*NA*	98	32	46	150	66
No	17	Oct-02	786	*NA*	48	5.0	2.2	44	16
No	18	Jan-03	497	*NA*	6.8	*< 5.0*	*< 5.0*	11	*< 1.0*
No	19	Mar-03	258	*NA*	5.4	*< 0.32*	3.3	*< 1.1*	*< 0.18*
No	20	Aug-03	1,600	2,800	37	4	23	58	*< 0.5*
Yes	21	Dec-03	365	200	2.5	3.8	1.4	6.1	*< 5.0*
Yes	22	Mar-04	215	140	4.0	1.2	1.4	1.4	3.7
Yes	23	Jun-04	710	830	14.0	0.7	5.2	6.6	*< 0.5*
Yes	24	Sep-04	350	600	*< 0.5*	2.4	*< 0.5*	*< 0.5*	*< 0.5*
Yes	25	Dec-04	280	1,100	4.9	*< 0.5*	1.4	4.4	*< 0.5*
Yes	26	Mar-05	300	980	5.4	*< 0.5*	3.3	2.3	*< 0.5*
Yes	27	Jun-05	150	1,100	*< 0.5*	*< 0.5*	*< 0.5*	*0.77*	28
Yes	28	Sep-05	680	200	13	0.9	6.6	13	*< 0.5*
Yes	29	Dec-05	240	890	3.6	*< 0.5*	0.7	2.4	0.5
Yes	30	Mar-06	530	950	8.3	*< 0.5*	4.0	2.1	0.6
Yes	31	Jun-06	460	1,300	8.3	*< 0.5*	1.4	2.6	*< 0.5*
Yes	32	Sep-06	530	730	10.0	0.8	4.1	7.5	*< 0.5*
Yes	33	Dec-06	500	750	7.5	*< 0.5*	2.6	2.5	*< 0.5*
Yes	34	Mar-07	430	530	7.1	*< 0.5*	1.7	0.8	*< 0.5*
No	35	Jun-07	NS	NS	NS	NS	NS	NS	NS
No	36	Sep-07	NS	NS	NS	NS	NS	NS	NS

(table continued on next page; footnotes on final page)

Well Purged?	Sampling Event No.	Date Sampled	TVH-g	TEH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MW-7									
(a)	9	Feb-01	*ND*	*NA*	*ND*	*ND*	*ND*	*ND*	*ND*
(a)	10	May-01	*< 50*	*NA*	0.75	0.77	0.48	2.4	1.1
(a)	11	Jul-01	*< 5.0*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Pre"hi-vac"	12	Oct 22-01	*< 5.0*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Post "hi-vac"	12	Oct 26-01	6,000	*NA*	170	550	110	120	970
(a)	13	Dec-01	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	43
No	14	Mar-02	*< 50*	*NA*	*< 1.0*	*< 1.0*	*< 1.0*	*< 1.0*	*< 1.0*
No	15	May-02	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
No	16	Jul-02	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
No	17	Oct-02	*< 100*	*NA*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	*< 5.0*
No	18	Jan-03	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
No	19	Mar-03	*< 15*	*NA*	*< 0.04*	*< 0.02*	*< 0.02*	*< 0.06*	*< 0.03*
No	20	Aug-03	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Yes	21	Dec-03	*< 50*	*NA*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	*< 5.0*
Yes	22	Mar-04	86	*NA*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	57
Yes	23	Jun-04	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Yes	24	Sep-04	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Yes	25	Dec-04	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	26	Mar-05	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	27	Jun-05	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	28	Sep-05	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	29	Dec-05	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	30	Mar-06	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	31	Jun-06	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	32	Sep-06	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	33	Dec-06	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Yes	34	Mar-07	*< 50*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
No	35	Jun-07	NA	NA	NA	NA	NA	NA	NA
No	36	Sep-07	NA	NA	NA	NA	NA	NA	NA

(table continued on next page; footnotes on final page)

Well Purged?	Sampling Event No.	Date Sampled	TVH-g	TEH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MW-8									
(a)	9	Feb-01	1,000	*NA*	3.97	< 0.3	3.78	1.63	620
(a)	10	May-01	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	4.4
(a)	11	Jul-01	*< 5.0*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Pre"hi-vac"	12	Oct 22-01	*< 5.0*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
Post "hi-vac"	12	Oct 26-01	*< 5.0*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
(a)	13	Dec-01	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
No	14	Mar-02	*< 50*	*NA*	*< 1.0*	*< 1.0*	*< 1.0*	*< 1.0*	*< 1.0*
No	15	May-02	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
No	16	Jul-02	*< 50*	*NA*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*
No	17	Oct-02	458	*NA*	1.7	*< 0.3*	*< 0.3*	*< 0.6*	233
No	18	Jan-03	*< 100*	*NA*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	*< 5.0*
No	19	Mar-03	*< 15*	*NA*	*< 0.22*	*< 0.32*	*< 0.31*	*< 0.4*	*< 0.18*
No	20	Aug-03	190	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	0.6	*< 0.5*
Yes	21	Dec-03	163	*< 100*	*< 0.3*	*< 0.3*	*< 0.3*	< 0.6	66
Yes	22	Mar-04	412	*< 100*	*1.2*	*< 0.3*	1.7	3.9	66
Yes	23	Jun-04	320	68	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	120
Yes	24	Sep-04	280	2600	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	120
Yes	25	Dec-04	270	84	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	94
Yes	26	Mar-05	270	120	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	66
Yes	27	Jun-05	510	63	6.8	*< 0.5*	2.4	5.3	*< 0.5*
Yes	28	Sep-05	520	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	65
Yes	29	Dec-05	65	57	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	29
Yes	30	Mar-06	140	120	*< 0.5*	*< 0.5*	*< 0.5*	*0.6*	24
Yes	31	Jun-06	710	170	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	81
Yes	32	Sep-06	330	260	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	44
Yes	33	Dec-06	63	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	21
Yes	34	Mar-07	250	130	*< 0.5*	*< 0.5*	*< 0.5*	0.5	5
Yes	35	Jun-07	320	150	*5.2*	*<0.5*	*<0.5*	0.7	89
Yes	36	Sep-07	NS	NS	NS	NS	NS	NS	NS

Notes:

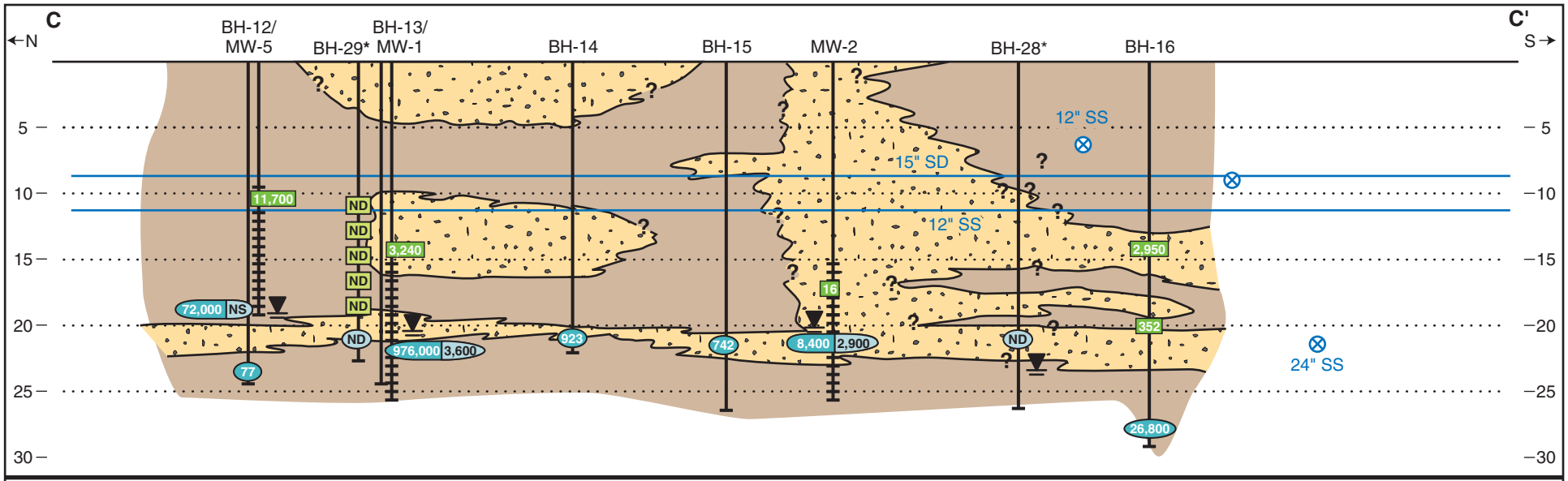
(a) Data not available to Ses as to whether the samples were collected "post-purge" or before purging.

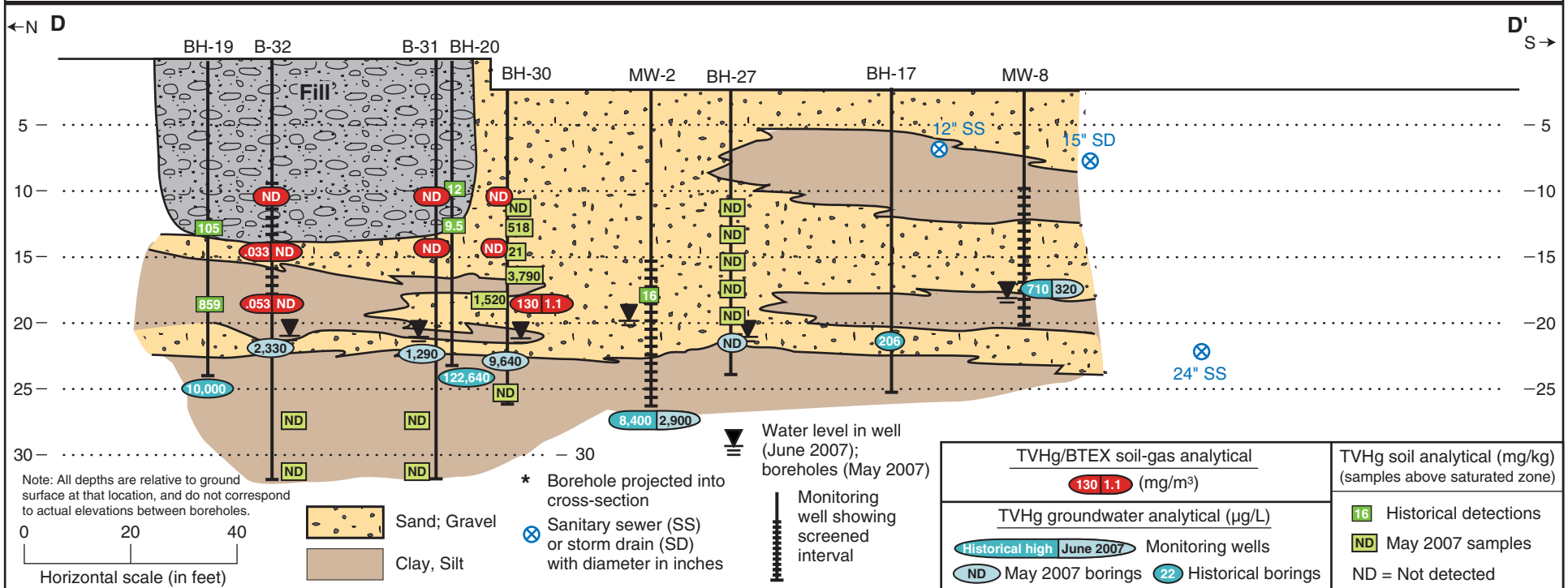
"No Purge" means no purging was conducted before the groundwater sample was collected.

TVH-g = Total Volatile Hydrocarbons - gasoline range. TEH-d = Total Extractable Hydrocarbons - diesel range.

NA = Not analyzed for this constituent in this event.

ND = Not Detected (method reporting limit not specified in the information available to SES.





Note: All depths are relative to ground surface at that location, and do not correspond to actual elevations between boreholes.

0 20 40

Horizontal scale (in feet)

Sand; Gravel

Clay, Silt

* Borehole projected into cross-section

Sanitary sewer (SS) or storm drain (SD) with diameter in inches

Water level in well (June 2007); boreholes (May 2007)

Monitoring well showing screened interval

TVHg/BTEX soil-gas analytical

130 1.1 (mg/m³)

TVHg groundwater analytical (µg/L)

Historical high | June 2007 Monitoring wells

ND May 2007 borings 22 Historical borings

TVHg soil analytical (mg/kg) (samples above saturated zone)

16 Historical detections

ND May 2007 samples

ND = Not detected

STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

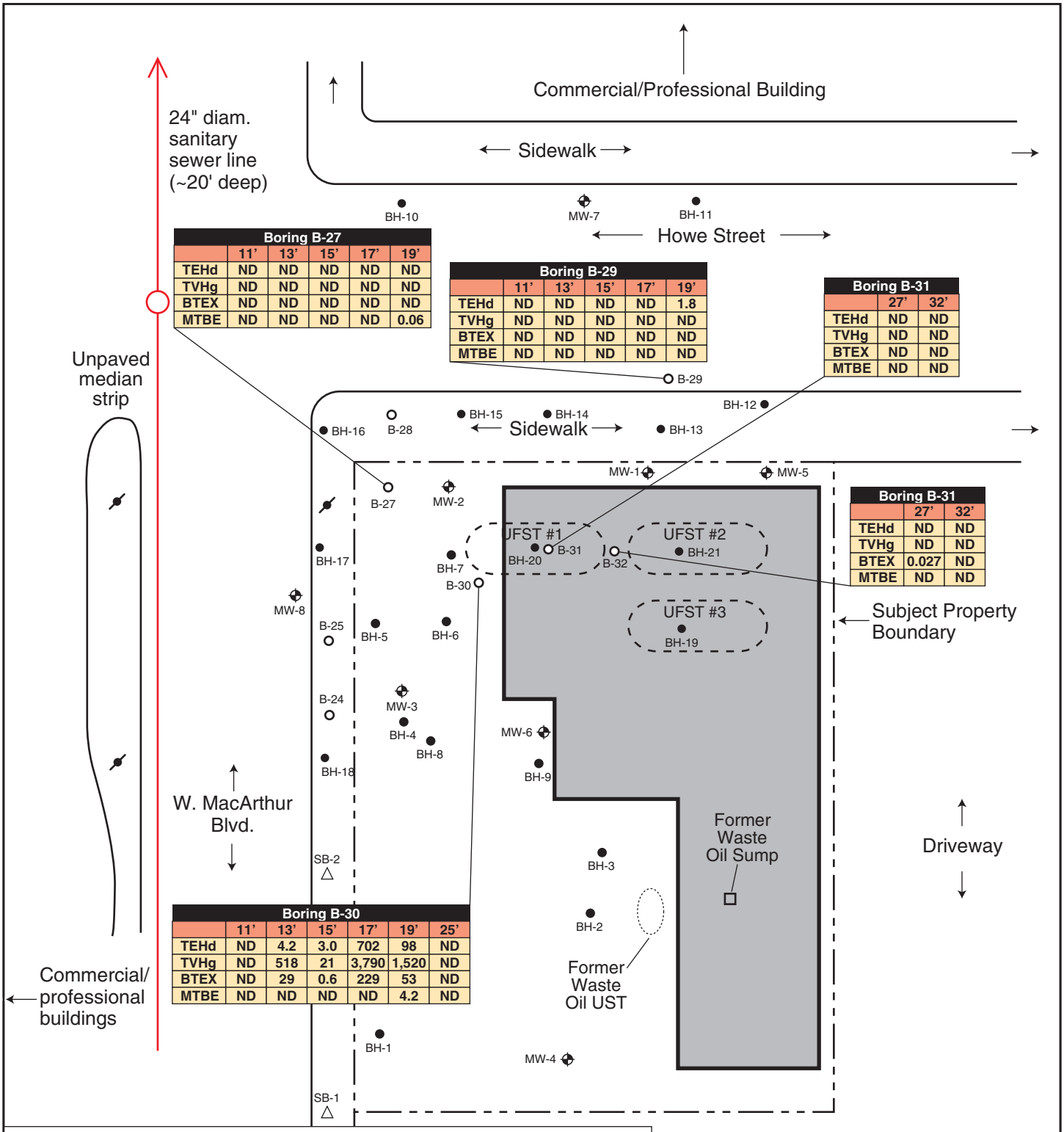
GEOLOGIC CROSS SECTIONS C–C' AND D–D' WITH SOIL, SOIL-GAS AND GROUNDWATER TVHg ANALYTICAL RESULTS
240 W. MacArthur Blvd., Oakland, CA

Figure 9

by: MJC

JULY 2007

2003-43-170



LEGEND

- MW-1 ⊕ Groundwater monitoring well
- Drilling refusal (May 2007)
- BH-1 ● Previous exploratory borehole
- B-32 ○ May 2007 exploratory borings
- SB-1 △ Shell 2004 borehole
- Former 10,000-gal.gasoline UFST

TBA – Tertiary-butyl alcohol
ND – Not detected
BTEX – Benzene, toluene, ethyl benzene, & xylenes
TVHg – Total volatile hydrocarbons — gasoline
TEHd – Total volatile hydrocarbons — diesel
B-32 – GW converted to Vapor Monitoring Point

SITE PLAN WITH MAY 2007 BOREHOLE SOIL ANALYTICAL RESULTS

240 W. MacArthur Blvd.
Oakland, CA

By: MJC | JULY 2007

Figure 7

STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

2003-43-162

Table 1
May 2007 Borehole Soil Sample Analytical Results
Fuels, Aromatic Hydrocarbons, and MTBE
240 W. MacArthur Boulevard, Oakland, California

Sample I.D.	TVHg	TEHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
B27-11	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B27-13	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B27-15	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B27-17	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B27-19	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	**0.06**
B29-11	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B29-13	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B29-15	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B29-17	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B29-19	<0.022	1.8	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B30-11	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B30-14	**518**	4.2	<0.0009	2.6	**12**	**14**	<0.0008
B30-15	21	3.0	**0.09**	0.04	0.09	0.33	<0.0008
B30-17	**3,790**	**702**	**7.8**	**36**	**37**	**148**	**24**
B30-19	**1,520**	98	**1.3**	**14**	**6.7**	**31**	**4.2**
B30-25*	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B31-27*	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B31-32*	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
B32-27*	<0.022	<0.37	<0.0009	<0.0008	0.007	0.02	<0.0008
B32-32*	<0.022	<0.37	<0.0009	<0.0008	<0.0007	<0.0019	<0.0008
Water Board Environmental Screening Levels							
Drinking Water Resource [(a)]	100	100	0.044	2.9	3.3	2.3	0.023
Non Drinking Water Resource [(b)]	400	500	0.38	9.3	32	11	5.6

Notes:

[(a)] ESLs for industrial/commercial sites with shallow soils were the groundwater is a potential drinking water source (Water Board, 2006).

[(b)] ESLs for industrial/commercial sites with shallow soils were the groundwater is not a potential drinking water source (Water Board, 2006).

* = Sample collected below the saturated zone.

MTBE = methyl tertiary-butyl ether
TEHd = total extractable hydrocarbons – diesel range (equivalent to total petroleum hydrocarbons – diesel range)
TVHg = total volatile hydrocarbons – gasoline range (equivalent to total petroleum hydrocarbons – gasoline range)

NLP = no level published

Sample ID = borehole number-upper soil depth (except sample B30-14, which was collected from 13 to 13.5 feet bgs)

All results reported in mg/kg. All results above Water Board ESLs are displayed in **bold-face** type.

Table 5
May 2007 Borehole Soil-Gas Sample Analytical Results
Total Volatile Hydrocarbons (gasoline), Aromatic Hydrocarbons, and MTBE
240 W. MacArthur Boulevard, Oakland, California

Sample I.D.	TVHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
B30-SG-10	<25	<0.25	<0.25	<0.25	<0.25	<2.5
B30-SG-14	<25	<0.25	<0.25	<0.25	<0.25	<2.5
B30-SG-18	**130,000**	**1,000**	29	41	40	<4,000
B31-SG-10	<25	<0.25	<0.25	<0.25	<0.25	<2.5
B31-SG-14	<25	<0.25	<0.25	<0.25	<0.25	<2.5
B32-SG-10	<25	<0.25	<0.25	<0.25	<0.25	<2.5
B32-SG-14	33	<0.25	<0.25	<0.25	<0.25	<2.5
B32-SG-18	53	<0.25	<0.25	<0.25	<0.25	<2.5
Water Board Environmental Screening Levels [(a)]						
Indoor Air µg/m^3	72,000	290	180,000	1,200,000	410,000	31,000

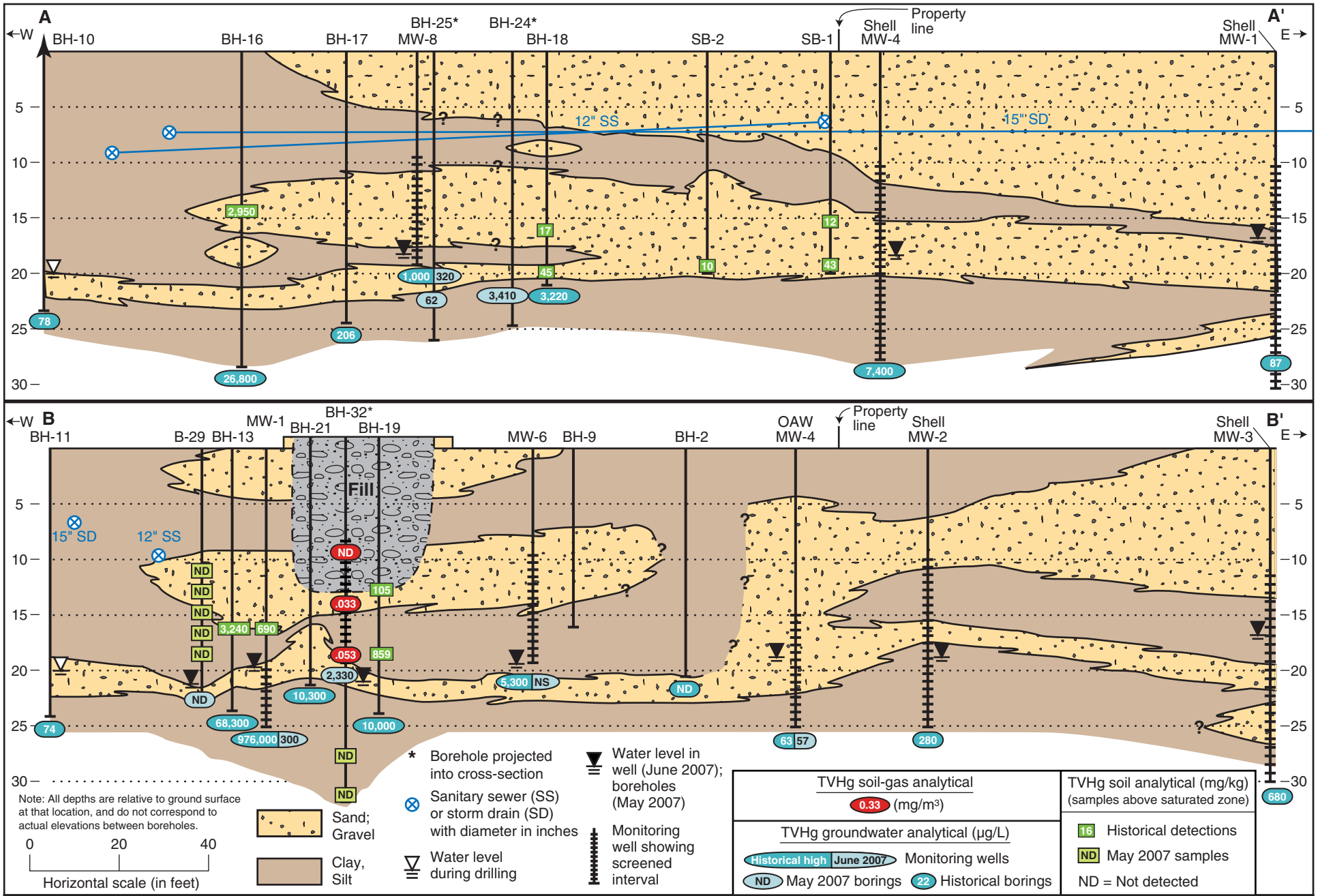
Notes:

[(a)] All for commercial/industrial sites. Shallow soil-gas ESLs for evaluation of potential vapor intrusion concerns (Water Board, 2006). Reported in µg/m^3. Results are comparable to µg/L.

MTBE = methyl tertiary-butyl ether
TVHg = total volatile hydrocarbons – gasoline range (equivalent to total petroleum hydrocarbons – gasoline range)

NLP = no level published

All results reported in µg/L.



STELLAR ENVIRONMENTAL SOLUTIONS, INC
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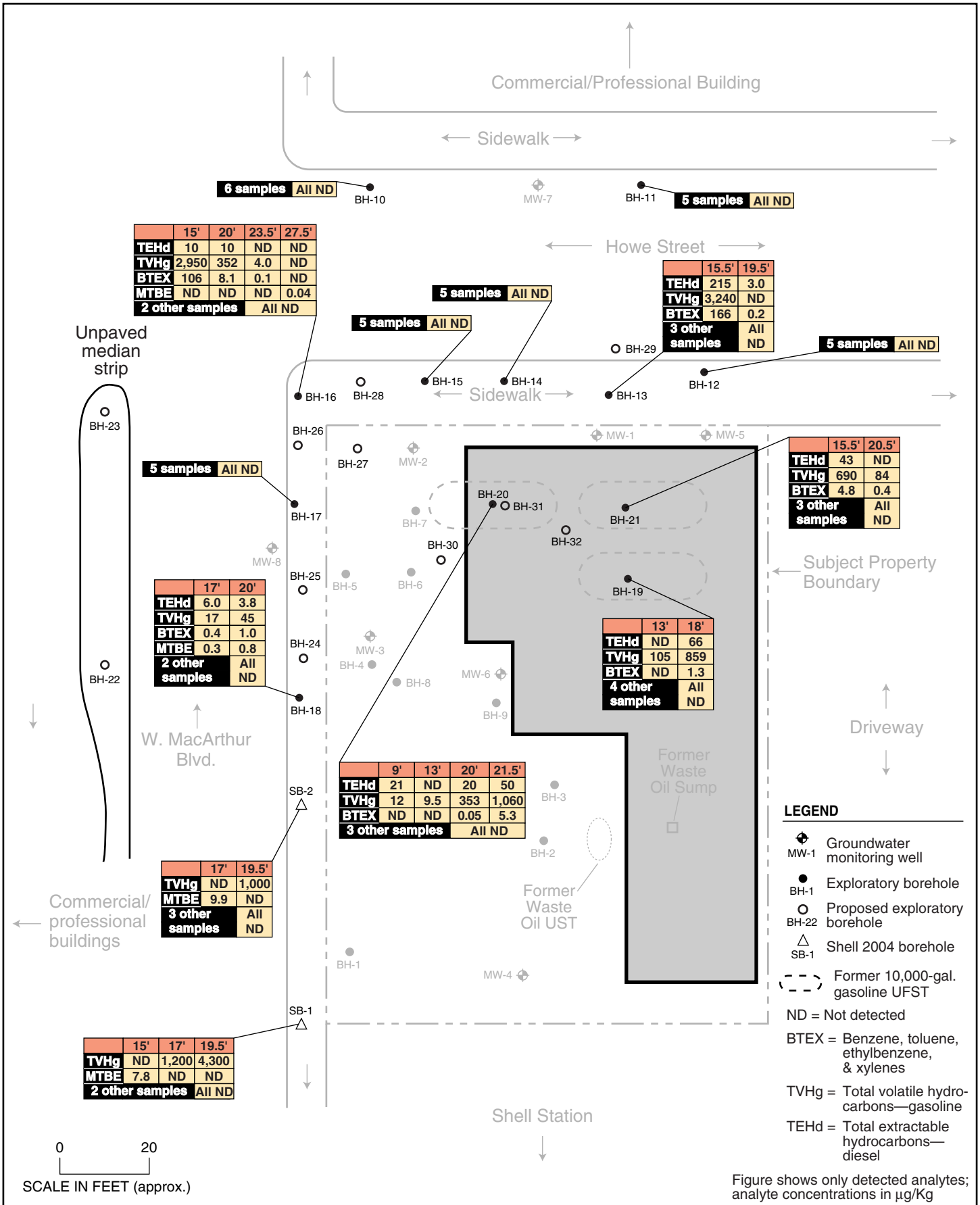
GEOLOGIC CROSS SECTIONS A–A' AND B–B' WITH SOIL, SOIL-GAS AND GROUNDWATER TVHg ANALYTICAL RESULTS
240 W. MacArthur Blvd., Oakland, CA

Figure 8

by: MJC | JULY 2007

2003-43-171



	15'	20'	23.5'	27.5'
TEHd	10	10	ND	ND
TVHg	2,950	352	4.0	ND
BTEX	106	8.1	0.1	ND
MTBE	ND	ND	ND	0.04
2 other samples	All ND			

	15.5'	19.5'
TEHd	215	3.0
TVHg	3,240	ND
BTEX	166	0.2
3 other samples	All ND	

	15.5'	20.5'
TEHd	43	ND
TVHg	690	84
BTEX	4.8	0.4
3 other samples	All ND	

	17'	20'
TEHd	6.0	3.8
TVHg	17	45
BTEX	0.4	1.0
MTBE	0.3	0.8
2 other samples	All ND	

	13'	18'
TEHd	ND	66
TVHg	105	859
BTEX	ND	1.3
4 other samples	All ND	

	9'	13'	20'	21.5'
TEHd	21	ND	20	50
TVHg	12	9.5	353	1,060
BTEX	ND	ND	0.05	5.3
3 other samples	All ND			

	17'	19.5'
TVHg	ND	1,000
MTBE	9.9	ND
3 other samples	All ND	

	15'	17'	19.5'
TVHg	ND	1,200	4,300
MTBE	7.8	ND	ND
2 other samples	All ND		

LEGEND

- MW-1 — Groundwater monitoring well
- BH-1 — Exploratory borehole
- BH-22 — Proposed exploratory borehole
- SB-1 — Shell 2004 borehole
- Former 10,000-gal. gasoline UFST

ND = Not detected

BTEX = Benzene, toluene, ethylbenzene, & xylenes

TVHg = Total volatile hydrocarbons—gasoline

TEHd = Total extractable hydrocarbons—diesel

Figure shows only detected analytes; analyte concentrations in µg/Kg

SITE PLAN WITH APRIL 2004 BOREHOLE SOIL ANALYTICAL RESULTS

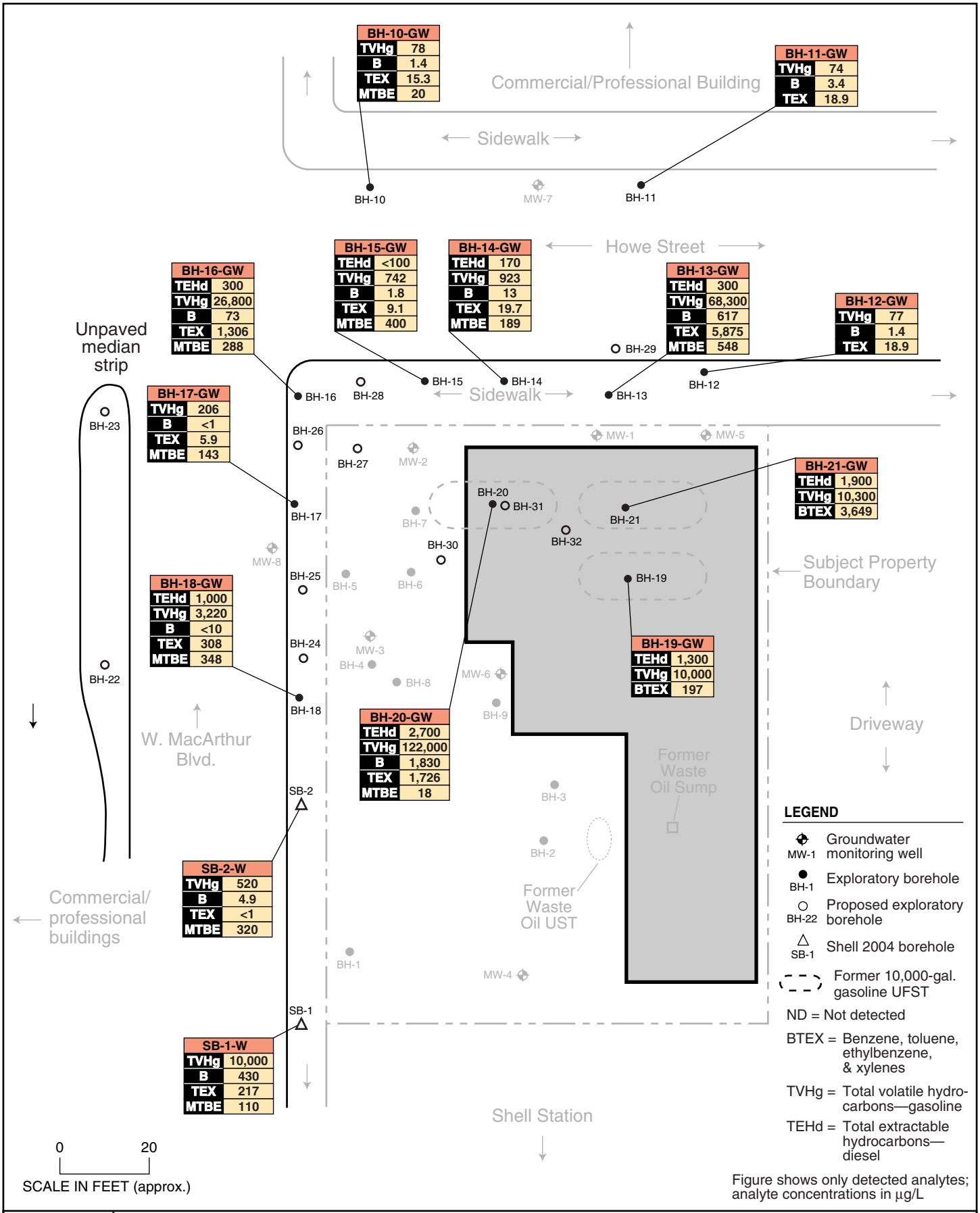
240 W. MacArthur Blvd.
Oakland, CA

By: MJC | DECEMBER 2004

Figure 7

Stellar Environmental Solutions, Inc.
Geoscience & Engineering Consulting

2003-43-93



APRIL 2004 BOREHOLE GROUNDWATER ANALYTICAL RESULTS

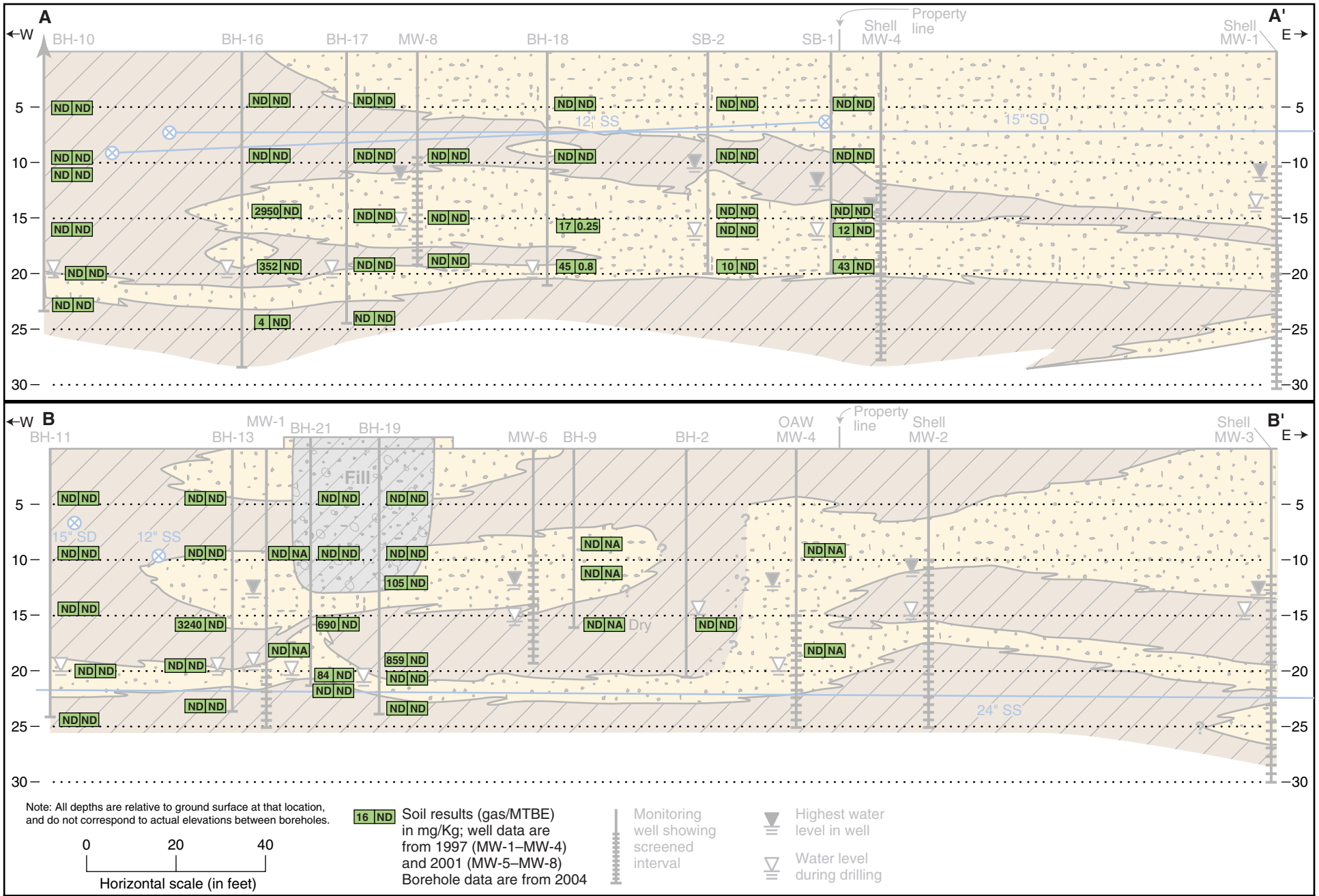
240 W. MacArthur Blvd.
Oakland, CA

By: MJC | DECEMBER 2004

Figure 10

Stellar Environmental Solutions, Inc.
Geoscience & Engineering Consulting

2003-43-91



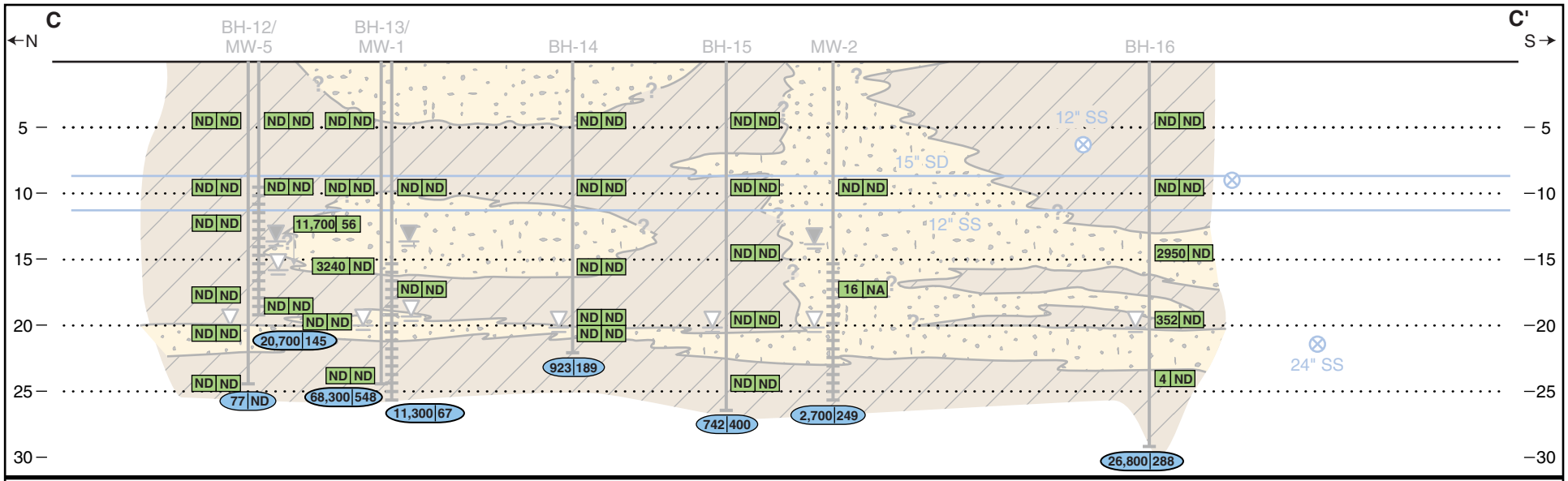
Stellar Environmental Solutions, Inc.
Geoscience & Engineering Consulting

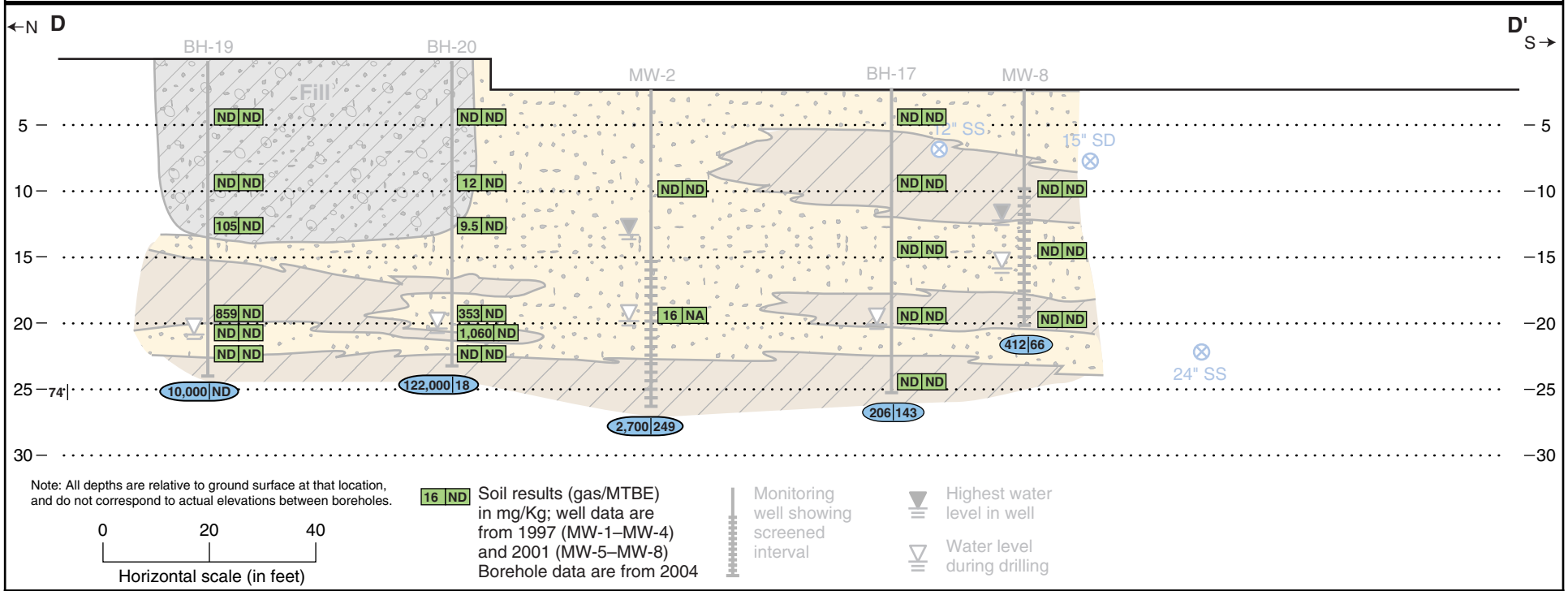
GEOLOGIC CROSS SECTIONS A–A' AND B–B' WITH BOREHOLE SOIL ANALYTICAL RESULTS
240 W. MacArthur Blvd., Oakland, CA

Figure 9

by: MJC | MAY 2004

2003-43-74





Note: All depths are relative to ground surface at that location, and do not correspond to actual elevations between boreholes.

0 20 40

Horizontal scale (in feet)

16 ND Soil results (gas/MTBE) in mg/Kg; well data are from 1997 (MW-1–MW-4) and 2001 (MW-5–MW-8) Borehole data are from 2004

Monitoring well showing screened interval

Highest water level in well

Water level during drilling

Stellar Environmental Solutions, Inc.

Geoscience & Engineering Consulting

GEOLOGIC CROSS SECTIONS C–C' AND D–D' WITH BOREHOLE SOIL ANALYTICAL RESULTS

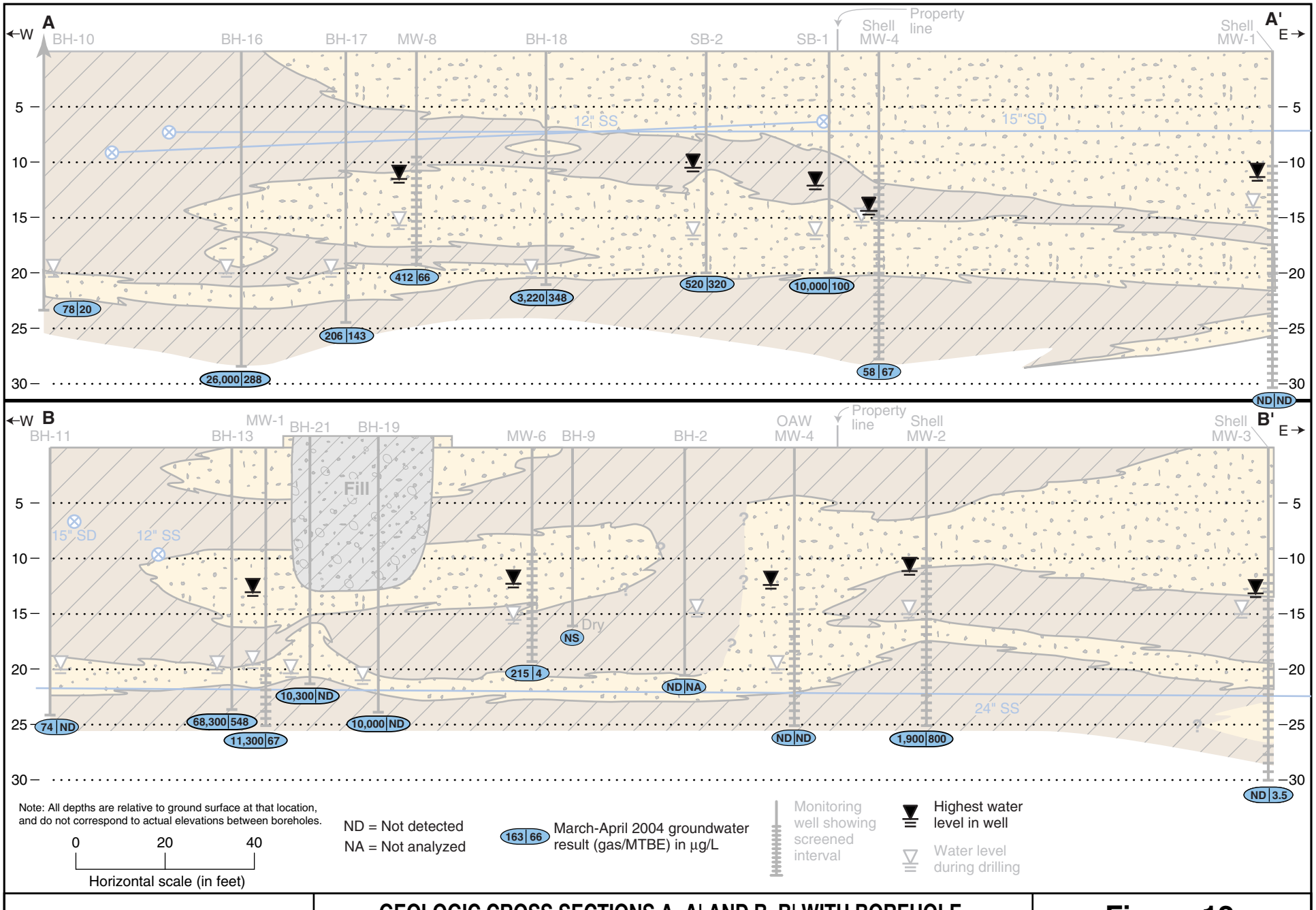
240 W. MacArthur Blvd., Oakland, CA

Figure 10

by: MJC

MAY 2004

2003-43-78



Note: All depths are relative to ground surface at that location, and do not correspond to actual elevations between boreholes.

0 20 40

Horizontal scale (in feet)

ND = Not detected
NA = Not analyzed

163 | 66 March-April 2004 groundwater result (gas/MTBE) in µg/L

Monitoring well showing screened interval

Highest water level in well

Water level during drilling

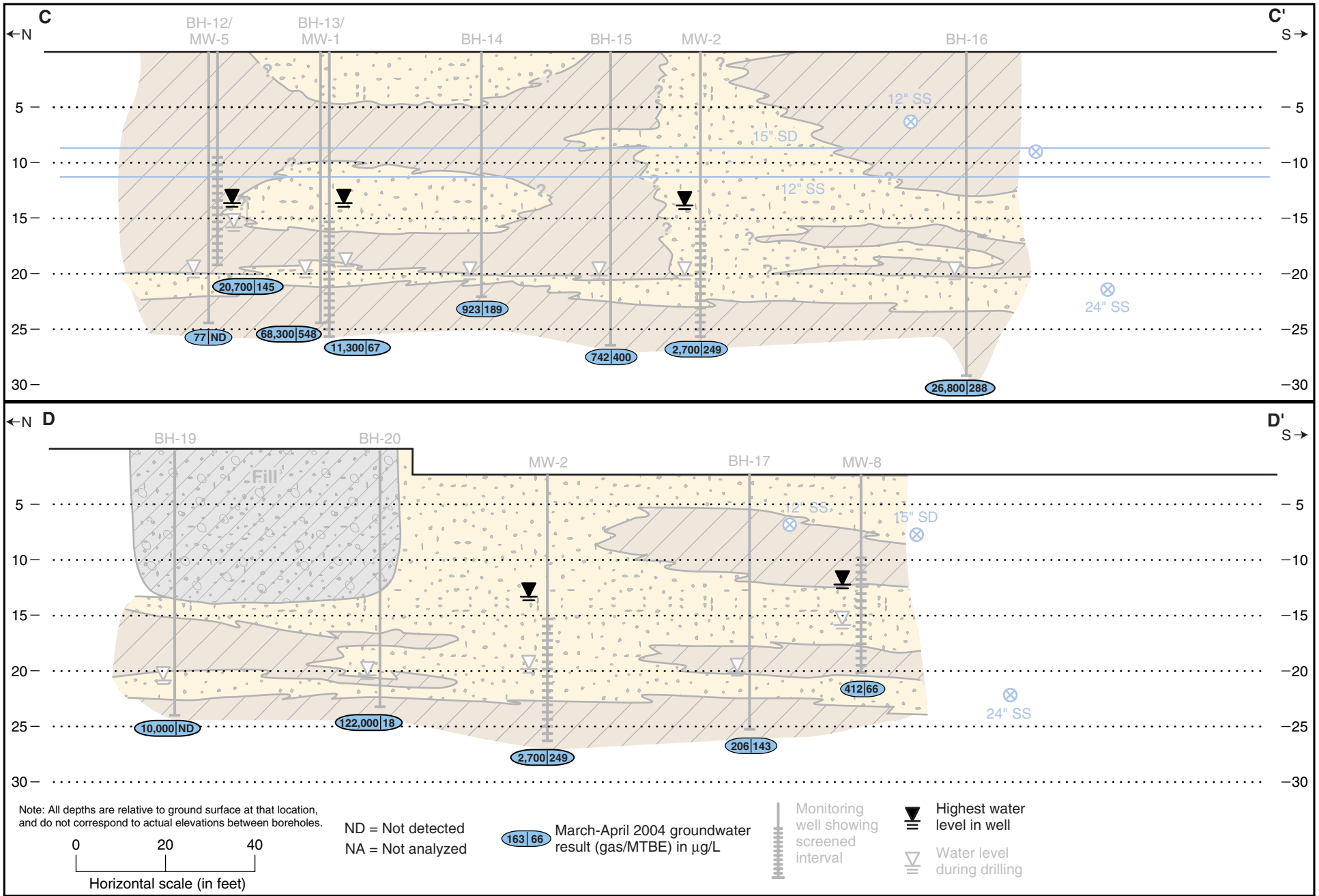
Stellar Environmental Solutions, Inc.
Geoscience & Engineering Consulting

GEOLOGIC CROSS SECTIONS A–A' AND B–B' WITH BOREHOLE GROUNDWATER ANALYTICAL RESULTS
240 W. MacArthur Blvd., Oakland, CA

Figure 12

by: MJC | MAY 2004

2003-43-75



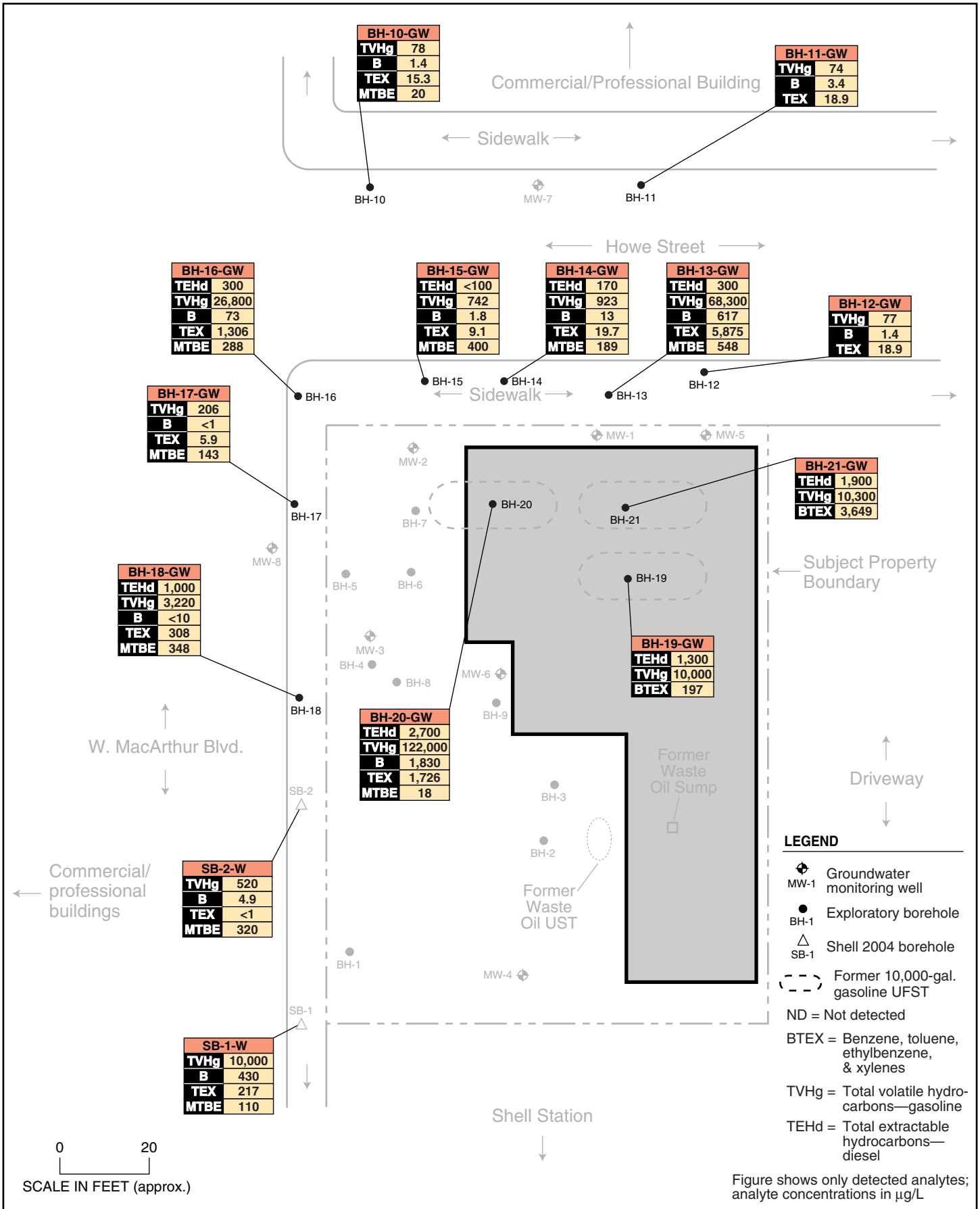
Stellar Environmental Solutions, Inc.
Geoscience & Engineering Consulting

GEOLOGIC CROSS SECTIONS C–C' AND D–D' WITH BOREHOLE GROUNDWATER ANALYTICAL RESULTS
240 W. MacArthur Blvd., Oakland, CA

Figure 13

by: MJC | MAY 2004

2003-43-76



APRIL 2004 BOREHOLE GROUNDWATER ANALYTICAL RESULTS

240 W. MacArthur Blvd.
Oakland, CA

By: MJC | NOVEMBER 2004

Figure 11

Stellar Environmental Solutions, Inc.
Geoscience & Engineering Consulting

2004-43-22

TABLE A-1
Historical Borehole Soil Sample Analytical Results
Petroleum and Aromatic Hydrocarbons
240 W. MacArthur Boulevard, Oakland, Alameda, California
(all concentrations in mg/Kg)

Borehole / Well I.D.	Sample Depth (ft)	Date Sampled	TVH-g	TEH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
BH-1	15'	Jan-97	*<1.0*	*<1.0*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.05*
BH-2	15'	Jan-97	*<1.0*	*<1.0*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.05*
BH-3	15'	Jan-97	*<1.0*	*<1.0*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.05*
BH-4	15'	Jan-97	1,100	370	*<0.02*	*<0.02*	4.4	14	*<3.0*
BH-5	15'	Jan-97	2.1	1.9	0.009	0.006	*<0.005*	0.016	*<0.05*
BH-6	15'	Jan-97	190	140	0.25	0.50	8.4	3.6	*<0.6*
BH-7	12'	Aug-97	*<5.0*	*<5.0*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	NA
	16'	Aug-97	*<5.0*	*<5.0*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	NA
BH-8	8'	Aug-97	*<5.0*	*<5.0*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	NA
	12'	Aug-97	168	<5.0	0.02	*<0.005*	5.1	0.045	NA
	16'	Aug-97	21	<5.0	0.027	0.07	0.75	*<0.005*	NA
BH-9	8'	Aug-97	*<5.0*	*<5.0*	*<0.005*	0.032	0.28	0.029	NA
	12'	Aug-97	*<5.0*	*<5.0*	*<0.005*	0.012	*<0.005*	*<0.005*	NA
	16'	Aug-97	*<5.0*	*<5.0*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	NA
MW-1	10'	Aug-97	*<5.0*	*<5.0*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	NA
	17'	Aug-97	*<5.0*	*<5.0*	*<0.005*	0.031	*<0.005*	*<0.005*	NA
MW-2	10'	Aug-97	*<5.0*	*<5.0*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	NA
	17'	Aug-97	16	*<5.0*	0.035	0.037	0.15	0.018	NA
MW-3	10'	Aug-97	*<5.0*	*<5.0*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	NA
	15'	Aug-97	*<5.0*	*<5.0*	0.027	*<0.005*	*<0.005*	*<0.005*	NA
MW-4	10'	Aug-97	*<5.0*	*<5.0*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	NA
	17'	Aug-97	*<5.0*	*<5.0*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	NA
MW-5	5'	Feb-01	*<10*	NA	*<0.005*	*<0.005*	*<0.015*	*<0.005*	*<0.005*
	10'	Feb-01	*<10*	NA	*<0.005*	*<0.005*	*<0.015*	*<0.005*	*<0.005*
	15'	Feb-01	11,700	NA	25.6	12	38.6	55.8	55.8
	20'	Feb-01	*<10*	NA	*<0.005*	*<0.005*	*<0.015*	*<0.005*	*<0.005*
MW-7	10'	Feb-01	*<10*	NA	*<0.005*	*<0.005*	*<0.015*	*<0.005*	*<0.005*
	15'	Feb-01	*<10*	NA	*<0.005*	*<0.005*	*<0.015*	*<0.005*	*<0.005*
	20'	Feb-01	*<10*	NA	*<0.005*	*<0.005*	*<0.015*	*<0.005*	*<0.005*
MW-8	10'	Feb-01	*<10*	NA	*<0.005*	*<0.005*	*<0.015*	*<0.005*	*<0.005*
	15'	Feb-01	*<10*	NA	*<0.005*	*<0.005*	*<0.015*	*<0.005*	*<0.005*
	20'	Feb-01	*<10*	NA	*<0.005*	*<0.005*	*<0.015*	*<0.005*	*<0.0723*

(Table continued on next page)

TABLE A-1 (continued)

Borehole / Well I.D.	Sample Depth (ft)	Date Sampled	TVH-g	TEH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
BH-10	9.5'	Apr-04	*< 3.0*	1.4	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	12'	Apr-04	*< 3.0*	1.4	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	17'	Apr-04	*< 3.0*	1.3	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	20.5' *	Apr-04	*< 3.0*	2.2	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	23.5' **	Apr-04	*< 3.0*	1.2	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
BH-11	4.5'	Apr-04	*< 3.0*	1.6	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	9.5'	Apr-04	*< 3.0*	1.1	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	15'	Apr-04	*< 3.0*	1.4	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	21.5' *	Apr-04	*< 3.0*	2.5	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	23.5' **	Apr-04	*< 3.0*	1	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
BH-12	4.5'	Apr-04	*< 3.0*	2.2	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	9.5'	Apr-04	*< 3.0*	1.1	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	12'	Apr-04	*< 3.0*	1.5	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	20' (a)	Apr-04	*< 3.0*	1.8	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	20.5' *	Apr-04	*< 3.0*	1.6	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	23.5' **	Apr-04	*< 3.0*	1	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
BH-13	4.5'	Apr-04	*< 3.0*	1	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	9.5'	Apr-04	*< 3.0*	1.5	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	15.5'	Apr-04	3,240	215	3.3	6.5	14	142	*< 3.5*
	19.5'	Apr-04	*< 3.0*	3	0.21	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	23.5' **	Apr-04	*< 3.0*	*< 1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
BH-14	4.5'	Apr-04	*< 3.0*	*< 1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	9.5'	Apr-04	*< 3.0*	*< 1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	16'	Apr-04	*< 3.0*	*< 1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	20' *	Apr-04	*< 3.0*	*< 1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	21.5' **	Apr-04	*< 3.0*	*< 1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	4.5'	Apr-04	*< 3.0*	*< 1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
BH-15	9.5'	Apr-04	*< 3.0*	1.2	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	15'	Apr-04	*< 3.0*	<1.0	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	20' *	Apr-04	*< 3.0*	<1.0	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	23.5' **	Apr-04	*< 3.0*	<1.0	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
BH-16	4.5'	Apr-04	*< 3.0*	<1.0	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	9.5'	Apr-04	*< 3.0*	1.2	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	15'	Apr-04	2,950	10	2.8	12	19	72	*< 17.5*
	20' *	Apr-04	352	10	*< 0.25*	1.2	*< 0.25*	6.9	*< 1.75*
	23.5' **	Apr-04	4	1.8	*< 0.005*	0.015	0.027	0.081	*< 0.035*
	27.5' **	Apr-04	*< 3.0*	<1.0	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*	0.043

(Table continued on next page)

TABLE A-1 (continued)

Borehole / Well I.D.	Sample Depth (ft)	Date Sampled	TVH-g	TEH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
BH-17	4.5'	Apr-04	*< 3.0*	*<1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	9.5'	Apr-04	*< 3.0*	1.4	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	15'	Apr-04	*< 3.0*	*<1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	20' *	Apr-04	*< 3.0*	*<1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	23.5' **	Apr-04	*< 3.0*	1.1	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
BH-18	4.5'	Apr-04	*< 3.0*	1	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	9.5'	Apr-04	*< 3.0*	1	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.015*	*< 0.035*
	17'	Apr-04	17	6	*< 0.005*	0.035	0.12	0.29	0.25
	20' *	Apr-04	45	3.8	0.049	0.15	0.24	0.56	0.84
BH-19	4.5'	Apr-04	*< 3.0*	1.7	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*
	9'	Apr-04	*< 3.0*	*<1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*
	13'	Apr-04	105	*<1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*
	18'	Apr-04	859	66	*< 0.500*	*< 0.500*	0.616	0.714	*< 0.500*
	21' *	Apr-04	*< 3.0*	*<1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*
	23.5' **	Apr-04	*< 3.0*	*<1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*
BH-20	4.5'	Apr-04	*< 3.0*	*<1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*
	9'	Apr-04	12	21	*< 0.025*	*< 0.025*	*< 0.025*	*< 0.025*	*< 0.025*
	13'	Apr-04	9.5	*<1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*
	20'	Apr-04	353	20	*< 0.050*	*< 0.050*	0.0075	0.039	*< 0.050*
	21.5' *	Apr-04	1,060	50	*< 0.500*	*< 0.500*	*< 0.500*	5.34	*< 0.500*
	23.5' **	Apr-04	*< 3.0*	*<1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*
BH-21	4.5'	Apr-04	*< 3.0*	1	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*
	9.5'	Apr-04	*< 3.0*	1.2	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*
	15.5'	Apr-04	690	43	*< 0.500*	*< 0.500*	0.823	3.98	*< 0.500*
	20.5' *	Apr-04	84	*<1.0*	0.056	*<0.025*	0.06	0.245	*<0.025*
	21.5' **	Apr-04	*< 3.0*	*<1.0*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*	*< 0.005*

Notes:

TVH-g = Total volatile hydrocarbons – gasoline range. TEH-d – Total extractable hydrocarbons – diesel range.

NA = Not analyzed for this constituent.

* Sample collected within the saturated zone

** Sample collected beneath the saturated zone

[a] Depth of sample uncertain due to minimal recovery in sampling sleeve.

TABLE A-2
April 2004 Borehole Soil Sample Analytical Results
Lead Scavengers and Fuel Oxygenates
240 W. MacArthur Boulevard, Oakland, California
(all results reported in mg/kg)

Sample I.D.	EDC	EDB	ETBE	DIPE	TAME	TBA
BH-19-4.5'	*< 0.005*	*< 0.005*	*< 0.01*	*< 0.01*	*< 0.01*	*< 0.05*
BH-19-9'	*< 0.005*	*< 0.005*	*< 0.01*	*< 0.01*	*< 0.01*	*< 0.05*
BH-19-13'	*< 0.005*	*< 0.005*	*< 0.01*	*< 0.01*	*< 0.01*	*< 0.05*
BH-19-18'	*< 0.500*	*< 0.500*	*< 1*	*< 1*	*< 1*	*< 5*
BH-19-21' *	*< 0.005*	*< 0.005*	*< 0.01*	*< 0.01*	*< 0.01*	*< 0.05*
BH-19-23.5' **	*< 0.005*	*< 0.005*	*< 0.01*	*< 0.01*	*< 0.01*	*< 0.05*
BH-20-4.5'	*< 0.005*	*< 0.005*	*< 0.01*	*< 0.01*	*< 0.01*	*< 0.05*
BH-20-9'	*< 0.025*	*< 0.025*	*< 0.05*	*< 0.05*	*< 0.05*	*< 0.25*
BH-20-13'	*< 0.005*	*< 0.005*	*< 0.01*	*< 0.01*	*< 0.01*	*< 0.05*
BH-20-20'	*< 0.050*	*< 0.050*	*< 0.1*	*< 0.1*	*< 0.1*	*< 0.5*
BH-20-21.5' *	*< 0.500*	*< 0.500*	*< 1*	*< 1*	*< 1*	*< 5*
BH-20-23.5' **	*< 0.005*	*< 0.005*	*< 0.01*	*< 0.01*	*< 0.01*	*< 0.05*
BH-21-4.5'	*< 0.005*	*< 0.005*	*< 0.01*	*< 0.01*	*< 0.01*	*< 0.05*
BH-21-9.5'	*< 0.005*	*< 0.005*	*< 0.01*	*< 0.01*	*< 0.01*	*< 0.05*
BH-21-15.5'	*< 0.500*	*< 0.500*	*< 1*	*< 1*	*< 1*	*< 5*
BH-21-20.5' *	*<0.025*	*<0.025*	*< 0.05*	*< 0.05*	*< 0.05*	*< 0.25*
BH-21-21.5' **	*< 0.005*	*< 0.005*	*< 0.01*	*< 0.01*	*< 0.01*	*< 0.05*

Notes:

Samples BH-10 through BH-18 (non-source area boreholes) were not analyzed for lead scavengers or fuel oxygenates.

* Sample collected within the saturated zone

** Sample collected beneath the saturated zone

(a) Depth of sample uncertain due to minimal recovery in sampling sleeve.

EDB = Ethylene dibromide (1,2-dibromoethane). EDC = Ethylene dichloride (1,2-dichloroethane).

DIPE = isopropyl ether. ETBE = Ethyl-tertbutyl ether. TAME = Tert-amylmethylether

TBA = Tertiary butyl alcohol NLP = No Level Published

TABLE A-3
Summary of Soil Analytical Results - Metals
240 W. MacArthur Boulevard, Oakland, California

Sample I.D.	Metals Concentrations (mg/kg unless specified otherwise)																
	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium (total)	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
1996 Waste Oil UST Removal																	
SW1	*NA*	*NA*	*NA*	*NA*	*< 0.5*	**36**	*NA*	*NA*	**3.9**	*NA*	*NA*	**35**	*NA*	*NA*	*NA*	*NA*	**26**
SW2	*NA*	*NA*	*NA*	*NA*	*< 0.5*	**33**	*NA*	*NA*	**4.5**	*NA*	*NA*	**44**	*NA*	*NA*	*NA*	*NA*	**28**
SW3	*NA*	*NA*	*NA*	*NA*	*< 0.5*	**44**	*NA*	*NA*	**8.7**	*NA*	*NA*	**57**	*NA*	*NA*	*NA*	*NA*	**48**
SW4	*NA*	*NA*	*NA*	*NA*	*< 0.5*	**26**	*NA*	*NA*	**6.3**	*NA*	*NA*	**40**	*NA*	*NA*	*NA*	*NA*	**37**
EB (7.0')	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	**3.4 mg/L** [c.]	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
EB (8.0')	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*< 0.2 mg/L* [c.]	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
EB (9.0')	*NA*	*NA*	*NA*	*NA*	*< 0.5*	**29**	*NA*	*NA*	**3.4 mg/L** [c.]	*NA*	*NA*	**39**	*NA*	*NA*	*NA*	*NA*	**35**
STKP-1	*NA*	*NA*	*NA*	*NA*	*< 0.5*	*NA*	*NA*	*NA*	2.8 mg/L [c.]	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
STKP-2	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	1.3 mg/L [c.]	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
STKP-3	*< 2.5*	4.5	78	*< 0.5*	*< 0.5*	33	9.1	14	62	*< 0.06*	*< 2*	39	*< 2.5*	*< 1*	*NA*	33	130
January 1997 Investigation																	
BH-1 (15')	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	**15**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-2 (15')	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	**8.4**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-3 (15')	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	**7.6**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-4 (15')	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	**6.2**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-5 (15')	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	**4.6**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-6 (15')	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	**23**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
August 1997 Investigation																	
BH-8 (12')	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	**12.8**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-8 (16')	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	**47.8**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
California Hazardous Waste Criteria (10 X Soluble Threshold Limit Concentrations) [a]																	
	150	50	1,000	7.5	10	50	800	250	50	2.0	3,500	200	10	50	70	240	2,500
California Hazardous Waste Criteria (Total Threshold Limit Concentrations)																	
	500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
California Regional Water Quality Control Board - San Francisco Bay Region Environmental Screening Levels for Commercial/Industrial Land Use [b]																	
	40	2.7	1,500	8.0	12	750	80	225	750	10	40	150	10	40	27	600	

NA = Sample Not Analyzed for this constituent
(a) Guideline for determining if waste could be classified as hazardous based on soluble concentrations, and waste should therefore be analyzed for soluble concentrations.
(b) For coarse-grained soils at commercial/industrial sites where groundwater is a current or potential drinking water source.

TABLE A-4
Historical Borehole Grab Groundwater Sample Analytical Results
Petroleum and Aromatic Hydrocarbons
240 W. MacArthur Boulevard, Oakland, Alameda, California
(all concentrations in µg/L)

Borehole / Well I.D.	Date Sampled	TVH-g	TEH-d	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
BH1W [(a)]	Jan-97	330	490	2	0.72	*< 0.5*	1.3	220
BH2W [(b)]	Jan-97	*< 50*	320	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 5.0*
BH4W	Jan-97	6,600	*NA*	58	13	110	270	170
BH6W [(a)]	Jan-97	13,000	450,000	870.00	65.00	130	570	320
BH-10-GW	Apr-04	78	*< 100*	1	7	2	7	20
BH-11-GW	Apr-04	74	*< 100*	3	8	2	9	*<5.0*
BH-12-GW	Apr-04	77	*< 100*	1	8	2	9	*<5.0*
BH-13-GW	Apr-04	68,300	300	617	527	668	4,680	548
BH-14-GW	Apr-04	923	170	13	5	6	9	189
BH-15-GW	Apr-04	742	*< 100*	2	3	2	5	400
BH-16-GW	Apr-04	26,800	300	73	138	222	946	288
BH-17-GW	Apr-04	206	*< 100*	*< 1.0*	3	*< 5*	3	143
BH-18-GW	Apr-04	3,220	1,000	*< 10*	*< 10*	76	232	348
BH-19-GW	Apr-04	10,000	1,300	24	*< 50*	65	108	*< 10*
BH-20-GW	Apr-04	122,000	2,700	1,830	69	227	1,430	*18*
BH-21-GW	Apr-04	10,300	1,900	485	70	474	2,620	*< 10*

Notes:

TVH-g = Total volatile hydrocarbons – gasoline range. TEH-d – Total extractable hydrocarbons – diesel range.

NA = Not analyzed for this constituent.

(a) Sample also analyzed for lead. No concentrations of concern.

(b) Sample also analyzed for lead, total oil & grease, and Poly-nuclear-aromatic hydrocarbons: no concentrations of concern.

TABLE A-5
Historical Borehole Grab Groundwater Sample Analytical Results
Oxygenates and Lead Scavengers
240 W. MacArthur Boulevard, Oakland, Alameda, California
(all concentrations in µg/L)

Borehole / Well I.D.	Date Sampled	*Lead Scavengers*		*Fuel Oxygenates*			
		EDB	**EDC**	**ETBE**	**DIPE**	**TAME**	**TBA**
BH1W	Jan-97	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH2W	Jan-97	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH4W	Jan-97	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH6W	Jan-97	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-10-GW	Apr-04	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-11-GW	Apr-04	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-12-GW	Apr-04	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-13-GW	Apr-04	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-14-GW	Apr-04	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-15-GW	Apr-04	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-16-GW	Apr-04	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
BH-17-GW	Apr-04	*< 5.0*	*< 5.0*	*< 1*	*< 1*	*< 1*	*< 10*
BH-18-GW	Apr-04	*< 50*	*< 50*	*< 10*	*< 10*	*< 10*	*< 10*
BH-19-GW	Apr-04	*< 50*	*< 50*	*< 10*	*< 10*	*< 10*	*< 10*
BH-20-GW	Apr-04	*< 50*	*< 50*	*< 10*	*< 10*	*< 10*	114
BH-21-GW	Apr-04	*< 50*	*< 50*	*< 10*	*< 10*	*< 10*	*< 100*

Notes:

NA = Not analyzed for this constituent.

EDB = Ethylene dibromide (1,2-dibromoethane). EDC = Ethylene dichloride (1,2-dichloroethane).

DIPE = isopropyl ether. ETBE = Ethyl-tertbutyl ether. TAME = Tert-amylmethylether

TBA = Tertiary butyl alcohol

ATTACHMENT B

Historical Figures

Groundwater Data

Analytical Results

Geologic Cross-Sections