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10:49 am, Jun 03, 2009

Alameda County Environmental Health



June 1, 2009

Re: Interim Remediation Work Plan Shell-Branded Service Station 4212 First Street Pleasanton, California

Dear Mr. Jerry Wickham:

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

Sincerely, Shell Oil Products US

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Denis L. Brown Project Manager June 1, 2009 Delta Project No. SCA421211A SAP No. 135782

Mr. Jerry Wickham Alameda County Health Care Services Agency 1131 Harbor Bay Parkway Alameda, California 94502

RE: Interim Remediation Work Plan Shell-Branded Service Station 4226 First Street Pleasanton, California

Dear Mr. Wickham:

Delta Consultants (Delta), on behalf of Shell Oil Products US (Shell), submits this Interim Remediation Work Plan for the above-referenced site (Figure 1). This work plan was prepared in compliance with a requirement contained in a letter from the Alameda County Health Care Services Agency (ACHCS) to Shell dated March 27, 2009 (Appendix A). In that letter, ACHCS requested "...that you submit an Interim Remediation Work Plan for soil vapor extraction (SVE) and air sparging (AS) by June 1, 2009 that includes installation of extraction wells, sparging wells, and monitoring wells to evaluate system performance." This directive was issued based on the conclusions in Dual-Phase Extraction Pilot Test Report submitted by Delta on behalf of Shell on February 12, 2009. Corrective action is required to address the methyl tertiary butyl ether (MTBE) and tertiary butyl alcohol (TBA) that was encountered at concentrations exceeding Environmental Screening Levels (ESLs) in soils beneath the northern portion of the site from approximately 20 to 35 feet below ground surface (bgs) and to address the elevated concentrations of MTBE and TBA detected in groundwater in the northern portion of the site.

This document has been prepared to comply with the California Code of Regulations, Title 23, Division 3, Chapter 16, Article 11. Provided below is a detailed scope of work for the remediation wells and monitoring wells installation activities. All work will be performed under the supervision of a California-registered geologist and/or professional civil engineer.



 312 Piercy Road
 San Jose, California 95138 USA

 Phone +1 408.224.4724
 / USA Toll Free 800.477.7411

 Fax +1 408.225.8506
 www.deltaenv.com



Mr. Jerry Wickham Alameda County Health Care Services Agency June 1, 2009 Page 2

#### BACKGROUND

The subject site is a Shell-branded service station located at the southern corner of First Street and Vineyard Avenue (Figure 1) in a mixed commercial and residential area of Pleasanton, California. Three 10,000-gallon gasoline underground storage tanks (USTs) and one 550-gallon waste oil UST are located at the site. The site contains two dispenser islands, a service station building with attached service garage (Figure 2). Previous environmental activities, regional geology and hydrogeology, sensitive receptors, and site characterization, including hydrocarbon distribution in soil and groundwater, are described in the previously submitted *Dual-Phase Extraction Pilot Test Report* submitted by Delta on behalf of Shell on February 12, 2009. Appendix B contains historical soil analytical data, a geologic cross section, and historical boring logs. An updated narrative of regional hydrogeology and hydrocarbon distribution in groundwater based on the First Quarter 2009 groundwater monitoring event conducted on February 5, 2009 is described below.

#### **REGIONAL HYDROGEOLOGY**

During the most recent quarterly monitoring and sampling event conducted on February 5, 2009, groundwater was measured from onsite groundwater monitoring wells MW-1, MW-1B, MW-2, MW-3, and MW-4 at depths of 32.29 feet (MW-2) to 76.11 feet (MW-1B) below ground surface (bgs). The groundwater flow direction beneath the site in the shallower zone was toward the northeast with a hydraulic gradient of approximately 0.05 feet per foot. Appendix C contains the First Quarter 2009 groundwater elevation contour map.

#### HYDROCARBON DISTRIBUTION IN GROUNDWATER

The results of the First Quarter 2009 groundwater monitoring event indicated the presence of dissolved-phase hydrocarbons in groundwater collected from the monitoring wells. The maximum total petroleum hydrocarbons as gasoline (TPH-g) concentration in groundwater samples collected was detected in well MW-4 at 15,000 micrograms per liter ( $\mu$ g/L). The maximum benzene concentration in groundwater samples collected was detected in well MW-4 at 200  $\mu$ g/L. The maximum MTBE concentration in groundwater samples collected was detected in well MW-4 at 13,000  $\mu$ g/L. The maximum TBA concentration in groundwater samples collected above the reporting limit in groundwater samples collected. Di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), and tert-amyl methyl ether (TAME) were not analyzed in groundwater samples collected.

The dissolved-phase hydrocarbon plume stretches across the site. The highest concentrations have generally been detected in wells MW-1, MW-2, and MW-4.

Historical groundwater analytical data is tabulated in Table 1. The First Quarter 2009 hydrocarbon distribution in groundwater map is included as Appendix C.

#### **PROPOSED REMEDIAL APPROACH**

**Conceptual Remedial System Design.** Based on the review of remedial alternatives contained in the *Draft* Corrective Action Plan (CAP), submitted by Delta on November 11, 2007 and the evaluation contained within the Dual-Phase Extraction (DPE) Pilot Test Report submitted by Delta on February 12, 2009, SVE was selected as the most effective remedial strategy for this site, along with a recommendation to investigate the application of air sparging in addition to SVE. As discussed in the pilot test report, minimal groundwater movement was observed in the observation wells during the tests. As a result, the vapor radius of influence (ROI) could not be calculated, other than noting the ROI appears to be less than 40 feet. Calculating an ROI based on the average observed flow rate and known site subsurface conditions produced a theoretical ROI of approximately 26 feet. Dissolved oxygen (DO) levels increased throughout the pilot tests, which was correlated to generally decreasing hydrocarbon concentrations in groundwater. The pilot test results also indicate that SVE may be a viable component of an overall remediation strategy as mass removal rates of TPH-g were calculated as 58 pounds per day (lb/day) based on a total of 286.3 pounds removed during the total extraction test time of 118.25 hours. Furthermore, the soil permeability documented by the relative success of SVE suggests that air sparging may also be suitable to address the oxygenate issues in the groundwater at the site. While air sparging strips the hydrocarbons from the impacted groundwater, the SVE system removes the resulting volatilized hydrocarbons. Further, the injection of air to the subsurface will encourage the bioremediation of TPH-g and MTBE. However, before the installation of a full-scale AS system, it is prudent to install a single AS well and perform feasibility testing to ensure this technology would prove effective at remediating groundwater contamination at the site.

The SVE system design will generally consist of a vacuum pump, which will be selected based on the results of the pilot test. Vapor extracted from the vadose zone will be treated by a thermal or catalytic oxidizer (therm/cat-ox). Initially, all SVE wells will be connected to the system to extract vapors; as remediation progresses, Delta will evaluate the need to add additional SVE wells to the system.

Air sparging will be evaluated by the installation of an air sparge well and feasibility testing; air will be injected through the initial AS point at flow rates varying from approximately 5 to 20 standard cubic feet per minute (scfm) and pressures of approximately 5 to 10 pounds per square inch (psi) above static head pressure. An onsite air blower will be used for air injection into the groundwater. Hydrocarbons volatilized by the air sparge system will be extracted through the SVE well(s), while increased dissolved oxygen levels from the sparging should stimulate aerobic biodegradation in the saturated zone. Should the AS test prove effective, additional AS well locations will be proposed for inclusion in the remediation system design.

**Treatment of Waste Streams.** The only waste stream generated by this remedial alternative will be soil vapors. These will be treated by either thermal or catalytic oxidation. The SVE system will be designed to meet agency discharge requirements and operation will be done in compliance with a permit to operate to be obtained by the local air district.

**Progress Monitoring and Sampling.** Progress of the SVE system will be monitored by sampling the system influent stream of soil vapors. In addition, individual extraction wells will be monitored in an effort to optimize system performance and focus the operation of the system on those wells removing the highest mass of hydrocarbons from the subsurface. The system will operate in compliance with the discharge permit and as

necessary for routine maintenance and monitoring. The system vapor inlet, exhaust, and individual wells will be monitored with a photoionization detector (PID) to provide an indication of general trends in vapor concentrations.

Vapor concentrations will be analyzed in accordance with the operating permit. Vapor samples will also be analyzed on a quarterly basis to assist in remedial optimization. Laboratory sampling will consist of the collection of soil vapor samples in Tedlar bags. The Tedlar bags will be kept in an opaque container until delivered to the laboratory. Samples will be analyzed for TPH-g by Environmental Protection Agency (EPA) Method TO-3, BTEX compounds (benzene, toluene, ethylbenzene and xylene), fuel oxygenates (MTBE, TBA, DIPE, ETBE and TAME), and ethanol (ETOH) by EPA Method TO-15, and nitrogen, methane, carbon dioxide, carbon monoxide, and oxygen using ASTM Method D-1946 ("Fixed Gas Analysis"). Fixed gas analysis will be conducted on inlet soil vapor samples only in an effort to ensure that short-circuiting from atmosphere is not occurring from SVE.

Prior to the start of the AS feasibility test, groundwater samples will be collected from onsite wells and proposed observation wells. Samples will be analyzed for TPH-g, BTEX compounds, fuel oxygenates, and ethanol by EPA Method 8260. Should air sparging be found to be effective and further air sparge well installed at the site, a quarterly schedule would be implemented for analysis of natural attenuation parameters including dissolved oxygen (DO), oxidation reduction potential (ORP), ferrous iron, sulfate, nitrate and methane, along with quarterly measurements for DO, ORP, ferrous iron, sulfate and nitrate will be taken using field kits and instrumentation. In addition, quarterly groundwater samples would be proposed for laboratory analysis of methane by Method RSK 175(M).

Operation and maintenance of the SVE system will be conducted on a weekly basis in compliance with all regulatory agency requirements.

**Progress Evaluation.** Progress of the SVE system will be evaluated based on influent soil vapor data and mass removal trends. Should the AS feasibility test prove effective, additional AS wells would be proposed for installation; the progress of the AS system would be evaluated based on the reduction of TPH-g, BTEX compounds, and fuel oxygenates in the groundwater surrounding the AS injection points. The rate of reduction would be used to estimate clean-up times and evaluate the effectiveness of the AS system.

**Progress Reports.** Quarterly progress reports of the remediation system will be submitted as part of the quarterly reports. This report will include the following items:

- The percentage of time the system has operated;
- The flow rate of vapor;
- The mass of hydrocarbons removed as soil vapor;
- The percentage of reduction in hydrocarbon concentration in the vapor phase;
- The percentage of reduction in hydrocarbon concentration in the groundwater.

**Confirmation Sampling.** Once asymptotic reduction of hydrocarbon concentrations has been confirmed in the vapor phase samples, soil confirmation samples will be collected. A work plan describing confirmation sampling activities will be prepared for review and approval by the ACHCS.

**Implementation Schedule.** Design and construction of the SVE system will commence as soon as the SVE wells and AS test well are installed and feasibility testing has been performed on the AS test well, following approval from the ACHCS. Activities performed by Delta under this scope of work will be supervised by either a state of California registered geologist or civil engineer, and will be conducted consistent with applicable agency standards.

#### **REMEDIATION WELL INSTALLATION SCOPE OF WORK**

Delta proposes to initially install four SVE wells (SVE-1 through SVE-4), one AS well (AS-1), and one observation well (OBS-1), all located in the vicinity of onsite wells MW-1, MW-2, MW-4, and the former UST complex. The SVE wells are proposed to be spaced on 40 foot centers; the AS test well is proposed to be installed down-gradient of impacted monitoring well MW-4. Figure 3 presents the proposed locations of all wells. Each of the SVE wells are proposed to be screened from approximately 20 to 30 feet bgs, the AS well is proposed to be screened from approximately 45 to 47 feet bgs, and the observation well is proposed to be screened from approximately 22 to 47 feet bgs.

#### **PRE-FIELD ACTIVITIES**

Upon approval of the work plan, Delta will arrange the drilling schedule and coordinate mobilization of the drilling equipment and materials, contact Underground Services Alert a minimum of 48 hours prior to drilling, and visit the site to mark the well locations. Prior to boring advancement, a utility locator contractor will perform a geophysical survey of the proposed boring and well locations. Notifications regarding the field activities will be made in advance to the appropriate agencies and the property owner, and any necessary permits will be obtained.

#### WELL INSTALLATION FIELD ACTIVITIES

**Drilling and Sampling Procedures**. Prior to drilling, the well locations will be cleared using air-knife equipment to a minimum depth of approximately eight feet bgs.

Proposed SVE well locations (SVE-1 through SVE-4) will be drilled to approximately 30 feet bgs using hollow stem auger (HSA) drill rig equipment. The proposed AS well location (AS-1) will be drilled to approximately 52 feet bgs, using HSA drill rig equipment. Proposed observation well location (OBS-1) will be drilled to approximately 50 feet bgs, using HSA drill rig equipment. Soil samples will be collected from well AS-1 at 5-foot intervals, starting at 10 feet bgs, to the total depth of the boring, for submittal to an analytical laboratory. Soil samples for laboratory analysis will not be collected from the remaining borings.

Each well location will be sampled for lithologic description at 5-foot intervals, starting at 10 feet bgs, to the termination depths of each boring location using a 2-inch diameter California modified split-spoon sampler. At each sampling interval, the soil samples from each boring will be logged using the Unified Soil Classification System and select samples will be retrieved in 2-inch diameter brass rings. Following removal of the

rings from selected borings, the rings will be sealed at each end with Teflon<sup>TM</sup>–lined plastic end caps, and will be labeled in accordance with specified sampling procedures and stored on ice for transport with the appropriate chain-of-custody documentation to a state-certified analytical laboratory.

During sampling operations, all soil samples will be field screened for the presence of volatile organic compounds (VOCs) by headspace analysis using a PID calibrated to 100 parts per million by volume (ppmv) of isobutylene. PID readings will be recorded on the boring logs.

**SVE Well Installation**. Upon completion, four of the borings will be converted into SVE wells (SVE-1 through SVE-4). The SVE wells for each location will be constructed of 4-inch diameter Schedule 40 PVC with screened intervals from approximately 20 to 30 feet bgs, depending on soil lithology and depth to water encountered. Based on existing site data, the SVE wells will be constructed of 0.020-inch wound screen. The well annulus will be backfilled with #2/16 Monterey sand approximately one foot above each well screened interval, followed by a hydrated bentonite chip seal to the surface in the SVE wells. A locking cap will be placed on each wellhead, which will be enclosed in a flush-mounted traffic-rated vault. Actual screen size, screen intervals, and sand pack will be determined based on the lithology and depth to water encountered during the well installation activities.

**AS Well Installation.** Upon completion, one of the borings will be converted into an AS well (AS-1). The AS well will be constructed of 2-inch diameter Schedule 40 PVC with a screened interval from approximately 45 to 47 feet bgs, or 15 feet below first encountered groundwater, and a blank casing interval from 47 to 52 feet bgs to act as a silt sump, depending on soil lithology encountered and depth to groundwater. Based on existing site data, the AS well will be constructed of 0.020-inch slotted screen. The well annulus will be backfilled with hydrated bentonite chips around the silt sump, followed by #2/12 Monterey sand from approximately one foot below to approximately one foot above each well screened interval, followed by a 3-foot hydrated bentonite chip seal. Bentonite cement grout will be backfilled above the bentonite chip sealed zone to the surface in the AS well, and a locking cap will be placed on the wellhead, which will be enclosed in a flush-mounted or monument style traffic-rated vault. Actual screen size, screen intervals, and sand pack will be determined based on the lithology and depth to groundwater encountered during the well installation activities.

**Observation Well Installation.** Upon completion, one boring will be converted into observation well OBS-1. The well will be screened from approximately 22 to 47 bgs, or 10 feet above and 15 feet below first encountered groundwater. Based on existing site data, the observation well will be constructed of 0.020-inch slotted screen. The well annulus will be backfilled with #2/12 Monterey sand to approximately 2 feet above the well screen, followed by an approximately 2-foot hydrated bentonite chip seal, and then a bentonite cement grout to near the ground surface. A locking cap will be placed on the wellhead, which will be enclosed in a flush-mounted traffic-rated vault. Actual screen size, screen interval, and sand pack will be determined based on the lithology and depth to groundwater encountered during the well installation.

**Equipment Decontamination**. All down-hole sampling equipment will be washed between well and sample locations and samples in a non-phosphate detergent and rinsed with distilled water.

**Laboratory Analyses**. Selected soil samples from each boring will be submitted to a State-certified analytical laboratory for chemical analyses. The samples will be analyzed for TPH-g, BTEX compounds, MTBE, TBA, DIPE, ETBE, TAME (fuel oxygenates), and ethanol using EPA Method 8260B.

Mr. Jerry Wickham Alameda County Health Care Services Agency June I, 2009 Page 7

**Disposal of Drill Cuttings and Rinseate**. Soil cuttings and rinseate generated during drilling activities will be placed in Department of Transportation (DOT)-approved 55-gallon drums and/or roll-off bins. The drums and/or bins will be sealed and labeled in accordance with the appropriate protocols and each container will be identified on a waste inventory form. The drums and/or bins will be temporarily left onsite, pending transport and disposal to an appropriate facility by Shell's waste management contractor.

#### **CLOSING REMARKS**

This work plan represents Delta's professional opinions based upon the currently available information and are arrived at in accordance with currently acceptable professional standards. This work plan is based upon a specific scope of work requested by the client. The Contract between Delta and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This work plan is intended only for the use of Delta's Client and anyone else specifically listed on this work plan. Delta will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Delta makes no express or implied warranty as to the contents of this document.

Should you have any questions or need any further assistance, please contact Suzanne McClurkin-Nelson (Delta) at (408) 826-1875 or Dennis Brown (Shell Project Manager) at (707) 865-0251.

Sincerely, Delta Consultants

Joby Dunmire **Project Profession** William Lantz, I Senior Engineering

cc: Denis Brown, Shell Oil Products US, Carson

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Suzanné McClurkin-Nelson Senior Project Manager

#### **ATTACHMENTS:**

#### **Figures**

Figure 1 – Site Location Map Figure 2 – Site Map Figure 3 – Site Map with Proposed Well Locations

#### Tables

Table 1 – Historical Groundwater Gauging and Analytical Data

#### Appendices

Appendix A – ACHCS Letter dated March 27, 2009 Appendix B – Historical Soil Analytical Data, Cross Section, and Boring Logs Appendix C – First Quarter 2009 Groundwater Maps FIGURES



				SHELL-BRANDED S 4226 Firs Pleasanton	SERVICE STATION st Street , California
0	1 300	2 600	PROJECT NO. SCA421211	DRAWN BY V. F. 5/5/05	$\wedge$
		2,000	FILE NO.	PREPARED BY VF	
	Scale, Feet		REVISION NO.	REVIEWED BY	DELTA

QUADRANGLE LOCATION









LEGEND	
MW−1 <del>�</del>	GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
S−1 🗲	DESTROYED GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
TB−1 Ø	ABANDONED TANK BACKFILL WELL LOCATION
SVE-1 🛧	PROPOSED SOIL VAPOR EXTRACTION WELL LOCATION AND DESIGNATION
AS−1 <del>Φ</del>	PROPOSED AIR SPARGE WELL LOCATION AND DESIGNATION
OBS-1 🕂	PROPOSED OBSERVATION WELL LOCATION AND DESIGNATION



TABLE

# TABLE 1 Historical Groundwater Gauging and Analytical Data Chall branded Convice Station

Shell-branded Service Station

4212 First Street

							MTBE	MTBE						Depth to	GW
Well ID	Date	TPPH	В	т	Е	Х	8020	8260	DIPE	ETBE	TAME	ТВА	тос	Water	Elevation
		(ug/L)	(MSL)	(ft.)	(MSL)										
MW-1	6/16/1999	NA	371.20	37.81	333.39										
MW-1	6/30/1999	89.0	5.89	<0.500	<0.500	0.652	<5.00	NA	NA	NA	NA	NA	371.20	33.65	337.55
MW-1	9/24/1999	1,560	473	<10.0	<10.0	22.8	<2.50	NA	NA	NA	NA	NA	371.20	37.04	334.16
MW-1	12/8/1999	1,020	375	<5.00	<5.00	15.2	<50.0	NA	NA	NA	NA	NA	371.20	36.79	334.41
MW-1	2/10/2000	523	106	<5.00	<5.00	31.8	2.9	NA	NA	NA	NA	NA	371.20	34.90	336.30
MW-1	5/17/2000	<50.0	<0.500	<0.500	<0.500	<0.500	37	29.5	NA	NA	NA	NA	371.20	32.55	338.65
MW-1	8/3/2000	808	290	<2.50	<2.50	8.9	<12.5	NA	NA	NA	NA	NA	371.20	39.13	332.07
MW-1	10/31/2000	507	250	0.962	<0.500	23.5	3.76	NA	NA	NA	NA	NA	371.20	37.91	333.29
MW-1	3/1/2001	<50.0	<0.500	<0.500	<0.500	<0.500	74.6	NA	NA	NA	NA	NA	371.20	39.60	331.60
MW-1	5/30/2001	780	280	<2.0	<2.0	11	NA	<2.0	NA	NA	NA	NA	371.20	39.53	331.67
MW-1	8/2/2001	1,900	580	<2.5	<2.5	12	NA	<25	NA	NA	NA	NA	371.20	39.61	331.59
MW-1	12/6/2001	840	190	<0.50	<0.50	13	NA	<5.0	NA	NA	NA	NA	371.20	39.63	331.57
MW-1	2/5/2002	2,700	650	<2.5	<2.5	7.2	NA	<25	NA	NA	NA	NA	371.20	35.53	335.67
MW-1	6/17/2002	2,500	550	<2.0	<2.0	5.9	NA	<20	NA	NA	NA	NA	371.20	39.29	331.91
MW-1	7/25/2002	690	130	<0.50	<0.50	4.4	NA	18	NA	NA	NA	NA	371.20	39.39	331.81
MW-1	11/14/2002	400	31	<0.50	<0.50	2.7	NA	27	NA	NA	NA	NA	371.20	40.00	331.20
MW-1	2/12/2003	840	0.85	<0.50	<0.50	<0.50	NA	40	NA	NA	NA	NA	371.20	32.92	338.28
MW-1	5/14/2003	680	190	<2.5	<2.5	<5.0	NA	95	NA	NA	NA	NA	371.20	32.57	338.63
MW-1	7/29/2003	870	190	<2.5	<2.5	<5.0	NA	150	NA	NA	NA	NA	371.20	33.82	337.38
MW-1	11/19/2003	<200	14	<2.0	<2.0	<4.0	NA	230	NA	NA	NA	NA	371.20	38.28	332.92
MW-1	2/19/2004	58 d	11	<0.50	<0.50	<1.0	NA	85	NA	NA	NA	NA	371.20	36.93	334.27
MW-1	5/3/2004	670	310	<2.5	<2.5	<5.0	NA	420	NA	NA	NA	NA	371.20	32.70	338.50
MW-1	8/24/2004	430 d	34	<2.5	<2.5	<5.0	NA	690	NA	NA	NA	NA	371.20	34.66	336.54
MW-1	11/15/2004	<250	29	<2.5	<2.5	<5.0	NA	470	NA	NA	NA	NA	371.20	38.27	332.93
MW-1	2/2/2005	540 e	87	<2.5	<2.5	<5.0	NA	700	NA	NA	NA	NA	371.20	32.02	339.18
MW-1	5/5/2005	460 e	88	<2.5	<2.5	<5.0	NA	300	NA	NA	NA	NA	371.20	36.82	334.38
MW-1	8/5/2005	910	230	<2.5	<2.5	<5.0	NA	480	NA	NA	NA	NA	371.20	33.35	337.85

# TABLE 1 Historical Groundwater Gauging and Analytical Data

Shell-branded Service Station

4212 First Street

							MTBE	MTBE						Depth to	GW
Well ID	Date	TPPH	В	Т	E	Х	8020	8260	DIPE	ETBE	TAME	TBA	тос	Water	Elevation
		(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(MSL)	(ft.)	(MSL)
MW-1	11/22/2005	1,760	27	<0.500	<0.500	1	NA	1,160	NA	NA	NA	NA	371.20	33.42	337.78
MW-1	2/7/2006	4,620	225	<0.500	<0.500	<0.500	NA	1,480	NA	NA	NA	NA	371.20	31.63	339.57
MW-1	5/16/2006	1,100	130	<0.50	2	2	NA	1,600	NA	NA	NA	NA	371.20	31.16	340.04
MW-1	8/21/2006	2,700	86	<0.500	1	1	NA	1,960	NA	NA	NA	NA	371.20	33.07	338.13
MW-1	11/14/2006	1,400 g	30	<25	<25	<25	NA	2,100	<25	<25	<25	<1,000	371.20	33.73	337.47
MW-1	2/1/2007	800	21	<0.50	<0.50	<1.0	NA	2,300	NA	NA	NA	NA	371.20	33.02	338.18
MW-1	6/1/2007	1,400 j,k	68	<20	<20	4.4	NA	2,200	NA	NA	NA	NA	371.20	32.87	338.33
MW-1	8/22/2007	250 j	20	<20	<20	<20	NA	3,100	NA	NA	NA	1,500	371.20	34.64	336.56
MW-1	11/26/2007	1,800 j	33	<20	<20	<20	NA	3,100	<40	<40	<40	930	371.20	35.59	335.61
MW-1	2/19/2008	1,800 j	33	<20	<20	<20	NA	3,700	NA	NA	NA	1,700	371.20	31.05	340.15
MW-1	5/23/2008	3,700	100	<25	<25	<25	NA	3,100	NA	NA	NA	1,300	371.20	31.80	339.40
MW-1	8/7/2008	4,200	33	<25	<25	<25	NA	3,500	NA	NA	NA	<250	371.20	33.03	338.17
MW-1	12/3/2008	3,400	34	<25	<25	<25	NA	3,200	NA	NA	NA	980	371.20	35.19	336.01
MW-1	2/5/2009	2,100	26	<25	<25	<25	NA	1,700	NA	NA	NA	340	371.20	35.07	336.13
MW-1B	9/21/2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	371.67	76.94	294.73
MW-1B	9/28/2006	<50	<0.50	<0.50	<0.50	<0.50	NA	21	NA	NA	NA	<20	371.67	77.15	294.52
MW-1B	11/14/2006	320 g	<5.0	<5.0	<5.0	<5.0	NA	310	<5.0	<5.0	<5.0	<200	371.67	69.38	302.29
MW-1B	2/1/2007	77	0.53	<0.50	<0.50	<1.0	NA	150	NA	NA	NA	NA	371.67	60.92	310.75
MW-1B	6/1/2007	<50 j,k	0.25 I	<1.0	<1.0	<1.0	NA	74	NA	NA	NA	NA	371.67	61.07	310.60
MW-1B	8/22/2007	<50 j	0.25 l	<1.0	<1.0	<1.0	NA	35	NA	NA	NA	7.11	371.67	77.54	294.13
MW-1B	11/26/2007	<50 j	<0.50	<1.0	<1.0	<1.0	NA	1.7	<2.0	<2.0	<2.0	<10	371.67	68.50	303.17
MW-1B	2/19/2008	65 j	2.6	4.2	<1.0	1.1	NA	58	NA	NA	NA	<10	371.67	57.21	314.46
MW-1B	5/23/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	3.6	NA	NA	NA	<10	371.67	57.53	314.14
MW-1B	8/7/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	1.1	NA	NA	NA	<10	371.67	72.51	299.16
MW-1B	12/3/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	3.4	NA	NA	NA	<10	371.67	80.84	290.83
MW-1B	2/5/2009	<50	<0.50	<1.0	<1.0	<1.0	NA	4.4	NA	NA	NA	<10	371.67	76.11	295.56

# TABLE 1 Historical Groundwater Gauging and Analytical Data

Shell-branded Service Station

4212 First Street

							MTBE	MTBE						Depth to	GW
Well ID	Date	TPPH	В	Т	Е	Х	8020	8260	DIPE	ETBE	TAME	TBA	тос	Water	Elevation
		(ug/L)	(MSL)	(ft.)	(MSL)										
MW-2	2/3/2000	NA	372.40	32.65	339.75										
MW-2	2/7/2000	NA	372.40	35.51	336.89										
MW-2	2/10/2000	<50.0	<0.500	<0.500	<0.500	<0.500	2.61	NA	NA	NA	NA	NA	372.40	36.62	335.78
MW-2	5/17/2000	120	4.09	<0.500	<0.500	<0.500	29	NA	NA	NA	NA	NA	372.40	32.14	340.26
MW-2	8/3/2000	<50.0	0.692	<0.500	<0.500	<0.500	40.5	36.6b	NA	NA	NA	NA	372.40	32.42	339.98
MW-2	10/31/2000	<50.0	<0.500	<0.500	<0.500	<0.500	57.4	44.8c	NA	NA	NA	NA	372.40	33.02	339.38
MW-2	3/1/2001	173	1.64	1.65	2.86	3.97	127	167	NA	NA	NA	NA	372.40	32.54	339.86
MW-2	5/30/2001	<50	<0.50	<0.50	<0.50	<0.50	NA	170	NA	NA	NA	NA	372.40	32.42	339.98
MW-2	8/2/2001	<50	<0.50	<0.50	<0.50	<0.50	NA	160	NA	NA	NA	NA	372.40	32.55	339.85
MW-2	12/6/2001	<50	<0.50	<0.50	<0.50	<0.50	NA	170	NA	NA	NA	NA	372.40	33.15	339.25
MW-2	2/5/2002	<50	0.72	<0.50	<0.50	1.7	NA	170	NA	NA	NA	NA	372.40	32.29	340.11
MW-2	6/17/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	260	NA	NA	NA	NA	372.40	32.63	339.77
MW-2	7/25/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	280	NA	NA	NA	NA	372.40	32.80	339.60
MW-2	11/14/2002	120	13	9	3.8	14	NA	430	NA	NA	NA	NA	372.40	33.31	339.09
MW-2	2/12/2003	<100	<1.0	<1.0	<1.0	<1.0	NA	430	NA	NA	NA	NA	372.40	32.15	340.25
MW-2	5/14/2003	<250	<2.5	<2.5	<2.5	<5.0	NA	470	NA	NA	NA	NA	372.40	32.01	340.39
MW-2	7/29/2003	<250	<2.5	<2.5	<2.5	<5.0	NA	670	NA	NA	NA	NA	372.40	32.51	339.89
MW-2	11/19/2003	<50	<0.50	<0.50	<0.50	<1.0	NA	54	NA	NA	NA	NA	372.40	33.83	338.57
MW-2	2/19/2004	65	<0.50	3.4	1.4	6.5	NA	8.2	NA	NA	NA	NA	372.40	32.68	339.72
MW-2	5/3/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	5.2	NA	NA	NA	NA	372.40	32.07	340.33
MW-2	8/24/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	2.7	NA	NA	NA	NA	372.40	32.44	339.96
MW-2	11/15/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	1.3	NA	NA	NA	NA	372.40	32.95	339.45
MW-2	2/2/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	24	NA	NA	NA	NA	372.40	31.94	340.46
MW-2	5/5/2005	72 f	<0.50	<0.50	<0.50	<1.0	NA	4.9	NA	NA	NA	NA	372.40	31.91	340.49
MW-2	8/5/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	16	NA	NA	NA	NA	372.40	32.15	340.25
MW-2	11/22/2005	840	1	<0.500	<0.500	1	NA	556	NA	NA	NA	NA	372.40	32.31	340.09
MW-2	2/7/2006	3,550	<0.500	<0.500	<0.500	<0.500	NA	2,500	NA	NA	NA	NA	372.40	31.70	340.70
MW-2	5/16/2006	1,400	<5.0	<5.0	<5.0	<10	NA	1,700	NA	NA	NA	NA	372.40	31.38	341.02

# TABLE 1 Historical Groundwater Gauging and Analytical Data

Shell-branded Service Station

4212 First Street

							MTBE	MTBE						Depth to	GW
Well ID	Date	TPPH	В	Т	E	X	8020	8260	DIPE	ETBE	TAME	TBA	тос	Water	Elevation
		(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(MSL)	(ft.)	(MSL)
MW-2	8/21/2006	1,910	<0.500	<0.500	<0.500	<0.500	NA	2,590	NA	NA	NA	NA	372.40	33.29	339.11
MW-2	11/14/2006	2,300 g	<25	<25	<25	<25	NA	2,500	<25	<25	<25	<1,000	372.40	32.67	339.73
MW-2	2/1/2007	670	<0.50	<0.50	<0.50	<1.0	NA	2,000	NA	NA	NA	NA	372.40	32.13	340.27
MW-2	6/1/2007	500 j,k	<10	<20	<20	<20	NA	2,000	NA	NA	NA	NA	372.40	32.14	340.26
MW-2	8/22/2007	100 j,k	<10	<20	<20	<20	NA	2,400	NA	NA	NA	120 I	372.40	32.93	339.47
MW-2	11/26/2007	1,600 j,k	<10	<20	<20	<20	NA	2,900	<40	<40	<40	<200	372.40	33.44	338.96
MW-2	2/19/2008	1,300 j,k	<10	<20	<20	<20	NA	3,300	NA	NA	NA	<200	372.40	31.18	341.22
MW-2	5/23/2008	1,900	<12	<25	<25	<25	NA	1,700	NA	NA	NA	<250	372.40	31.44	340.96
MW-2	8/7/2008	1,700	<10	<20	<20	<20	NA	1,300	NA	NA	NA	<200	372.40	31.94	340.46
MW-2	12/3/2008	3,000	<10	<20	<20	<20	NA	2,900	NA	NA	NA	<200	372.40	32.53	339.87
MW-2	2/5/2009	1,200	<10	<20	<20	<20	NA	1,000	NA	NA	NA	<200	372.40	32.29	340.11
MW-3	2/3/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	375.05	32.06	342.99
MW-3	2/7/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	375.05	32.57	342.48
MW-3	2/10/2000	180	5.12	<0.500	<0.500	0.714	26.8	21.5a	NA	NA	NA	NA	375.05	32.77	342.28
MW-3	5/17/2000	1,360	414	<5.00	<5.00	17.6	<25.0	NA	NA	NA	NA	NA	375.05	31.00	344.05
MW-3	8/3/2000	<50.0	0.536	<0.500	<0.500	<0.500	22	NA	NA	NA	NA	NA	375.05	31.03	344.02
MW-3	10/31/2000	<50.0	<0.500	<0.500	<0.500	<0.500	31.1	NA	NA	NA	NA	NA	375.05	31.28	343.77
MW-3	3/1/2001	384	172	0.815	<0.500	8	5.16	NA	NA	NA	NA	NA	375.05	31.21	343.84
MW-3	5/30/2001	<50	<0.50	<0.50	<0.50	<0.50	NA	110	NA	NA	NA	NA	375.05	31.02	344.03
MW-3	8/2/2001	<50	<0.50	<0.50	<0.50	<0.50	NA	93	NA	NA	NA	NA	375.05	30.94	344.11
MW-3	12/6/2001	110	<0.50	<0.50	<0.50	2.3	NA	180	NA	NA	NA	NA	375.05	31.28	343.77
MW-3	2/5/2002	<50	0.89	0.6	<0.50	2.1	NA	130	NA	NA	NA	NA	375.05	31.12	343.93
MW-3	6/17/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	72	NA	NA	NA	NA	375.05	31.21	343.84
MW-3	7/25/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	81	NA	NA	NA	NA	375.05	30.96	344.09
MW-3	11/14/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	60	NA	NA	NA	NA	375.05	31.44	343.61
MW-3	2/12/2003	<50	<0.50	<0.50	<0.50	<0.50	NA	43	NA	NA	NA	NA	375.05	31.28	343.77
MW-3	5/14/2003	<50	<0.50	<0.50	<0.50	<1.0	NA	24	NA	NA	NA	NA	375.05	31.20	343.85

# TABLE 1 Historical Groundwater Gauging and Analytical Data

Shell-branded Service Station

4212 First Street

							MTBE	MTBE						Depth to	GW
Well ID	Date	TPPH	В	Т	Е	Х	8020	8260	DIPE	ETBE	TAME	TBA	тос	Water	Elevation
		(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(MSL)	(ft.)	(MSL)
MW-3	7/29/2003	<50	<0.50	<0.50	<0.50	<1.0	NA	21	NA	NA	NA	NA	375.05	31.29	343.76
MW-3	11/19/2003	<50	<0.50	<0.50	<0.50	<1.0	NA	8.2	NA	NA	NA	NA	375.05	31.86	343.19
MW-3	2/19/2004	81	0.67	4.4	1.8	8.6	NA	13	NA	NA	NA	NA	375.05	31.66	343.39
MW-3	5/3/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	13	NA	NA	NA	NA	375.05	31.72	343.33
MW-3	8/24/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	10	NA	NA	NA	NA	375.05	32.09	342.96
MW-3	11/15/2004	<50	<0.50	<0.50	<0.50	<1.0	NA	6.6	NA	NA	NA	NA	375.05	31.50	343.55
MW-3	2/2/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	3.1	NA	NA	NA	NA	375.05	31.28	343.77
MW-3	5/5/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	2.3	NA	NA	NA	NA	375.05	31.42	343.63
MW-3	8/5/2005	<50	<0.50	<0.50	<0.50	<1.0	NA	2.4	NA	NA	NA	NA	375.05	31.35	343.70
MW-3	11/22/2005	<50	<0.500	<0.500	<0.500	<0.500	NA	3.84	NA	NA	NA	NA	375.05	31.98	343.07
MW-3	2/7/2006	<50.0	<0.500	<0.500	<0.500	<0.500	NA	<0.500	NA	NA	NA	NA	375.05	31.24	343.81
MW-3	5/16/2006	<50	<0.50	<0.50	<0.50	<1.0	NA	4.5	NA	NA	NA	NA	375.05	31.37	343.68
MW-3	8/21/2006	<50.0	<0.500	<0.500	<0.500	<0.500	NA	4.04	NA	NA	NA	NA	375.05	31.95	343.10
MW-3	11/14/2006	<50	<0.50	<0.50	<0.50	<0.50	NA	3.8	<0.50	<0.50	<0.50	<20	375.05	32.24	342.81
MW-3	2/1/2007	<50	<0.50	<0.50	<0.50	<1.0	NA	2.8	NA	NA	NA	NA	375.05	32.17	342.88
MW-3	6/1/2007	<50 j	<0.50	<1.0	<1.0	<1.0	NA	3.1	NA	NA	NA	NA	375.05	31.86	343.19
MW-3	8/22/2007	<50 j	<0.50	<1.0	<1.0	<1.0	NA	4.6	NA	NA	NA	<10	375.05	32.18	342.87
MW-3	11/26/2007	<50 j	<0.50	<1.0	<1.0	<1.0	NA	3.5	<2.0	<2.0	<2.0	<10	375.05	32.69	342.36
MW-3	2/19/2008	<50 j	<0.50	1.2	<1.0	<1.0	NA	2.6	NA	NA	NA	<10	375.05	30.94	344.11
MW-3	5/23/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	3.6	NA	NA	NA	<10	375.05	31.45	343.60
MW-3	8/7/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	3.0	NA	NA	NA	<10	375.05	31.40	343.65
MW-3	12/3/2008	<50	<0.50	<1.0	<1.0	<1.0	NA	2.1	NA	NA	NA	<10	375.05	32.12	342.93
MW-3	2/5/2009	<50	<0.50	<1.0	<1.0	<1.0	NA	1.1	NA	NA	NA	<10	375.05	32.74	342.31
MW-4	9/21/2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	372.78	31.58	341.20
MW-4	9/28/2006	11,000	<250	<250	<250	<250	NA	13,000	NA	NA	NA	<10,000	372.78	31.57	341.21
MW-4	11/14/2006	30,000	<250	<250	<250	<250 h,i	NA	14,000	<250	<250	<250	<10,000	372.78	32.11	340.67
MW-4	2/1/2007	6,300	50	<5.0	19	120	NA	14,000	NA	NA	NA	NA	372.78	33.23	339.55

## TABLE 1 Historical Groundwater Gauging and Analytical Data

Shell-branded Service Station

4212 First Street

							MTBE	MTBE						Depth to	GW
Well ID	Date	TPPH	В	Т	Е	Х	8020	8260	DIPE	ETBE	TAME	TBA	тос	Water	Elevation
		(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(MSL)	(ft.)	(MSL)
		-	-	-			-				-	-	-		
MW-4	6/1/2007	8,200 j	52	<25	26	150	NA	11,000	NA	NA	NA	NA	372.78	31.57	341.21
MW-4	8/22/2007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	372.78	33.40	339.38
MW-4	11/26/2007	12,000 j	71	<100	<100	<100	NA	20,000	<200	<200	<200	<1,000	372.78	34.74	338.04
MW-4	2/19/2008	13,000 j	<100	<200	<200	<200	NA	18,000	NA	NA	NA	2,900	372.78	29.70	343.08
MW-4	5/23/2008	21,000	<100	<200	<200	<200	NA	16,000	NA	NA	NA	<2,000	372.78	31.67	341.11
MW-4	8/7/2008	27,000	<100	<200	<200	<200	NA	21,000	NA	NA	NA	<2,000	372.78	31.90	340.88
MW-4	12/3/2008	20,000	19	<25	<25	29	NA	21,000	NA	NA	NA	2,500	372.78	34.32	338.46
MW-4	2/5/2009	15,000	200	<200	<200	<200	NA	13,000	NA	NA	NA	<2,000	372.78	34.58	338.20
TB-1	2/12/2003	Well inacce	essible	NA	NA										
TB-1	2/28/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.54	NA
TB-1	5/14/2003	<50	<0.50	<0.50	<0.50	<1.0	NA	<5.0	NA	NA	NA	NA	NA	12.31	NA
TB-2	2/12/2003	Well inacce	essible	NA	NA										
TB-2	2/28/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.56	NA
TB-2	5/14/2003	Insufficient	water	NA	12.54	NA									
TB-3	2/12/2003	Well dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TB-3	2/28/2003	Well dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TB-3	5/14/2003	Well dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TB-4	2/12/2003	Well dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TB-4	2/28/2003	Well dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TB-4	5/14/2003	Well dry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# TABLE 1 Historical Groundwater Gauging and Analytical Data Shell-branded Service Station

4212 First Street Pleasanton, CA

							MTBE	MTBE						Depth to	GW
Well ID	Date	TPPH	В	Т	Е	Х	8020	8260	DIPE	ETBE	TAME	TBA	TOC	Water	Elevation
		(ug/L)	(MSL)	(ft.)	(MSL)										

Abbreviations:

TPPH = Total petroleum hydrocarbons as gasoline by EPA Method 8260B; prior to May 30, 2001, analyzed by EPA Method 8015.

BTEX = Benzene, toluene, ethylbenzene, xylenes by EPA Method 8260B; prior to May 30, 2001, analyzed by EPA Method 8020.

MTBE = Methyl tertiary butyl ether

DIPE = Di-isopropyl ether, analyzed by EPA Method 8260B

ETBE = Ethyl tertiary butyl ether, analyzed by EPA Method 8260B

TAME = Tertiary amyl methyl ether, analyzed by EPA Method 8260B

TBA = Tertiary butyl alcohol, analyzed by EPA Method 8260B

TOC = Top of Casing Elevation

GW = Groundwater

ug/L = Parts per billion

MSL = Mean sea level

ft. = Feet

<n = Below detection limit

NA = Not applicable

#### TABLE 1 Historical Groundwater Gauging and Analytical Data Shell-branded Service Station

4212 First Street

Pleasanton, CA

							MTBE	MTBE						Depth to	GW
Well ID	Date	TPPH	В	т	Е	Х	8020	8260	DIPE	ETBE	TAME	TBA	TOC	Water	Elevation
		(ug/L)	(MSL)	(ft.)	(MSL)										

Notes:

- a = Sample was analyzed outside of the EPA recommended holding time.
- b = Concentration is an estimate value above the linear quantitation range.
- c = The result reported was generated out of time. The sample was originally run within hold time, but needed to be re-analyzed.
- d = Sample contains discrete peak in addition to gasoline.
- e = Quantity of unknown hydrocarbon(s) in sample based on gasoline.
- f = The concentration reported reflect(s) individual or discrete unidentified peaks not matching a typical fuel pattern.
- g = The result for this hydrocarbon is elevated due to the presence of single analyte peak(s) in the quantitation range.
- h = Sample was originally analyzed with a positive result, however the reanalysis did not confirm the presence of the analyte.
- i = Confirmatory analysis was past holding time.
- j = Analyzed by EPA Method 8015B (M).
- k = The sample chromatographic pattern for TPH does not match the chromatographic pattern of the specified standard. Quantitation of the unknown hydrocarbon(s) in the sample was based upon the specified standard.
- I = Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.

Well MW-1 surveyed on May 4, 1999 by Virgil Chavez Land Surveying of Vallejo, CA.

Site surveyed on March 19, 2000 by Virgil Chavez Land Surveying of Vallejo, CA.

Site surveyed on January 15, 2002 by Virgil Chavez Land Surveying of Vallejo, CA.

3Q06 survey data for wells MW-1B and MW-4 provided by Delta Environmental Consultants, Inc. of San Jose, CA.

APPENDIX A

ACHCS LETTER DATED MARCH 27, 2009

ALAMEDA COUNTY HEALTH CARE SERVICES



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APR 0 6 2009

ENVIROMENTAL SERVICES WESTERN REGION

ENVIRONMENTAL HEALTH SERVICES ENVIRONMENTAL PROTECTION 1131 Harbor Bay Parkway, Suite 250 Alameda, CA 94502-6577 (510) 567-6700 FAX (510) 337-93

DAVID J. KEARS, Agency Director

AGENCY

March 27, 2009

Denis Brown Shell Oil Products US 20945 S. Wilmington Ave. Carson, CA 90810-1039

Douglas and Mary Safreno 1627 Vineyard Avenue Pleasanton, CA 94566-6389

aka 4212/

Subject: Fuel Leak Case No. RO0000360 and Geotracker Global ID T0600101259, Shell#13-5782, 4226 First Street, Pleasanton, CA 94566

Dear Mr. Brown and Mr. and Ms. Safreno:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the abovereferenced site including the reports entitled, "*Dual-Phase Extraction Pilot Test Report, Shell-branded Service Station, 4226 First Street, Pleasanton, California,*" dated February 12, 2009 (Report) and "*Dispenser Repair Report, Shell-branded Service Station, 4226 First Street, Pleasanton, California,*" dated March 6, 2009. Both reports were prepared on Shell's behalf by Delta Environmental Consultants, Inc.

The Report presents the results of a 5-day pilot test of dual-phase extraction (DPE) using existing monitoring wells. Based on the results of the pilot test, the Report concludes that groundwater extraction is likely to have limited success as a remedial strategy but soil vapor extraction and air sparging may be successful. The Report recommends implementing SVE and sparge-based remediation for the site. We request that you submit an Interim Remediation Work Plan for SVE and air sparging by June 2, 2009 that includes installation of extraction wells, sparging wells, and monitoring wells to evaluate system performance.

#### TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Jerry Wickham), according to the following schedule:

- June 2, 2009 Interim Remediation Work Plan
- 45 days following the end of each quarter Quarterly Monitoring Report

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

Denis Brown Douglas and Mary Safreno RO0000360 March 27, 2009 Page 2

#### ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in Geotracker (in Please visit the SWRCB website for more information on these requirements PDF format). (http://www.swrcb.ca.gov/ust/cleanup/electronic reporting).

#### PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

#### PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

#### UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

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#### AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org.

Sincerely,

Uni UN March

Verry Wickham, California PG 3766, CEG 1177, and CHG 297 Senior Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Cheryl Dizon, QIC 80201, Zone 7 Water Agency, 100 North Canyons Parkway Livermore, CA 94551

Danielle Stefani, Livermore-Pleasanton Fire Department, 3560 Nevada Street Pleasanton, CA 94566

Suzanne McClurkin-Nelson, Delta Environmental Consultants, Inc., 312 Piercy Road, San Jose, CA 95138

Donna Drogos, ACEH Jerry Wickham, ACEH File

Alamoda County Environmental Cleanup	ISSUE DATE: July 5, 2005
Oversight Programs	REVISION DATE: December 16, 2005
(LOP and SLIC)	PREVIOUS REVISIONS: October 31, 2005
SECTION: Miscellaneous Administrative Topics & Procedures	SUBJECT: Electronic Report Upload (ftp) Instructions

Effective January 31, 2006, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

#### REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as a single portable document format (PDF) with no password protection. (Please do not submit reports as attachments to electronic mail.)
- It is preferable that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements must be included and have either original or electronic signature.
- Do not password protect the document. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. Documents with password protection will not be accepted.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
  - RO#\_Report Name\_Year-Month-Date (e.g., RO#5555\_WorkPlan\_2005-06-14)

#### **Additional Recommendations**

A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in Excel format.
 These are for use by assigned Caseworker only.

#### Submission Instructions

- 1) Obtain User Name and Password:
  - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
    - I) Send an e-mail to <u>dehloptoxic@acgov.org</u>
      - or
    - ii) Send a fax on company letterhead to (510) 337-9335, to the attention of Alicia Lam-Finneke.
  - b) In the subject line of your request, be sure to include "ftp PASSWORD REQUEST" and in the body of your request, include the Contact Information, Site Addresses, and the Case Numbers (RO# available in Geotracker) you will be posting for.

#### 2) Upload Files to the ftp Site

- a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
  - (i) Note: Netscape and Firefox browsers will not open the FTP site.
- b) Click on File, then on Login As.
- c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
- d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the fip site.
- e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- B) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
  - a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
  - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name at acgov.org. (e.g., firstname.lastname@acgov.org)
  - c) The subject line of the e-mail must start with the RO# followed by Report Upload. (e.g., Subject: RO1234 Report Upload)

#### APPENDIX B

HISTORICAL SOIL ANALYTICAL DATA, CROSS SECTION, AND BORING LOGS

#### Table 2 Soil Analytical Data Shell Service Station 4226 1st Street, Pleasanton, California

						Ethyl		Total		
		Sample		TPH-a	Benzene	benzene	Toluene	Yvlenes	MTRE	TBA
Sample	Sample	Denth	Sample	ma/ka	ma/ka	ma/ka	ma/ka	ma/ka	ma/ka	ma/ka
Location	Name	(feet)	Date	EPA 8015 Mod.	EPA 8260B					
B-1	B-1 d 5	5	03/27/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-1	B-1 d 9.5	9.5	03/29/07	5.4	ND< 0.005	ND< 0.02				
B-1	B-1 d 14.5	14.5	03/29/07	0.13 QP	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.046	0.068
B-1	B-1 d 19.5	19.5	03/29/07	0.57 QP	ND< 0.01	ND< 0.01	ND< 0.01	ND< 0.01	0.6	0.8
B-1	B-1 d 24.5	24.5	03/29/07	0.92 QP	ND< 0.05	ND< 0.05	ND< 0.05	ND< 0.05	0.78	0.2
B-1	B-1 d 29.5	29.5	03/29/07	ND< 0.1	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.059	ND< 0.02
B-1	B-1 d 34.5	34.5	03/29/07	ND< 0.1	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.12	0.033
B-2	B-2 d 5	5	03/27/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-2	B-2 d 9.5	9.5	03/29/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-2	B-2 d 14.5	14.5	03/29/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-2	B-2 d 19.5	19.5	03/29/07	ND< 0.1	ND< 0.005	0.082				
B-2	B-2 d 24.5	24.5	03/29/07	ND< 0.1	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.11	0.03
B-2	B-2 d 29	29	03/29/07	0.25	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.22	0.14
B-2	B-2 d 34.5	34.5	03/29/07	0.32 QP	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.45	0.75
B-3	B-3 d 5	5	03/27/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-3	B-3 d 9.5	9.5	03/28/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-3	B-3 d 14.5	14.5	03/28/07	ND< 0.1	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.08	ND< 0.02
B-3	B-3 d 19.5	19.5	03/28/07	0.11 QP	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.14	0.021
B-3	B-3 d 24.5	24.5	03/28/07	0.45	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.083	ND< 0.02
B-3	B-3 d 29	29	03/28/07	ND< 0.1	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.016	0.073
B-3	B-3 d 34.5	34.5	03/28/07	710	0.096	2.3	ND< 0.05	16	ND< 0.025	ND< 5
B-4	B-4 d 5	5	03/27/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-4	B-4 d 9.5	9.5	03/28/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-4	B-4 d 14.5	14.5	03/28/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-4	B-4 d 20	20	03/28/07	ND< 0.1	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.04	ND< 0.02
B-4	B-4 d 24.5	24.5	03/28/07	ND< 0.1	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.026	ND< 0.02
B-4	B-4 d 29.5	29.5	03/28/07	ND< 0.1	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.0063	0.071
B-4	B-4 d 35	35	03/28/07	0.54 QP	ND< 0.025	ND< 0.025	ND< 0.025	ND< 0.025	0.8	0.63
B-5	B-5 d 5	5	03/27/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-5	B-5 d 10.5	10.5	03/28/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-5	B-5 d 15.5	15.5	03/28/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-5	B-5 d 20.5	20.5	03/28/07	ND< 0.1	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.0054	ND< 0.02
B-5	B-5 d 25.5	25.5	03/28/07	ND< 0.1	ND< 0.005	ND< 0.02				
B-5	B-5 d 30	30	03/28/07	ND< 0.1	ND< 0.005	ND< 0.005	ND< 0.005	ND< 0.005	0.065	0.1
B-5	B-5 d 35	35	03/28/07	ND< 0.5	ND< 0.025	ND< 0.025	ND< 0.025	ND< 0.025	0.3	0.46

#### Notes:

mg/kg - milligrams per kilogram

ND - Not detected above laboratory detection limits

NA - Not analyzed TPH-g - Total Petroleum Hydrocarbons as gasoline MTBE - Methyl tert-butyl ether

TBA - Tert-butyl alcohol

Data Qualifiers and Definitions:

QP - Hydrocarbon result partly due to individual peak(s) in quantitation range.

# Table 2Summary of Soil Analytical DataShell Service Station4226 First Street, Pleasanton, CA

o '		<b>D</b> (1		-	<b>-</b> .				
Sample	Date	Depth	IPH-G	Benzene	loluene	Ethyl-benzene	Xylene	MIRF	IBA
Designation	Sampled	(feet)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
MW-1B@65'	8/23/2006	65	<2.5	<0.025	<0.025	<0.025	<0.050	<0.025	<0.250
MW-1B@69.5'	8/23/2006	69.5	<2.5	<0.025	<0.025	<0.025	<0.050	<0.025	<0.250
MW-1B@95'	8/23/2006	95	<2.5	<0.025	<0.025	<0.025	<0.050	<0.025	<0.250
MW-4@35'	8/24/2006	35	51	<0.025	<0.025	<0.025	<0.050	0.17	<0.250
MW-4@36.5'	8/24/2006	36.5	380	<0.025	<0.025	1.2	1.6	0.092	<0.250
MW-4@39.5'	8/24/2006	39.5	6.7	<0.025	<0.025	0.05	0.064	0.038	<0.250
MW-4@44.5'	8/24/2006	44.5	<2.5	<0.025	<0.025	<0.025	<0.050	0.59	<0.250
MW-4@50'	8/24/2006	50	<2.5	<0.025	<0.025	<0.025	<0.050	0.56	<0.250
Notes:									
mg/kg = milligrams per kilogram									
TPH-G = Total petroleum hydrocarbons as gasoline									

MTBE = Methyl tert-butyl ether

# Table 1Summary of Soil Analytical DataShell-branded Service Station4226 First StreetPleasanton, California

Sample	Depth	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	TPH-o&g	PCBs	Semi V0Cs	VOCs
	(feet)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/kg)		
ACCHERTICAL STREET, ST	USPATION AND ADDRESS OF	de regeneration de la companya de la	REAL PROVIDENT AND A DESCRIPTION OF A DESCRIPANTE OF A DESCRIPTION OF A DESCRIPTION OF A DESCRIPTION OF A DE	internation of the second s	(GEREAL CONTRACTOR OF CONT	UNBLIGHTEN MENDER	STATISTICS OF ST	ACCESSION OF THE PARTY OF THE P	Manager (Manager (Ma	Geoglash History	MERCENCER PROFILE	
W0-1 @ 10	. 10	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<100	NA	NA	NA
W0-1 @ 20	20	<1.0	<1.0	< 0.005	<0.005	<0.005	<0.005	<0.005	<100	NA	NA	NA
W0-3 @ 30	30	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	NA	<100	<50	No Detections	No Detections

Notes:

mg/kg = milligrams per kilogram

TPH-G = Total petroleum hydrocarbons as gasoline

TPH-D = Total petroleum hydrocarbons as diesel

TPH-o&g = Total petroleum hydrocarbons as oil and grease

PCBs =polychlorinated biphenyl

Semi VOCs = Semi volatile organics compounds

VOCs = volatile organic compounds

Sample WO-1 @ 30 feet CAM 17 Metals						
	Site	ESL				
	(mg/kg)	(mg/kg)				
Antimony	<2.0	310				
Arsenic	2.8	16				
Barium	93	2500				
Beryllium	<0.50	98				
Cadmium	1.0	38				
Chromium	30	58				
Cobalt	6.2	94				
Copper	13	2500				
Lead	7.4	750				
Molybdenum	<1.0 .	2500				
Nickel	32	1000				
Selenium	<2.0	2500				
Thallium	<1.0	51				
Vanadium	22	2500				
Zinc	28	2500				
Mercury	0.05	110				

Note; ESL = Environmental screening level, deep soils (<3 m), potential source of drinking water, residential land use. San Francisco Bay Regional Water Quality Control Board June 2005

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4	4220 First Street, Pleasanton, California								
Sample	TPHg	Benzene	Toluene	Ethylbenzene	Xylene	MTBE			
	<b>4</b>		• (concentrations	reported in ppm)		>			
MW-2-6.3'	<1.0	< 0.005	<0.005	<0.005	<0.010	<0.05			
MW-2-16.5'	<1.0	<0.005	< 0.005	< 0.005	< 0.010	< 0.05			
MW-2-21.5'	<1.0	<0.005	< 0.005	<0.005	<0.010	< 0.05			
MW-2-26.0'	<1.0	<0.005	< 0.005	<0.005	<0.010	<0.05			
MW-2-30.5'	<1.0	<0.005	< 0.005	<0.005	<0.010	< 0.05			
MW-2-35.0'	<1.0	r <sup>&lt;0.005</sup>	<0.005	<0.005	<0.010	<0.05			
MW-3-5.0'	<1.0	<0.005	< 0.005	<0.005	<0.010	< 0.05			
MW-3-10.5'	<1.0	<0.005	<0.005	<0.005	<0.010	< 0.05			
MW-3-15.5'	<1.0	<0.005	< 0.005	<0.005	<0.010	< 0.05			
MW-3-20.5'	<1.0	< 0.005	<0.005	<0.005	<0.010	<0.05			
MW-3-25.5'	<1.0	<0.005	<0.005	<0.005	<0.010	<0.05			

### Table 1 Soil Analytical Results - Shell-branded Service Station Incident# 98995840 4226 First Street, Pleasanton, California

Abbreviations and Notes:

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TPHg = Total petroleum hydrocarbons as gasoline MTBE = Methyl tert-Butyl Ether by EPA 8020. ppm = parts per million

Samples collected January 18 and 19, 2000

.

#### TABLE 1

#### CHEMICAL ANALYSIS OF SOIL SAMPLES SHELL SERVICE STATION 4226 FIRST STREET PLEASANTON, CALIFORNIA

_	Boring	Depth (ft)	TPH	Benzene	Toluene	Ethylbenzene	Xvlene
	SE-1	15	4.2	ND	ND	ND	ND
	SB-1	35	18	ND	ND	ND	ND
	SB-1	50	ND	ND	ND	ND	ND
	SB-2	15	ND	ND	ND	ND	ND
	SB-2	30	7.2	ND	0.17	ND	ND
	SB-3	10	ND	ND	ND	ND	ND
	SB-3	30	ND	ND	ND	ND	ND
	WA-1	30	380	2.2	2.7	5.3	32
	WA-1	35	290	1.8	0.35	0.24	1.5
	WA-1	40	ND	ND	ND	ND	ND
	WA-1	50	ND	ND	ND	ND	ND
<b></b>					,		
De	etection Li	mits:	1.0	0.050	0.10	0.10	0.10

Concentrations in mg/kg (parts per million)

J

N	otes:	

1) TPH - Total Petroleum Hydrocarbons (gasoline range) analyzed by EPA Methods 5030/8015

- 2) Benzene, Toluene, Ethylbenzene and Xylene analyzed by EPA Method 8020
- 3) ND- Not Detected at detection limit shown
- 4) SB-1, SB-2 and SB-3 samples collected March 5, 1990
   WA-1 samples collected March 6, 1990

#### TABLE 1

#### ANALYTICAL RESULTS OF SOIL SAMPLES

Concentrations in mg/kg (parts per million)

#### SHELL OIL COMPANY 4226 FIRST STREET PLEASANTON, CALIFORNIA

Boring	TPH	Benzene	Toluene	Ethylbenzene	Xylenes
SB4-15	N.D.	N.D.	N.D.	N.D.	N.D.
SB4-35	N.D.	0.023	0.0071	N.D.	0.0055
SB4-50	N.D.	0.030	0.0059	N.D.	N.D.
SB5-35	820	65	3.7	6.5	65
SB5-40	N.D.	N.D.	N.D.	N.D.	N.D.
SB5-50	N.D.	N.D.	N.D.	N.D.	N.D.
DETECTION LIMITS:	1.0	0.0050	0.0050	0.0050	0.0050

NOTES: 1) TPH - Total Petroleum Hydrocarbons (Gasoline Range) analyzed by EPA Methods 5030/8015.

2) Benzene, Toluene, Ethylbenzene and Xylene analyzed by EPA Method 8020.

3) ND - Not detected.

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	4226 First S	treet, Pleasanto	n, California			
Sample	TPHg	Benzene	Toluene	Ethyl Benzene	Xylene	MTBE
	4			(ppm)		
SB-6-15 5'	~10		0.0050			
SB-6-19.5'	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
SB 6 25 0'	<1.0	<0.0050	< 0.0050	<0.0050	<0.0050	<0.025
SD-0-20.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
SB-0-30.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
SB-6-35.0	<1.0	0.0069	<0.0050	<0.0050	<0.0050	<0.025
SB-6-40.0'	<1.0	<0.0050	0.28	< 0.0050	<0.0050	<0.025
SB-6-45.0'	<1.0	0.1	<0.0050	<0.0050	<0.0050	<0.025
SB-7-15.0'	<1.0	<0.0050	<0.0050	<0.0050	~0.0050	-0.025
SB-7-19.5'	<1.0	<0.0050	< 0.0050		<0.0050	<0.025
SB-7-24.5'	<1.0	< 0.0050			<0.0050	<0.025
SB-7-29.3'	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
SB-7-34 3'	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
SP 7 40.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
SB-7-40.0	83	<0.0050	0.37	0.26	0.26	<0.025
SB-7-44.5'	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025
SB-7-59.5'	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050
SB-7-64.5'	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050

## Table 1Soil Analytical Results - Shell-branded Service Station Incident# 989958404226 First Street, Pleasanton, California

Abbreviations and Notes:

TPHg = Total petroleum hydrocarbons as gasoline MTBE = Methyl tert-Butyl Ether ppm = parts per million

Samples collected April 7 through 9, 1999

### CAMBRIA

Table 1         Soil Analytical Results - Shell-branded Service Station Incident# 98995840           4226 First Street, Pleasanton, California								
Sample	TPHg	Benzene	Toluene	Ethyl Benzene	Xylene	MTBE		
	4		(	ppm)		>		
SB-6-15.5'	<1.0	<0.0050	<0.0050	~0.0050	-0.0050	0.00 <i>r</i>		
SB-6-19.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025		
SB-6-25,0'	<1.0	< 0.0050	<0.0050	<0.0050	<0.0050	<0.025		
SB-6-30.0'	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025		
SB-6-35.0'	<1.0	0.0069	<0.0050	<0.0050	<0.0050	<0.025		
SB-6-40.0'	<1.0	<0.0050	0.28	<0.0050	<0.0050	<0.025		
SB-6-45.0'	<1.0	0.1	<0.0050	<0.0050	<0.0050 <0.0050	<0.025 <0.025		
SB-7-15.0'	<1.0	<0.0050	<0.0050	<0.0050	~0.0050	-0 005		
SB-7-19.5'	<1.0	<0.0050	< 0.0050	<0.0050	<0.0050	<0.025		
SB-7-24,5'	<1.0	<0.0050	< 0.0050	<0.0050	<0.0050	<0.025		
SB-7-29.3'	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025		
SB-7-34.3'	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025		
SB-7-40.0'	83	<0.0050	0.37	<0.0050	<0.0050	<0.025		
SB-7-44.5'	<10	<0.0050	-0.00F0	0.26	0.26	<0.025		
SB-7-59.5'	<1.0	~0.0050	~0.0050	<0.0050	<0.0050	<0.025		
SB-7-64 5'	<1.0	~0.0050	<0.0050	<0.0050	<0.0050	<0.050		
JU 1 04.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050		

Abbreviations and Notes:

TPHg = Total petroleum hydrocarbons as gasoline MTBE = Methyl tert-Butyl Ether ppm = parts per million

Samples collected April 7 through 9, 1999
#### TABLE 1

#### ANALYTICAL RESULTS OF SOIL SAMPLES

Concentrations in mg/kg (parts per million)

#### SHELL OIL COMPANY 4226 FIRST STREET PLEASANTON, CALIFORNIA

Boring	TPH	Benzene	Toluene	Ethylbenzene	Xylenes
SB4-15	N.D.	N.D.	N.D.	N.D.	N.D.
SB4-35	N.D.	0.023	0.0071	N.D.	0.0055
SB4-50	N.D.	0.030	0.0059	N.D.	N.D.
SB5-35	820	65	3.7	6.5	65
SB5-40	N.D.	N.D.	N.D.	N.D.	N.D.
SB5-50	N.D.	N.D.	N.D.	N.D.	N.D.
DETECTION LIMITS:	1.0	0.0050	0.0050	0.0050	0.0050

-----

 TPH - Total Petroleum Hydrocarbons (Gasoline Range) analyzed by EPA Methods 5030/8015.
 Benzene, Toluene, Ethylbenzene and Xylene analyzed by EPA Method 8020. NOTES:

3) ND - Not detected.

#### TABLE 1

#### CHEMICAL ANALYSIS OF SOIL SAMPLES SHELL SERVICE STATION 4226 FIRST STREET PLEASANTON, CALIFORNIA

	Boring	Depth (ft)	TPH	Benzene	Toluene	Ethylbenzene	Xvlene
	SB-1	15	4.2	ND	ND	ND	ND
	SB-1	35	18	ND	ND	ND	ND
	SB-1	50	ND	ND	ND	ND	ND
	SB-2	15	ND	ND	ND	ND	ND
	SB-2	30	7.2	ND	0.17	ND	ND
	SB-3	10	ND	ND	ND	ND	ND
	SB-3	30	ND	ND	ND	ND	ND
•	WA-1	30	380	2.2	2.7	5.3	32
	WA-1	35	290	1.8	0.35	0.24	1.5
	WA-1	40	ND	ND	ND	ND	ND
	WA-1	50	ND	ND	ND	ND	ND
<b></b>							
De	tection Li	mits:	1.0	0.050	0.10	0.10	0.10

Concentrations in mg/kg (parts per million)

Notes:

1) TPH - Total Petroleum Hydrocarbons (gasoline range) analyzed by EPA Methods 5030/8015

2) Benzene, Toluene, Ethylbenzene and Xylene analyzed by EPA Method 8020

3) ND- Not Detected at detection limit shown

4) SB-1, SB-2 and SB-3 samples collected March 5, 1990 WA-1 samples collected March 6, 1990

# Table 2Summary of Soil Analytical DataShell Service Station4226 First Street, Pleasanton, CA

Sample Designation	Date Sampled	Depth (feet)		<b>TPH-G</b> (mg/kg)	Benzene (mg/kg)	<b>Toluene</b> (mg/kg)	Xylene and Ethyl-benzene (mg/kg)
S-B	9/27/1985	3.5 to 5	*	2	<0.1	<0.1	<0.4
S-B	9/27/1985	7 to 8.5	*	460	<2.0	2	. 32
S-B	9/27/1985	10.5 to 12		610	<2.0	3.5	63
S-B	9/27/1985	14 to 15.5		1,300	<2.5	9.6	260
S-B	9/27/1985	19 to 20.5		<2	<0.1	<0.1	<0.4
S-C	9/27/1985	10.5 to 12		<2	<0.1	<0.1	<0.4
S-D	9/27/1985	10.5 to 12		<2	<0.1	<0.1	<0.4
<b>Notes:</b> mg/kg = milligrams TPH-G = Total petro * Sample of gravel f	per kilogram oleum hydrocarbons a from UST pit	s gasoline	<u>j</u>	3	<u> </u>		. <u> </u>

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LEGEND	
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- **GROUNDWATER MONITORING WELL LOCATION**
- ABANDONED TANK BACKFILL WELL LOCATION
- **GROUNDWATER MONITORING WELL LOCATION**
- **DESTROYED WELL (76 STATION)**

BaseMap from: Cambria Environmental Technology, Inc. and Toxichem Management Systems, Inc.

	RE 2							
EXTENDED SITE MAP								
SI	HELL-BRANDED S 4212 Firs Pleasanton,	ERVICE STATION t Street California						
PROJECT NO. SJ42-26F-1.2006	DRAWN BY BH 10/23/06							
FILE NO. SJ42-26F-1.2006	PREPARED BY	Delta						
REVISION NO. 2	REVIEWED BY	Consultants, Inc.						















LEGEND	
1	

- **GROUNDWATER MONITORING WELL LOCATION**
- ABANDONED TANK BACKFILL WELL LOCATION
- **GROUNDWATER MONITORING WELL LOCATION**
- **DESTROYED WELL (76 STATION)**

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FILE NO. SJ42-26F-1.2006	PREPARED BY	Delta						
REVISION NO. 2	REVIEWED BY	Consultants, Inc.						





	U Č	$\overline{\mathbf{n}}$			VDIC			
PP(			$\mathbf{O}$		APLU	RAIORY BORING		
PR	DJECT	NAME	<pre>&gt; /38 Get+1;</pre>	-bU.UI er-Rva	n Shall	BORING NO. S-A		
BY	MGB	D,	ATE	9/27/8	5	SURFACE FIEV 2751		
	POCYET							
TORVANE (TSF)	PENETRO METER (TSF)	(Blows/ FL)	CROUND WATER LEVELS	DEPTH IN	COLUMN	DESCRIPTION		
	4.4 1.5 5	88				<pre>ASPHALT and SAND - Fill GRAVELLY SILT - Fill; black (5Y, 2.5/2); 20% fine to coarse sand; 10% fine gravel; damp; no product odor. CLAY; light olive brown (2.5Y, 5/6); silty; 10% fine to medium sand; stiff; damp; no product odor. @10': 20% fine gravel; no product odor. @10': 20% fine gravel; no product odor. @14': 15-20% fine to medium sand; trace fine gravel; stiff; moist; no product odor. @18½': brownish yellow (10YR, 6/8); silty; hard; moist; no product odor. BOTTOM OF BORING AT 20 FEET.</pre>		
l	4 <del>0</del> 4 <del>0</del>							
REMAR with 2 with s	REMARKS Drilled by 5-inch continuous flight auger; samples collected with 2-inch California modified split-spoon sampler; borehole backfilled with soil cuttings to $\frac{1}{2}$ foot; concrete to surface.							

1	100		F V						
	LUU		EX	rlu	KAIUKY BURING				
	T NUMBE	R /38-60.	.UI Qvan	Shall /	BORING NO. S-B				
RY M		ATF 9/27	7/85		SUBSACE FLOW and $PAGE 1 \text{ OF } 1$				
					SORFACE ELEV. 3731±				
TORVANE PENE MET (TSF) (TS	KET PENETRA TRO- TION ER (Blows/ F) FL	CROUND CROUND WATER UEVELS DEPTH IN F	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION				
3.0	Push 2 64 39 3 41 4 50for 6"	- 10 - 10 - 20 - 20 - 20 - 20 - 30 - 30 - 30			<pre>CONCRETE. SAND - Fill; very dark gray (5Y, 3/1); fine to coarse grained; trace fine gravel; trace fines; loose; damp; strong gasoline odor. @7': strong gasoline odor. CLAYEY GRAVEL; olive gray (5Y, 5/2); to olive (5Y, 4/3); fine to coarse grained; 30% fines; 15% fine to coarse sand; very dense; damp; moderate gasoline odor. CLAY; light olive brown (2.5Y, 5/6) to dark grayish brown (2.5Y, 5/6) to dark grayish brown (2.5Y, 4/2); 15% fine sand; trace coarse sand; very stiff; damp; no gasoline odor. @19': olive gray (5Y, 4/2) to olive (5Y, 5/6); 20% fine to medium sand; no coarse sand; no gasoline odor. @24': olive (5Y, 4/4); 25% fine to coarse sand; very plastic; soft; faint gasoline odor. BOTTOM OF BORING AT 24½ FEET.</pre>				
REMARKS	REMARKS Drilled by 8-inch continuous flight, hollow stem auger;								
samples o borehole	REMARKS Drilled by 8-inch continuous flight, hollow stem auger; samples collected with 2-inch California modified split-spoon sampler; borehole backfilled with soil cuttings to ½ foot; concrete to surface.								

PRO PRO BY	DJECT N DJECT MGE	NUMBER NAME 10 3 DA	738-6 Gettler ATE 9/	50.01 Ryai	<b>AFL</b> n, Shell,	BORING NO. S-C 4226 First St., Pleasanton PAGE 1 OF 1 SURFACE ELEV. 373'±		
TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TЮN (Blows/ Ft.)	CROUND WATER LEVELS	DEPTH IN FT. SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION		
	4.3	Push 2 30 50for 6" 19 72 48			SW CL GC CL SW ML SC	<ul> <li>CONCRETE.</li> <li>SAND - Fill; very dark gray (5Y, 3/1); fine to coarse grained; trace fine gravel; trace fines; damp; strong gasoline odor.</li> <li>@7': loose; strong gasoline odor.</li> <li>CLAY; olive (5Y, 5/6, 5/3); 20% fine to coarse sand; silty; hard; damp; no gasoline odor.</li> <li>CLAYEY GRAVEL; olive (5Y, 5/6, 5/4); fine grained; 35% fine to coarse sand; 15% fines; very dense; damp; no gasoline odor.</li> <li>CLAY; yellowish brown (10YR, 5/6, 5/8); 35% fine to coarse sand; silty; soft; moist; no gasoline odor.</li> <li>SAND: olive (5Y, 4/3); fine to coarse grained; 10% fines; medium dense; moist; no gasoline odor.</li> <li>SANDY SILT; light olive brown (2.5Y, 5/6) 40% fine sand; very stiff; moist; no gasoline odor.</li> <li>CLAYEY SAND; olive brown (2.5Y, 4/4); fine to coarse grained; 40% clay; densemorist; faint gasoline odor.</li> <li>BOTTOM OF BORING AT 28 FEET</li> </ul>		
REMAN sampl boreh ½ fo	REMARKS Drilled by 8-inch continuous flight, hollow-stem auger; samples collected with 2-inch California modified split-spoon sampler; borehole backfilled with concrete from 28 to 15 feet, soil cuttings to b foot : concrete to surface.							

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POCKTT PENTITION (TSP)       PENTITION (BFUJ)       O SW (BFUJ)       Life (COLUMN)       UTHO- CAPHIC COLUMN       DESCRIPTION         (TSP)       (BFUJ)       0       SW       SW       SW       SW       SAND - Fill; very dark gray (5Y, 3/1); fine to coarse grained; 15% fine gravel; trace fines; loose; damp; strong ga soline odor.         4.25       37       GL       CL       CLAY; olive yellow (5Y, 6/8) to olive (5Y, 4/3); 20% fine to coarse sand; silty; hard; damp; faint gasoline odor.         5       44       15       CL       CLAY; olive yellow (5Y, 6/8) to olive (5Y, 4/3); 20% fine to coarse sand; silty; hard; damp; faint gasoline odor.         2.2       22       20       ML       SW       SW       SW         2.2       22       20       ML       SW       SW       SW         31       ML       SW       SW       SW       SW       SW         2.2       22       20       SW       SW       SW       SW         31       ML       SW       SW       SW       SW       SW         32       33       SW       SW       SW       SW       SW         36       36       35       SW       SW       SW       SW       SW         36       SW	PROJEC PROJEC BY MO	Г NUMBEI Г NAME В D	R 738-60 Gettler- ATE 9/2	.01 Ryan 7/85	, Shell,	BORING NO. S-D 4226 First St., Pleasanton PAGE 1 OF 1 SURFACE ELEV. 374'±
Push       5.0         2       5.0         2       2         37       3         5       44         15       44         15       44         15       44         15       44         15       44         15       44         16       0.1         2       20         31       0         2.2       20         31       0         32       20         33       35	TORVANE POCK PENET METE (TSF) (TSF	ET PENETRA RO- TION R (Blows/ ) Ft.)	CROUND WATER UEVELS DEPTH IN FT	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
	4.25	Push 2 37 44 22 31			SW CL ML	<pre>CONCRETE. SAND - Fill; very dark gray (5Y, 3/1); fine to coarse grained; 15% fine gravel; trace fines; loose; damp; strong gasoline odor. @7': strong gasoline odor. @7': strong gasoline odor. @14': olive (5Y, 6/8) to olive (5Y, 4/3); 20% fine to coarse sand; silty; hard; damp; faint gasoline odor. @14': olive (5Y, 4/3); 35% fine to coarse sand; 10% fine gravel; faint gasoline odor. @19': olive (5Y, 4/3); to gray (5Y, 5/1); 20% fine to medium sand; slightly silty; very stiff; damp; faint gasoline odor. SANDY SILT; olive (5Y, 4/4); 40% fine sand; slightly clayey; stiff; damp; faint gasoline odor. BOTTOM OF BORING AT 22½ FEET.</pre>

1

PRO	DJECT N DJECT	OG NUMBER NAME	C 738- Gettle	<b>F E</b> 60.01 er-Ryar	XPLO	BORING NO. S-1 4226 First St., Pleasanton PAGE 1 OF 1
ВҮ	MGB	DA	T	27785 F		SURFACE ELEV. 373'±
torvane (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TЮN (Blows/ FL)	CROUND WATER LEVELS	DEPTH IN F	LITHO- GRAPHIC COLUMN	DESCRIPTION -
REMAR	4.25 3.6	34 28 57 60 	by 8-i	5	SW SC CL GC SC SC SC SC SC SC SC SC SC SC SC SC SC	<ul> <li>ASPHALT and GRAVEL - Fill SAND - Fill; very dark gray (5Y, 3/1); fine to coarse grained; 10% fine gravel; trace fines; damp; moderate gasoline odor.</li> <li>CLAYEY SAND; very dark gray (5Y, 3/1); fine to coarse grained; damp; moderate gasoline odor.</li> <li>@12½': 10% fine gravel.</li> <li>CLAY; light olive brown (2.5Y, 5/6); 5% fine to coarse sand; silty; hard; damp; faint gasoline odor.</li> <li>@19': 20% fine to coarse sand; silty; very stiff; faint gasoline odor.</li> <li>CLAYEY GRAVEL; olive (5Y, 5/4); fine grained; 35% fine to coarse sand; clayey; very dense; damp; no gasoline odor.</li> <li>@29': no gasoline odor.</li> <li>BOTTOM OF BORING AT 30½ FEET.</li> </ul>
REMAR sample boreho	RKS Dr s colle le conv	rilled ected w verted	by 8-i ith 2- to <u>3</u> -i	nch co inch C nch-mo	ontinuous f alifornia nitoring w	Flight, hollow-stem auger; modified split-spoon sampler; well as detailed on Plate F.

# WELL DETAILS





Geologic Log



Page 1 of 3









Geologic Log



 Refer to Figure A-1 for explanation of descriptions and symbols.

Soil description and stratum lines are interpretive and actual changes may be gradual.

3. No free water encountered.



Geologic Log



Page 2 of 2

# Boring Log WA-1



#### Boring Log WA-1

Geologic Log



HAHICHU J-6006 Figure A-5

4/90

Page 2 of 3

#### Boring Log WA-1



Geologic Log

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DEPTH (IN FEET)	Surface elevation not surveyed.	SAMPLE	3LOWS/6"	(Mdd) Old	
0  	ASPHALT SANDY GRAVEL - grey/brown,minor clay and slit sand poorly sorted, gravel subangular, dry. (Fill) <u>SILTY SAND</u> - medium brown, minor clay, sand medium grained, moist.				
5 — - -	<u>SANDY SILT</u> - medium brown, abundant root fragments, minor yelow/brown staining, minor pea-sized rounded gravel, minor clay, moist.	SB4-5	7 15 X 40	15	
	SILTY SAND - yellow/brown, minor pea-sized subrounded gravel, minor orange staining, coarse grained, poorly sorted, moist.	SB4-10	20 38 × 40	10	
	<u>SILT</u> - dark grey, minor green/grey and yellow/ brown staining, minor fine-grained sand, minor clay, slight hydrocarbon odor, moist.	SB4-15	18 25 35	10	
20	<u>SANDY SILT</u> - medium brown, grey staining, clayey, slight hydrocarbon odor, moist.	SB4-20 2	25 35 ×	10	
25 1. 2.	Refer to Figure A-1 for explanation of descriptions and symbols. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.				

3. No free water encountered.

J-6006 12/90 Figure A-2 Page 1 of 3

Geologic Log



- 1. Refer to Figure A-1 for explanation of descriptions and symbols.
- 2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
- 3. No free water encountered.

**HARTCROWSER** J-6006 12/90 Figure A-2 Page 2 of 3



Geologic Log

, DEPTH (IN FEET)	Surface elevation not surveyed.	SAMPLE		BLOWS/6"	(Mdd) Old			
- 0	ASPHALT SANDY GRAVEL - grey/brown, minor silt and clay, sand fine to coarse-grained, gravel subangular to subrounded, dry. (Fill)					_		
- 5 —	<u>SAND F SILT</u> - medium brown, abundant root fragments, minor clay, sand fine to medium grained, moist. <u>SILTY SAND</u> - medium brown, minor subangular .75" diameter metamorphic gravel, sand			9 14	0.5			
-	medium to coarse-grained, poorly sorted, dry.	585-5		35	35	-		
10	<u>SILTY SAND</u> - medium brown, light brown and dark grey staining, minor pea-sized subangular gravel, sand coarse-grained, dry.	SB5-10	X	12 15 22	30	  -  -		-
	<u>SILT</u> - medium brown, dark grey and yellow / brown staining, minor clay and coarse sand, minor small root casts, moist.	SB5-15		20 30 0/4	25	-		-
						-		
-		SB5-20 2		25 25 28	20	-		
 25 1.	Refer to Figure A-1 for explanation of descriptions						T T	
2	and symbols.							

- Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
   Perched water encountered at 49.5 feet BGS.

HARTCROWSER *J-6006* 12/90 Figure A-3 Page 1 of 3

Geologic Log



- 2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual. 3. Perched water encountered at 49.5 feet BGS

HARTCROWSER J-6006 12/90 Figure A-3 Page 2 of 3

Geologic Log

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12/90 J-6006 Figure A-3 Page 3 of 3



WELL LOG (TPH-G) GAPLE4226/GINT/PLE4226.GPJ DEFAULT.GDT 8/11/99

<1.0

40

43 45

20 35

SB-6

- 30.0

GΡ

30

35

0°

0 60 00

0

0

Cambria Environmental Technology, Inc. 1144 - 65th St. Oakland, CA 94608 Telephone: (510) 420-0700 Fax: (510) 420-9170



CLIE		Equ	iva Se	rvices L	LC		BORING/WELL NAME	MW-1							
JOB/	SITE N	AME		ple-	4226				DRILLING STARTED 08-Apr-99						
LOCATION 4226 First Stre						Street,	Pleasa	nton, California	DRILLING COMPLETED09-Apr-99						
PROJECT NUMBER 241-0395							-	WELL DEVELOPMENT DA	TE (YIELD)	NA					
DRILI	LER		(	Greg	gg Drill	ling			GROUND SURFACE ELEVATION 371.83 ft						
DRILI	LING M	ETHO	D	Hollo	ow-ste	m auge	-		TOP OF CASING ELEVAT	ION	ft				
BORI	NG DIA	METE	R8	8"					SCREENED INTERVAL	37.5 to	57.5 ft	bgs			
LOGO	GED BY	·	E	B. Ja	akub				DEPTH TO WATER (First Encountered)42.5 ft (08-Apr-99)						
REVIE	EWED	вү	E	3. Ja	akub				DEPTH TO WATER (Static	;)	N	A		Y	
REMA	RKS		ŀ	lanc	d auge	red to 5	ˈbɡs; l	ocated near NW planter/	entrance to Shell station on	Vineyard and	W of S	SB-7.			
	1	T.	T		1		T1				1				
(mg/kg	OW	OVERY	PLE ID	TENT	PTH bgs)	C.S.	PHIC 0G	LITHC			TACT (ft bgs	WEI			
ТРНд	ВÖ	REC	SAM	ШX	∐≞€	U.S	GRA				CON				
							××××	ASPHALT.		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0.3				
					<u></u> ⊢ .	1		FILL.			1.5				
						1		Sandy SILT; (ML); br	own (10YR4/3); very soft; we	et; 5%					
						ML		plasticity; moderate to	o low estimated permeability	IOW					
						-			. ,		4 5				
					- 5 -			SILT; (ML); dark yello	ow brown (10YR4/6); stiff; mo	oist:	4.5			-	
		i						5% clay, 85% silt, 8%	sand, 2% fine grained grav	el; low					
								plasticity; low estimat	ed permeability.						
						ML									
						1							< Portland Ty	ype	
											97		1/11		
					-10-			Clayey SILT; (ML); ye	ellow brown (10YR5/8); stiff; (	damp;	5.7				
								38% clay, 50% silt, 29	% fine grained sand, 10% fin	e to					
								permeability.	aver, high plasticity; low estir	nated					
						ML									
	18 26			$\bigotimes$							15.0				
<1.0	30		SB-6		-15-			Clayey Gravelly SAN	2; (SP); dark greenish gray		13.0				
			-15.5					(5GY4/1); dense; dam	p; 20% clay, 50% sand, 30%	6 gravel;					
					• -	SP		permeability: wood fra	aments.						
				╵┝	•			,, ,	.g						
	13			$\downarrow$	. 4						193				
<1.0	11		SB-6		-20-			Sandy SILT with Clay	; (ML); olive (5Y4/3); very sti	ff;	10.0				
	20		- 19.5	4				damp; 15% clay, 50%	silt, 35% very fine grained s	and; low	Ŕ				
					7			plasticity, moderate to	low estimated permeability.						
					4						Ŕ				
				F	+						Ê				
	20		ł	$\triangleleft$	+						45 K		<sup>1</sup> 2" diam.,		
-10	28 30		SR.e	$\times$	-25-			Gravelly SAND with S	ilt; (SP); olive (5Y4/3); dense				Schedule 40		
		-	25.0	-	4			damp; 5% clay, 15% s	ilt, 60% fine to medium grain	ned	K		PVC		
				L	4	SP		estimated permeability							

Continued Next Page

Clayey Gravelly SAND; (SP); dark yellow brown

Sandy GRAVEL; (GP); olive (5Y4/3); very dense; damp;

2% clay, 13% silt, 35% medium grained sand (red grains), 50% fine to coarse, subangular to subrounded gravel (chert); no plasticity; high estimated permeability.

Bentonite Seal

29.0

34.0

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WELL LOG (TPH-G) G:\PLE4226\GINT\PLE4226.GPJ DEFAULT GDT 8/11/99

#### **BORING/WELL LOG**

CLIENT NAME	Equiva Services LLC	BORING/WELL NAME	MW-1
JOB/SITE NAME	ple-4226	DRILLING STARTED	08-Apr-99
	4226 First Street, Pleasanton, California	DRILLING COMPLETED	09-Apr-99

Continued from Previous Page

TPHg (mg/kg)	BLOW COUNTS	RECOVERY	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION		CONTACT DEPTH (ft bgs)	WE	LL DIAGRAM
<1.0	20 45 50/4		SB-6 - 35.0 SB-6 - 40.0	X		SP		(10YR4/6); very dense; damp; 20% clay, 10% silt, 40% medium grained sand, 30% fine to coarse grained gravel (sandstone/claystone, serpentinite, some MnO <sub>2</sub> /Fe staining); low plasticity; moderate to low estimated permeability.	Ţ			<ul> <li>Monterey Sand #3</li> </ul>
	25 45 45 32				 45      - 50			@ 44' - moist to wet.	Ę	50.0		<ul> <li>2"-diam.,</li> <li>0.020" Slotted</li> <li>Schedule 40</li> <li>PVC</li> </ul>
	60/6 15 40				   	GC		<u>Clayey GRAVEL with Silt;</u> (GC); dark yellow brown (10YR4/6); very dense; moist to wet; 25% clay, 15% silt, 20% fine to coarse grained sand, 40% fine to coarse grained gravel. <u>Clayey SILT</u> ; (MH); light olive brown (2.5Y5/4); hard;	5	55.2		
	50					МН		damp; 25% clay, 75% silt; medium to high plasticity; very low estimated permeability; black MnO <sub>2</sub> blebs throughout.	5	58.0		Bottom of Boring @ 58 ft


WELL LOG (TPH-G) GAPLE4226/GINTAPLE4226.GPJ DEFAULT.GDT 8/11/99

Cambria Environmental Technology, Inc. 1144 - 65th St. Oakland, CA 94608 Telephone: (510) 420-0700 Fax: (510) 420-9170

## **BORING/WELL LOG**

CLIENT NAME       Equiva Services LLC         JOB/SITE NAME       ple-4226         LOCATION       4226 First Street, Pleasanton, California         PROJECT NUMBER       241-0395         DRILLER       Gregg Drilling         DRILLING METHOD       Hollow-stem auger         BORING DIAMETER       8"         LOGGED BY       B. Jakub         REVIEWED BY       B. Jakub							LC Pleasa r	anton, California	BORING/WELL NAME       SB-7         DRILLING STARTED       07-Apr-99         DRILLING COMPLETED       07-Apr-99         WELL DEVELOPMENT DATE (YIELD)       NA         GROUND SURFACE ELEVATION       Not Surveyed         TOP OF CASING ELEVATION       Not Surveyed         SCREENED INTERVAL       NA         DEPTH TO WATER (First Encountered)       NA				
REMA	RKS		<u>ا</u>	a. Ja Hano	ikub d auger	red to 4	' bgs;	located E side of Vineyard	DEPTH TO WATER (Station ) DEPTH TO WATER (St	c)	4	2.50ft (08-Apr-99)	=
TPHg (mg/kg)	BLOW COUNTS	RECOVERY	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHC	DLOGIC DESCRIPTION		CONTACT DEPTH (ft bgs)	WELL DIAGRAM	
	11 12 19				  - 5  	ML		ASPHALT. FILL. Sandy SILT; (ML); bro- clay, 70% silt, 25% fin plasticity; moderate to SILT; (ML); dark yello 5% clay, 85% silt, 8% plasticity; low estimat	own (10YR4/3); very soft; w ne to medium grained sand; o low estimated permeability w brown (10YR4/6); stiff; m o sand, 2% fine grained grav ed permeability.	et; 5% ; low y. oist; rel; low	0.3 1.5 4.5		
	15 25 31 16 25				 	MI		<u>Clayey SILT;</u> (ML); ye 38% clay, 50% silt, 2% coarse subangular gra permeability.	llow brown (10YR5/8); stiff; % fine grained sand, 10% fir avel; high plasticity; low esti	damp; ne to mated	9.7		
<1.0	35 11 22		SB-7 -15.0					clay, 78% silt, 2% fine low estimated permea	grained gravel; medium pla bility.	asticity;	19.5		
<1.0	25 20 20 20		SB-7 - 24 5		-20	GP GP		Gravelly SAND with S dense; damp; 3% clay grained sand, 20% find plasticity; high estimat Clayey Sandy GRAVE 20% clay, 20% fine to coarse grained gravel medium plasticity; low permeability. Gravelly SAND with Si	III; (SP); olive gray (5Y4/2); , 15% silt, 62% fine to coars e to coarse grained gravel; r ed permeability. L; (GP); yellow brown (10YF coarse grained sand, 80% f (quartz, possibly chert); low to moderate estimated	se no R5/6); fine to to	20.3 24.3 25.3	0,0,0,0 0,0,0,0 0,0,0,0,0,0,0,0,0,0,0,0	
<1.0	35 36 40	-	SB-7 - 29.3		-30	ML GP		dense; damp; 3% clay, sand, 25% fine grained estimated permeability Clayey SILT; (ML); stiff fine grained sand; high permeability; trace cart Sandy GRAVEL with C (5Y3/2); 15% clay, 5% sand, 45% fine to coars plasticity; moderate to	f; damp; 30% clay, 60% silt, gravel; no plasticity; high f; damp; 30% clay, 60% silt, plasticity; low estimated con. clay; (GP); dark olive gray silt, 35% fine to coarse grai se grained gravel (quartz); lo high estimated permeability	ned ow	29.0		
	19 20				-35	0		Clayey GRAVEL with S	<u>silt;</u> (GC); yellow brown		34.0		

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## **BORING/WELL LOG**

CLIENT NAME	Equiva Services LLC	BORING/WELL NAME	SB-7
JOB/SITE NAME	ple-4226	DRILLING STARTED	07-Apr-99
LOCATION	4226 First Street, Pleasanton, California	DRILLING COMPLETED	07-Apr-99
	Continued	from Previous Page	

TPHg (mg/kg)	BLOW COUNTS	RECOVERY	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (# hgs)	WELL DIAGRAM
	25		SB-7  - 34.3	M N	 	-		(10YR5/8); very dense; damp; 35% clay, 15% silt, 10% sand, 40% fine to coarse grained gravel (quartz); medium plasticity; moderate to low estimated permeability. @ 39' - quartz_siltstone_chert gravels		
<1.0	45 53		SB-7 - 40.0	$\times$		GC			_	
83	25 40 50/3		SB-7 - 44.5		  			@ 44' - moist to wet.		
<1.0	20 30 50		SB-7 -49.5	X	 50 			<b>Clayey GRAVEL</b> ; (GC); yellow brown (10YR5/4); very dense; moist to wet; 20% clay, 10% silt, 10% medium to coarse grained sand, 60% fine grained gravel; medium plasticity; low to moderate estimated permeability.	49.0	Portland Type
<1.0	30 50/3		SB-7 - 54.3		  - 55 	GC				
<1.0	20 30 50/3		SB-7 - 59.5		-60			<u>Clayey SILT;</u> (MH); mottled yellow brown (10YR4/6) and light brownish gray (2.5Y6/2); hard; dry; 20% clay, 70% silt, 10% very fine to fine grained sand; medium plasticity; low estimated permeability.	59.0	
226.GPJ DEFAULT.GD	25 35 50/3		SB-7 - 64.5		-65	МН		@ 64' - dark brown ${\rm MnO}_2$ or organic blebs throughout.		
) G.\PLE4226\GINT\PLE-	17 32 50/4	-	SB-7 - 69.5 ≥		-70			<u>Clayey SILT;</u> (MH); light olive brown (2.5Y5/4); hard; dry; 25% clay, 75% silt; medium plasticity; very low estimated permeability.	69.0	
WELL LOG (TPH-G	20 40				-75			@ 74' - increasing mottled with yellow brown (10YR5/8).	74.5	

Continued Next Page

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## **BORING/WELL LOG**

CLIENT NAME	Equiva Services LLC	BORING/WELL NAME	SB-7
JOB/SITE NAME	ple-4226	DRILLING STARTED	07-Apr-99
LOCATION	4226 First Street, Pleasanton, California		07-Apr-99

Continued from Previous Page

TPHg (mg/kg)	BLOW COUNTS	RECOVERY	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM	1
LOG (TPH-G) G.PLE4226/GINT/PLE4226.GPJ DEFAULT.GDT 8/11/99 TPH	15 300 50/4 15 300 50/2 15 25 50 30 50 25 30 50 25 30 50	REC	SB-7 - 74.5 SB-7 - 79.5 SB-7 - 85.0 SB-7 - 94.5 SB-7 - 94.5 SB-7 - 94.5			л SC		<ul> <li>@ 74' to 74.5' - black blebs, possibly MnO<sub>2</sub>.</li> <li>@ 84' - dark yellow brown (10YR4/6); damp; 30% clay, 70% silt.</li> <li>@ 94' - MnO<sub>2</sub> blebs throughout; becomes siltier.</li> <li>Clayey SAND with Gravel: (SC); dark yellow brown (10YR4/6); dense; damp; 30% clay, 5% silt, 50% fine to coarse grained sand, 15% fine grained gravel (quart2); medium plasticity; low to moderate estimated / permeability.</li> <li>Ground water sample (SB-7-GW) collected.</li> </ul>	99.0 100.0	Bottom of Boring @ 10	00 ft
MEL										PAGE 3	OF 3





		Project No: SJ42-			SJ42-26F-1 (			it:	Shell Oil Products	US	Boring No: WO-1				
			Logged By:		Heather Buckingham			Loca	tion:	4226 First Street, F	Pleasanton	Page 2 of 2			
		1-	Driller:		Gregg			Date	Drilled:	6/10/2005	Location Map				
	)er	ГА	Drilling N	lethod:	Direct P	ush		Hole	Diamete	er: 3"					
		<sup>i</sup>	Sampling	g Method:	GeoProbe			Hole	Depth:	37 ft	37 ft Please see site map				
En	vironme	ental	Casing Type:				Well Diameter:		er:						
Cor	sultant	s, Inc.	Slot Size	e:			Well Depth:								
			Gravel Pack:				Casing Stickup:		ib:						
				Elevation	North		hing		Easting						
	Mall	1			1		1								
Cor	npletion	Static	e t	ling	ion	et)	Sar	nple	e						
≣	D D	Water	stur nter	teac pm)	trat vs/6	r (fe	er Z	al	Typ	LIT	HOLOGY /	DESCRIPTION			
ackf	asin	Level	Moi Coi	В D В	ene blov	eptł	Ň	terv	Soil						
ä	Ő			Ы	₫ )	Δ	Re	<u>n</u>							
	_					_			CL	Sandy Lean CLAY w	ith Gravels	(Continued)			
						23—									
									SC	Clayey SAND: orange	e brown; ~7	0% poorly graded fine			
			wet			24—			~	grained sand; ~30% f	tes				
Ħ	_		moist						CL	Sandy Lean CLAY w	ith Gravels	h Gravels: same as above			
lo				0.4		25—									
Ċ	—			0.1											
						26—									
	_								GW	Woll-graded CPAVE	L with San	d: orongo brown: 10%			
						27 —			Gw	fines: 30% coorse gra	L will Sand	60% well graded sub-			
	_									angular gravele	lineu sanu,	50 % well graded sub-			
						28—				aliyulal ylavels					
	_								CL	Sandy Lean CLAY w	ith Gravel	same as above			
						29—			0L						
	—								•						
				0.1		30 —				Well-graded GRAVE	L with Silt:	orange tan; 10-20% silt;			
									GW	sub-angular gravels up to 0.5 cm in length					
						31-									
						32				Well-graded GRAVE	L with San	<b>d</b> : orange brown; ~40%			
						52			GW	coarse grained sand;	55-60% sub	o-rounded gravels; trace			
						33—				fines					
									GW	Well-graded GRAVE	L with Clay	r: orange brown; 20-30%			
						34 —				clay; 80-70% sub-ang	ular gravel	up to 0.5 cm in length;			
	_									trace coarse grained s	sand				
				<b>- -</b>		35 —									
				5.7		—									
						36 —									
						-									
	a					37 —				Refusal at 37 feet be	low arade				
										Hole remained dry aft	er three hou	ır wait			
						38 —				nore remained any art					
						39 —									
						40									
						40									
					41			Í							
						42 —									
	_								ļ						
						43—									
	_					—									
						44 —									
					1										

$\wedge$		BORI	NG LOG			
DELTA Inogeni	Client Shell Oil Proje <del>ct</del> Number	Bor B-1	oring No. -1			
Address: <b>4226 1st Street</b> <b>Pleasanton, California</b> Logged By: <b>Andy Persio</b>	Drilling Date(s): 3/27/0 Drilling Company: Gree Drilling Method: HSA Boring Depth (ft): 35	07 Boring diameter (in.): gg Sampling Method: Ha Well Depth (ft.): NA Casing Diameter (in.):	8 nd Auger/Split Spoon NA	Casing Material: NA Screen Interval: NA Screen slot size: NA Sand Pack: NA		
Depth (ft.) Water Level Soil/Rock Graphic Sampled Interval Blow Counts (blows/ft)	Recovery (%)	Soil/Rock Visual Description		PID Reading (ppm) Boring Completion Depth (ft.)		
	ASPHALT: 6 incSC: Clayey SAN fines, 10% grave100%5.5 - 7 feet bgs: aCL: Lean CLAY 80% fines, low p83%SC: Clayey SAN 40% fines, trace67%SC: Clayey SAN coarse sand, 30: dry.83%(as above, oran 25-30% gravels u83%SC: Clayey SAN a0% fines, 10%67%CL: Lean CLAY sand, low plasticBottom of boring Note: Sampled to	ches concrete, 2-3 inches base r ID, orange brown, 50-60% fine t els up to 1.5 inches in diameter. as above, clay increasing, more with sand, light orangish brown, blasticity, dry. ID, orangish brown, 60-70% fine e gravels, dry. ID with gravel, dark brown to da -40% fines, 10-20% gravels up t hgish brown, 50-60% fine to coa up to 1 inch in diameter, dry) ID, orangish brown, 65-70% fine gravels up to 0.5 inches in diam with sand, orangish brown, 75-8 city, wet.	ock. o medium sand, 30-40% compact, moist. 20-30% fine sand, 70- e to medium sand, 30- rk gray, 50-60% fine to o 1 inch in diameter, rse sand, 15-25% fines, e to coarse sand, 25- eter, dry.	13.3       0         2.4       -5         4.8       -10         4.8       -15         33.3       -20         40.6       -25         0.2       -30         0.1       -35		
Page 1 of 1						

DELTA	BORING LOG Client Shell Oil Products US Bo Project Number SJ4226F1X B-				oring No. 2	
Address: 4226 1st Street Pleasanton, California Logged By: Andy Persio	Drillin Drilli Drilli Borir	ng Date(s): <b>3/27/07</b> ng Company: <b>Gregg</b> ng Method: <b>HSA</b> ng Depth (ft): <b>35</b>	ate(s):3/27/07Boring diameter (in.):6Casing Mathematical			
Depth (ft.) Water Level Soil/Rock Graphic Sampled Interval Blow Counts (blows/ft)	Recovery (%)	Soil/Ro	PID Reading (ppm)	Boring Completion Depth (ft.)		
	100% 100% 83% 67% 50% 67%	ASPHALT: 6 inches con CL: Sandy lean CLAY, d medium sand. SC: Clayey SAND, oran 45% fines, trace gravels 5.5 - 7 feet bgs: as above (as above, 65-75% fine CL: Sandy CLAY, orang plasticity, dry. SC: Clayey SAND, oran 40% fines, trace gravels SC: Clayey SAND with g coarse sand, 25-35% fin (same as above, dry) (same as above, dry) Bottom of boring = 35 feet Note: Sampled to 35 feet	crete, 1-2 inches base rock. lark brown, 60-70% fines, 30-40% fine to gish brown, 55-65% fine to medium sand, 35 , clay increasing, more compact, dry. to medium sand, 25-35% fines, very dense, ish brown, 20-30% fine sand, 70-80% fines, 1 gish brown, 60-70% fine to coarse sand, 30- , dry. gravel, brown to orangish brown, 50-60% fine tes, 5-25% gravels up to 1 inch in diameter, co et bgs. bgs.	- 6.4 dry) 0.6 ow 0.2 0.3 to ry. 5.8 0.1 33.2		
Page 1 of 1						

$\wedge$			<b>BORING LOG</b>		
DELTA Inogen	1	<sup>Client</sup> Shell Oil Produ Proje <del>ct</del> Number SJ42	Boring B-3	oring No. -3	
Address:     Drilling Date(s):     3/27       4226 1st Street     Drilling Company:     Gr       Pleasanton, California     Drilling Method:     HSA			Date(s):3/27-28/07Boring diameter (in.):8CasingCompany:GreggSampling Method:Hand Auger/Split SpoonScreenMethod:HSAWell Depth (ft.):NAScreen		
) ts (	(%			D	
Depth (ft Water Lev Soil/Rock Graphic Sampled Interval Blow Coun (blows/ft	Recovery (	Soil/Ro	ock Visual Description	PID Readin (ppm)	Boring Completion Depth (ft.
0		ASPHALT: 6 inches con	icreta 1-2 inches base rock		
		SC: Clayey SAND, oran	gish brown, 55-65% fine to medium sand, 3	/ 5-	
5	100%	(as above, clay increas	ing, more compact, dry)	12.5	- 
10 -	100%	(as above, 60-70% fine dry)	e to medium sand, 30-40% fines, trace grave	els, 0.4	- - - 10
	100%	CL: Sandy lean CLAY, o low plasticity, dry.	orangish brown, 30-40% fine sand, 60-70%	 fines, 6.2	_ _ _ _ _ _ _ _ _ _ _ _ _ _ _
20 -	83%	SC: Clayey SAND, oran dry.	gish brown, 60-70% fine sand, 30-40% fine	 s, 2.1	- - - 20
	67%	(as above, 60-70% fine 0.5 inches in diameter, dr	e to coarse sand, 20-30% fines, 10% gravels y)	up to 98.1	- - - - 25
30 -	50%	(as above, 50-60% fine up to 0.5 inches in diame	to medium sand, 30-40% fines, 5-10% grav tter, dry)	rels 536	- 30
	83%	SC: Clayey SAND with 25-35% fines, 15-25% g	gravel, dark brown, 50-60% fine to coarse sa ravels up to 1 inch in diameter, dry.	 and, 2.7	
		Bottom of boring = 35 fee Note: Sampled to 35 feet	et bgs. bgs.		40
Page 1 of 1					

DELTA	Client Shell Oil Prod Project Number SJ4	Boring No.	
Address: 4226 1st Street Pleasanton, California Logged By: Andy Persio	Drilling Date(s): <b>3/27-28/07</b> Drilling Company: <b>Gregg</b> Drilling Method: <b>HSA</b> Boring Depth (ft): <b>35</b>	Boring diameter (in.): 6 Sampling Method: Hand Auger/Split Spoc Well Depth (ft.): NA Casing Diameter (in.): NA	Casing Material: NA Screen Interval: NA Screen slot size: NA Sand Pack: NA
Depth (ft.) Water Level Soil/Rock Graphic Sampled Interval Blow Counts (blows/ft)	Recovery (%)	Rock Visual Description	PID Reading (ppm) Boring Completion Depth (ft.)
	ASPHALT: 6 inches co         SC: Clayey SAND with         sand, 20-30% fines, 10         67%       (same as above, dry)         67%       SC: Clayey SAND, ora         80%       (as above, 60-70% fir         100%       (as above, 55-65% fir         100%       (as above, 55-65% fir         100%       SC: Clayey SAND with         67%       SC: Clayey SAND with         83%       (same as above, dry)         Bottom of boring = 35 fe       Note: Sampled to 35 fee	encrete, 2 inches base rock. gravel, dark brown, 50-60% fine to medium D-20% gravels up to 1 inch in diameter, dry. Ingish brown, 50-60% fine to medium sand, 40 Is, dry. He to coarse sand, 30-40% fines, trace gravels the to coarse sand, 30-40% fines, 5-15% grave (y) - gravel, orangish brown, 50-60% fine to coars 5-25% gravels up to 1.5 inches in diameter, dr bet bgs. et bgs.	$\int_{-1}^{0}$ 56.3 13.0 $\int_{-10}^{-10}$ 5.8 13.0 $\int_{-10}^{-10}$ 5.8 $\int_{-15}^{-15}$ 15 $\int_{-15}^{-15}$ 15 $\int_{-20}^{-15}$ 15 $\int_{-20}^{-15}$ 15 $\int_{-20}^{-10}$ 12.3 $\int_{-20}^{-10}$ 13.0 $\int_{-20}^{-10}$ 146.5 $\int_{-10}^{-10}$ 15 $\int_{-10}^{-10}$ 15 $\int_{-$
Page 1 of 1			

$\land$		<b>BORING LOG</b>		
DELTA XInogen	Client Shell Oil Prod Project Number SJ4	Boring No. B-5		
Address:	Drilling Date(s): 3/27-28/07	g Date(s): 3/27-28/07 Boring diameter (in.): 6		
4226 1st Street	Drilling Company: Gregg	Sampling Method: Hand Auger/Split Spoo	on Screen Interval: NA	
Pleasanton, California	Drilling Method: HSA	Well Depth (ft.): <b>NA</b>	Screen slot size: NA	
Logged By: Andy Persio	Boring Depth (ft): 35	Casing Diameter (in.): NA	Sand Pack: NA	
Depth (ft.) Water Level Soil/Rock Graphic Sampled Interval Blow Counts (blows/ft)	(%) Kecovery Recovery	Rock Visual Description	PID Reading (ppm) Boring Completion Depth (ft.)	
0	1 1			
	ASPHALT: 6 inches co	oncrete, 2 inches base rock.		
	SC: Clayey SAND with 30% fines, 10-20% gra	n gravel, brown, 50-60% fine to medium sand, avels up to 1 inch in diameter, dry.	20-	
5	100%		1.7 <del>-</del> 5 - -	
	100%		2.4 –	
	(as above, orangish b 5-10% gravels up to 0.5	prown, 50-60% fine to medium sand, 35-45% f 5 inches in diameter, dry)	ines, - 10 	
	100% CL: Sandy lean CLAY	, dark brown to dark gray, 65-75% fines, 25-3		
20 -	100% (as above, orangish b	prown, 60-70% fines, 30-40% fine sand, mediu	6.1 – Im – 20 –	
	100%		74	
25	SC: Clayey SAND, ora 45% fines, dry.	angish brown, 55-65% fine to medium sand, 3	5 25	
30 -	67% SC: Clayey SAND with 25-35% fines, 10-20%	n gravel, dark gray, 50-60% fine to coarse san gravels up to 1.5 inches in diameter, dry.	7.4 d, 30	
35 -	100% (as above, orangish t 5-15% gravels up to 1 i	prown, 50-60% fine to coarse sand, 35-45% fi nch in diameter, moist)	nes, 887 –	
	Bottom of boring = 35 f Note: Sampled to 35 fe	eet bgs. et bgs.		
40	<b>I</b>		40	
Page 1 of 1				

APPENDIX C

FIRST QUARTER 2009 GROUNDWATER MAPS





LEGEND	
MW-1 🕈	GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
S−1 🗚	DESTROYED GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
TB−1 ǿ	ABANDONED TANK BACKFILL WELL LOCATION
343.08	GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (Ft/MSL)
344.00 — — —	GROUNDWATER CONTOUR IN FEET ABOVE MEAN SEA LEVEL (Ft/MSL) CONTOUR INTERVAL=1.0 FEET
MW-1B*	MONITORS DEEPER WATER BEARING ZONE; NOT USED USED IN CONTOURING
0.05 ft/ft	APPROXIMATE GROUNDWATER GRADIENT DIRECTION (ft/ft)





g	BENZENE	MTBE	TBA
.)	(µg/L)	(µg/L)	(µg/L)
0	ND<0.50	4.4	ND<10



LEGEND	
MW-1 🗢	GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
S-1 🗲	DESTROYED GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
TB−1 ǿ	ABANDONED TANK BACKFILL WELL LOCATION
TPH-g	TOTAL PETROLEUM HYDROCARBONS
MTBE	METHYL TERT-BUTYL ETHER
TBA	TERT-BUTYL ALCOHOL
Jug∕L	MICROGRAMS PER LITER
ND<	NOT DETECTED ABOVE LIMIT NOTED
MW-1B*	MONITORS DEEPER WATER BEARING

IE	MTBE	TBA
	(µg/L)	(µg/L)
	13,000	ND<2,000

